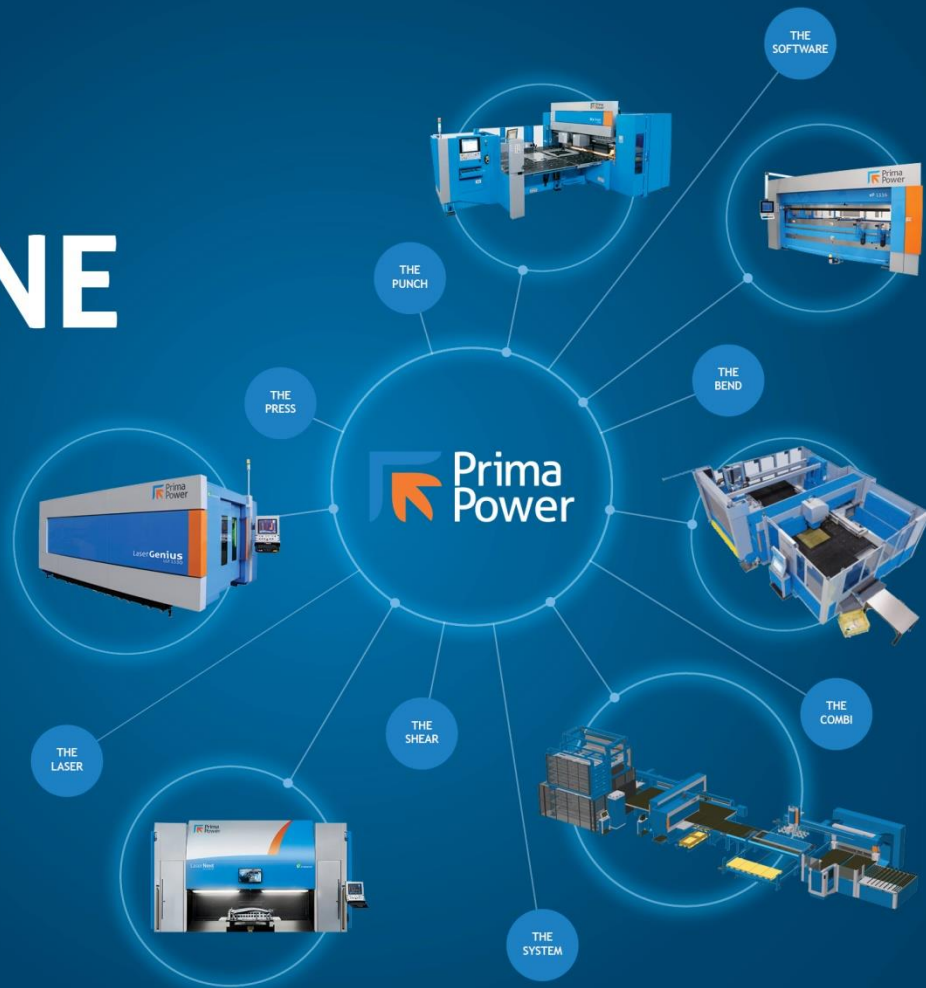


ALL IN ONE THE ONLY ONE



Agenda

- Presenter: Esko Petäjä, Manager R&D
- Company
- Case Examples from AI and “Ecosystems”
- What and how to do and what not to do (Lessons learned)
- How get started
- Summary



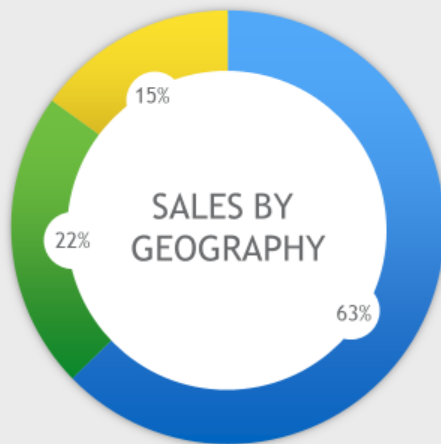
Prima Power is a global leader in laser and sheet metal machinery. Its product range covers every step of metalworking: punching, laser processing, bending, systems, automation and software.



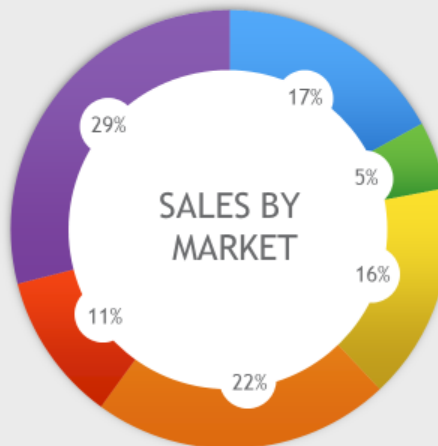
New Factory at Nuppiväylä



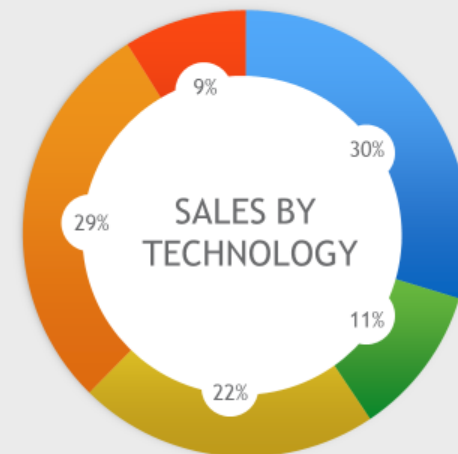
OUR GROUP - SALES



- EMEA
- AMERICAS
- APAC



- Automotive
- Aerospace
- Industrial Machinery
- Building & Housing equipments
- Electrical & Vending
- Subcontractors & Miscellaneous



- Laser Machines
- Bending Machines
- Punching Machines & Systems
- After Sales & Miscellaneous
- Laser Sources & Electronics

Product portfolio



LASER AND SHEET METAL MACHINERY

THE LASER



2D and 3D laser machines for cutting, welding and drilling

THE PUNCH



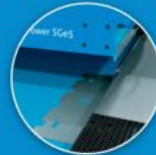
Servo-electric turret punch presses

THE SHEAR



Integrated systems punch+shear

THE COMBI



Integrated systems punch+laser

THE PRESS



Servo-electric and hydraulic press brakes

THE BEND



Servo-electric panel benders and bending centers

THE SYSTEM



FMC & FMS to automate your production flow

THE SOFTWARE



Smart solutions to connect your machines and maximize productivity

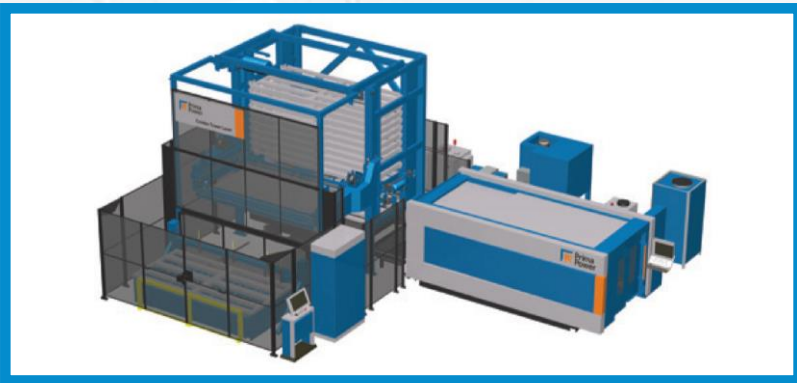
PRODUCT PORTFOLIO

THE SYSTEM

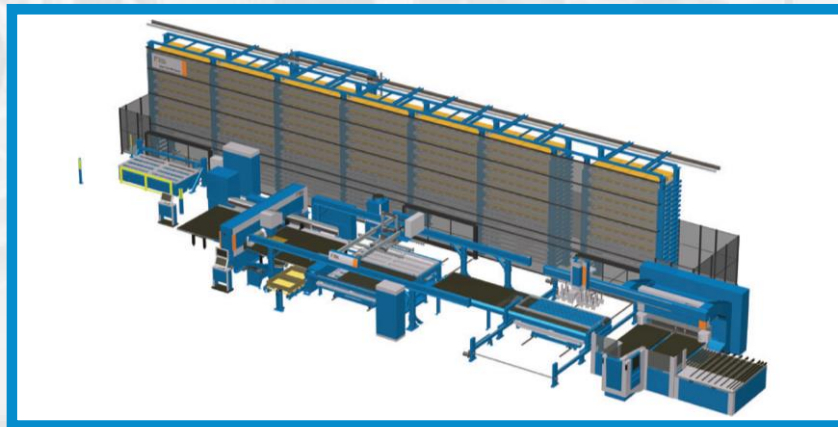
COMBO TOWER



COMBO TOWER LASER



NIGHT TRAIN FMS



Products Industry 4.0

Prima Power Solutions
for Industry 4.0 and
Smart Manufacturing



Ready for today's
production needs...
and for tomorrow



INTELLIGENT MACHINES & FACTORIES

Intelligent machines and automated factories collecting real-time and historical data through sensors and cameras



SMART SOFTWARE

Prima Power software comprehensive portfolio of modular software-based systems



REMOTE DIAGNOSTICS & MAINTENANCE

Data-driven machine diagnostics and predictive maintenance services. Production performance analysis, monitoring of machines status and condition.

Examples from cases

What means AI In Prima Power products

Intelligence in Products

- Save cost, material energy etc.
- Machines are more reliable or faster
- Decision support for users

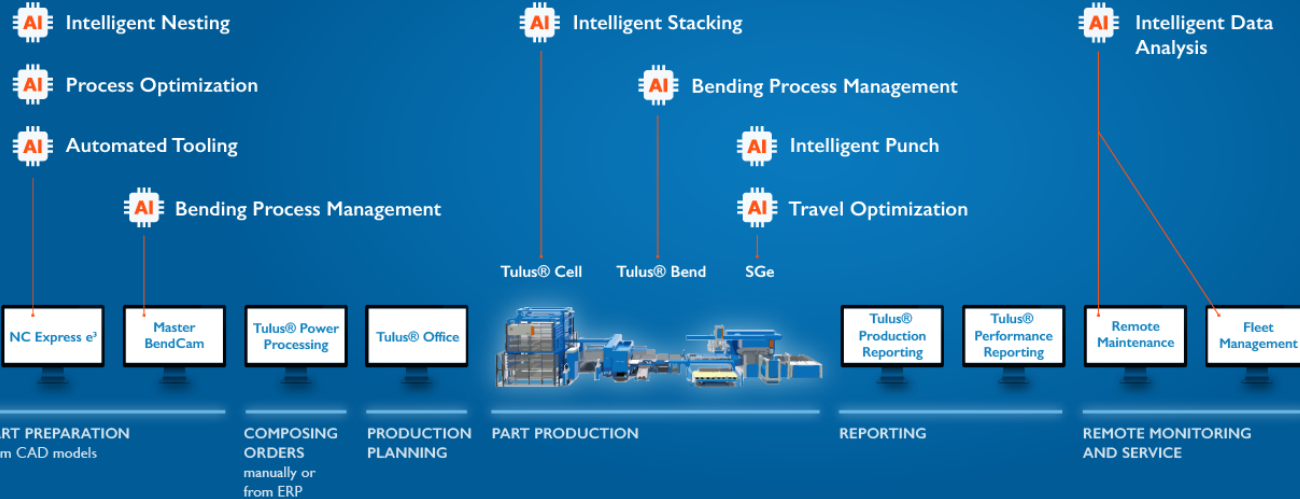
AI as part of IOT and data driven solution

- Finding “Abnormalities”
- Finding root reason for machine stops
- Prediction

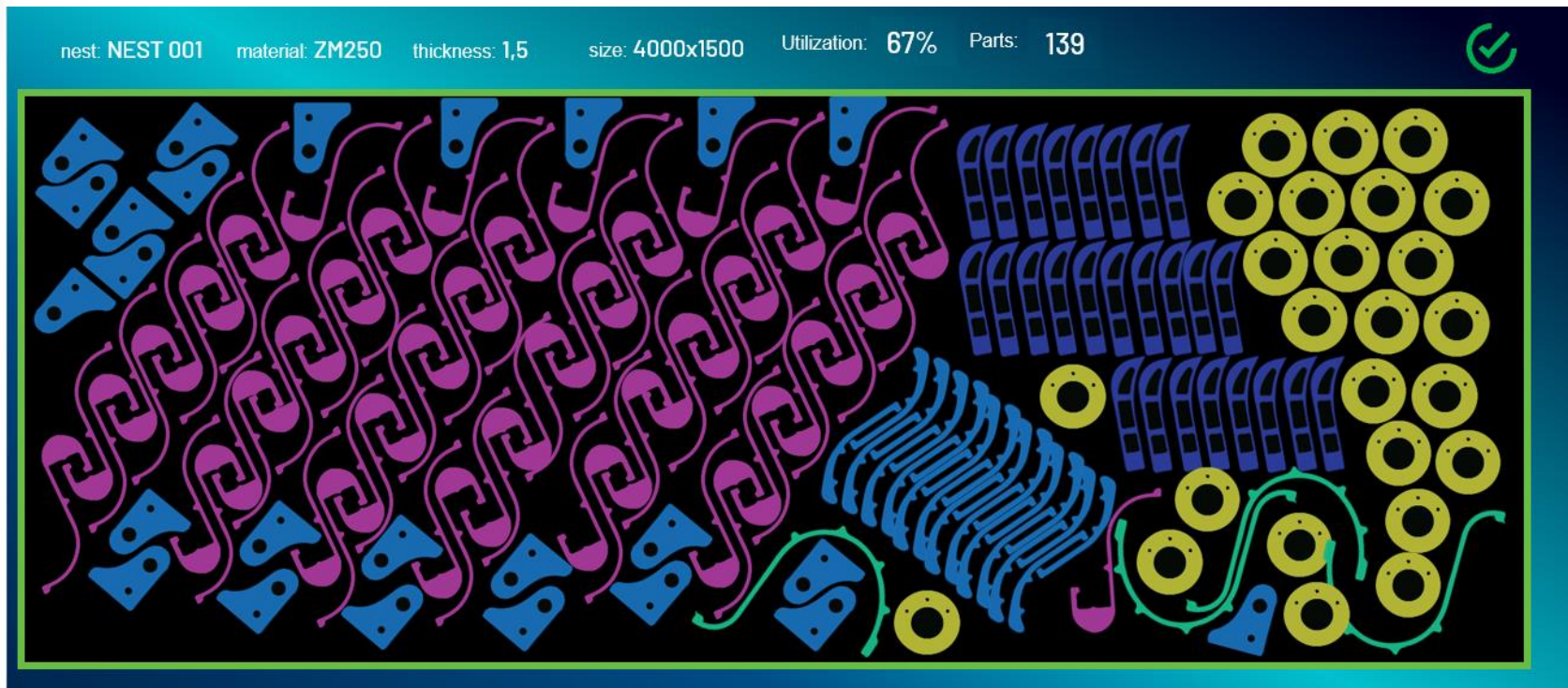
Examples from AI

AI in our software solutions

Artificial intelligence modules support customer's process comprehensively



Examples 1: AI saving Material

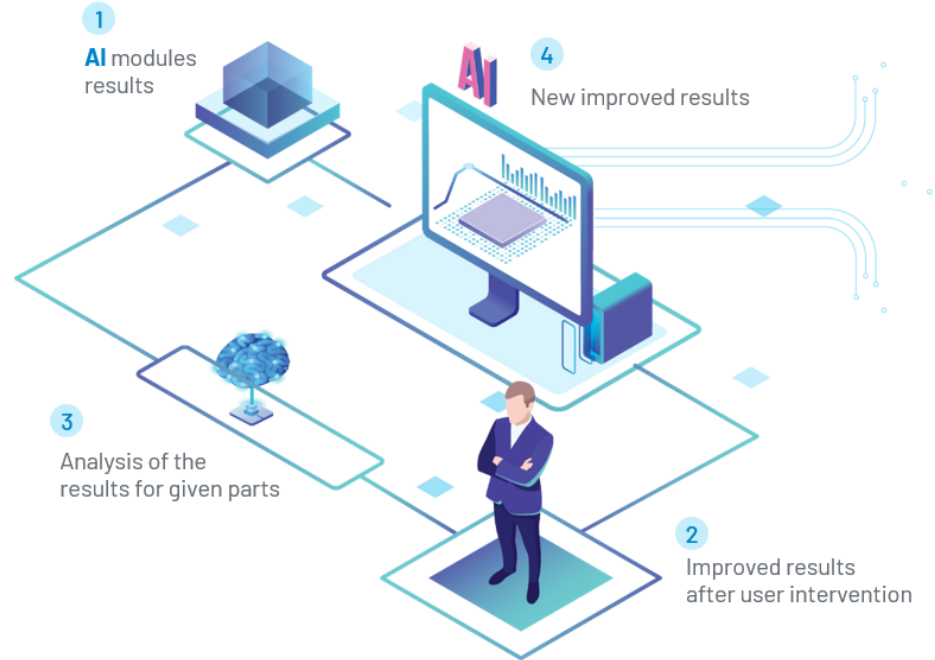


Examples 2: AI and machine learning learns user behaviour

Machine Learning, Autotool

During bending and blanking Autotooling, smart modules analyze parts contours piece by piece to apply the right tooling. Depending on product design and specifics, the user can add changes interactively.

Every time AI modules record the user's results and juxtapose them with the automatic results to learn how to adapt to individual company's needs and improve automatic function over time

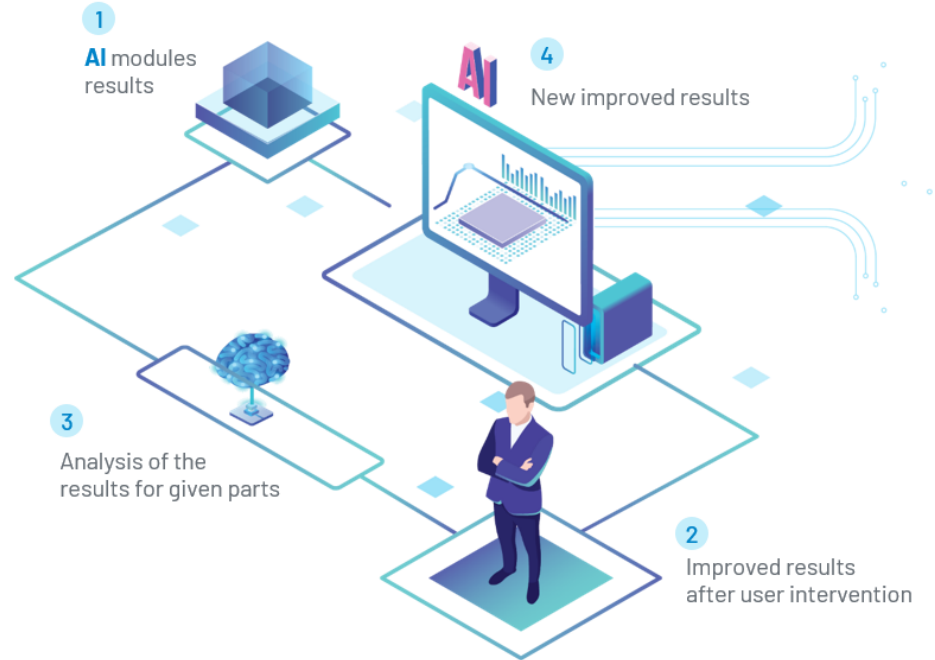


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Examples 4: AI and machine learning learns manufacturing features

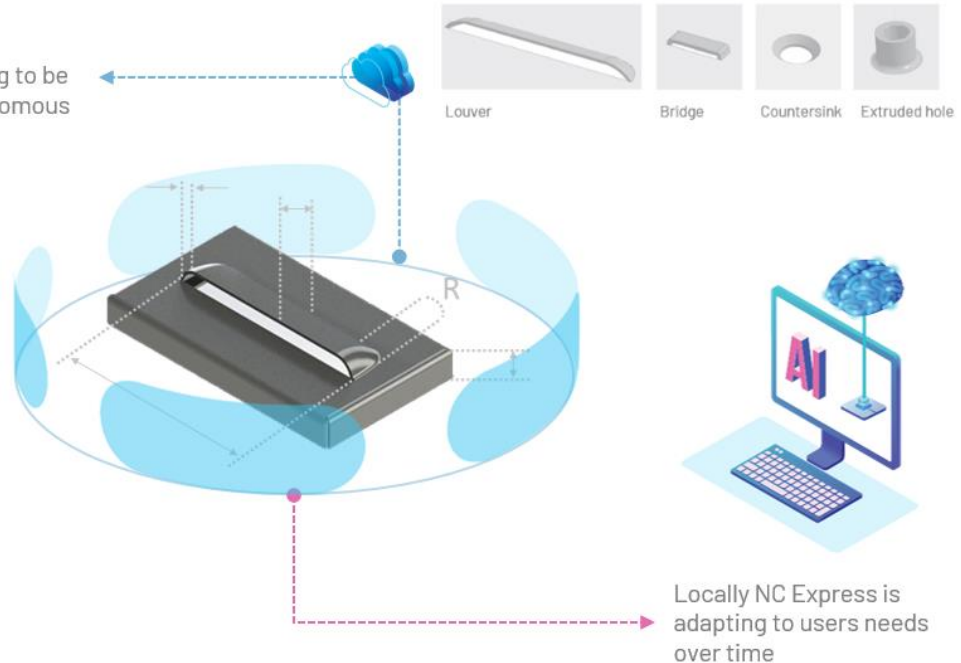
AI Machine Learning, Import



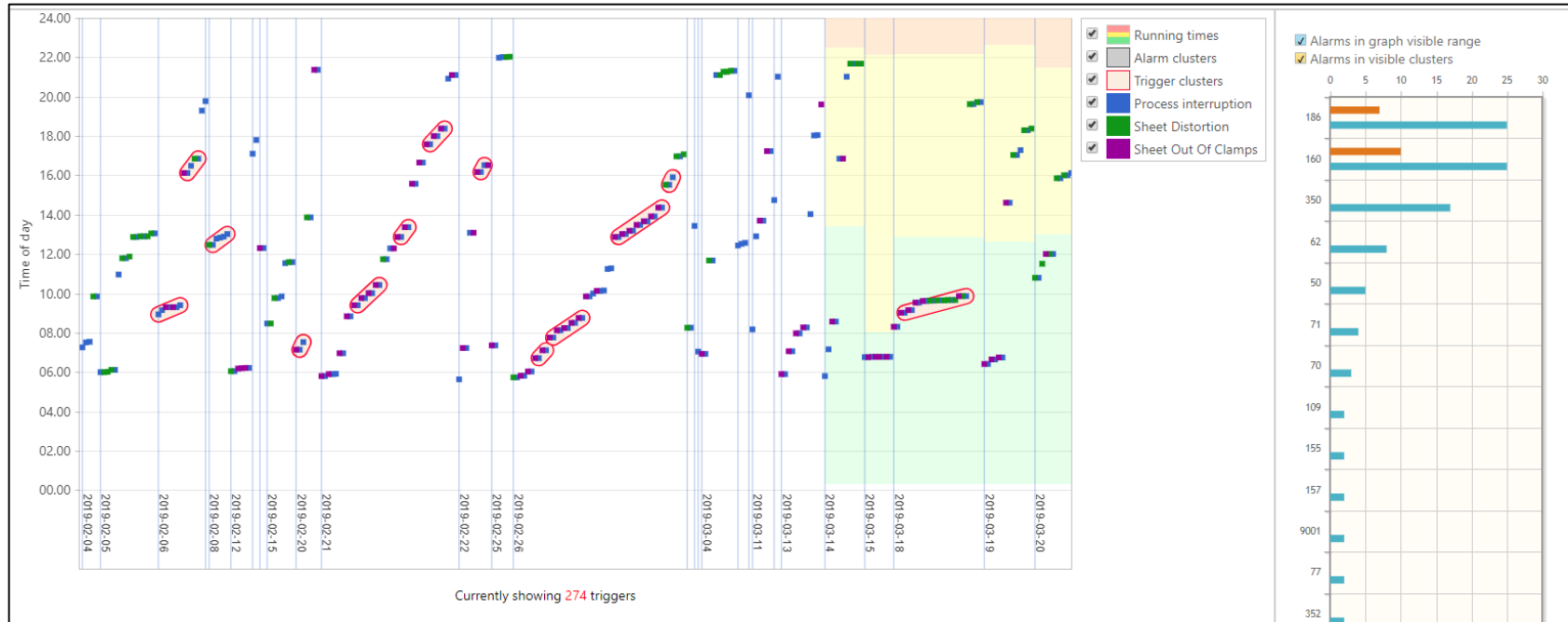
Globally the Smart Module are learning to be smarter and autonomous

NC Express can automatically recognize various surface features with hundreds of variations, and apply the needed tooling automatically

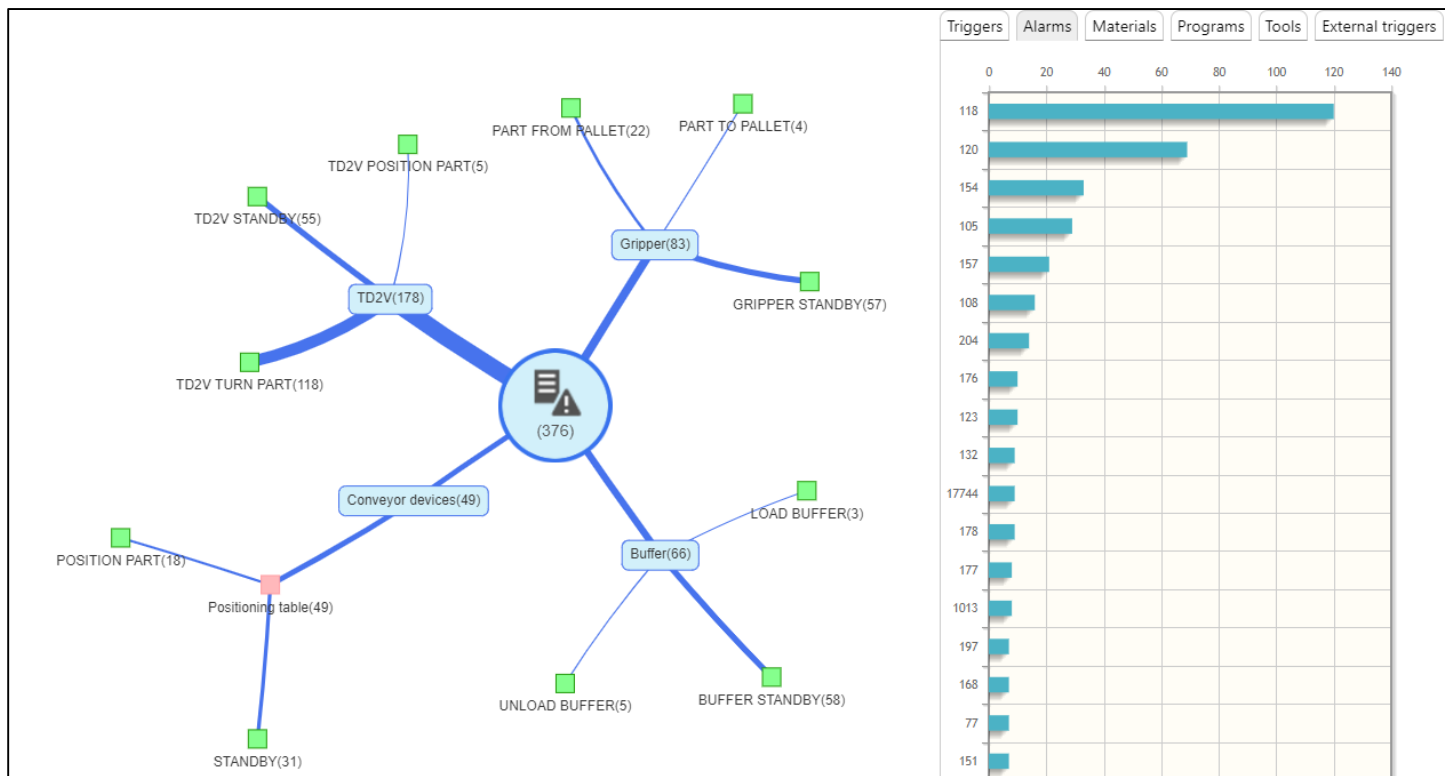
Whenever there is a new feature, NC Express will analyze its attributes and save them to a database to be used next time when a part with similar features is used



Examples 5: AI and clustering analysing machine downtimes



Examples 6: AI analysing Root causes for machine stops



Examples 7: AI as adviser and in predictive analyse

Advisor



A.I. generated notifications

Warning Critical

Date / Time	Line	Description	Advice
09:34 23/10/2018	Two	Index sensor has been flickering 10 times during last 4 days	Check Sensor
18:34 22/10/2018	One	PC disk read failures. Critical failure	Change disk
13:47 22/10/2018	One	Severe Loading problem with double sheet, Double sheet has been detected 15 time during last 3 days	Please check sheet stack for extra oil
00:01 20/10/2018	One	Maintenance log overdue	Please apply and log maintenance

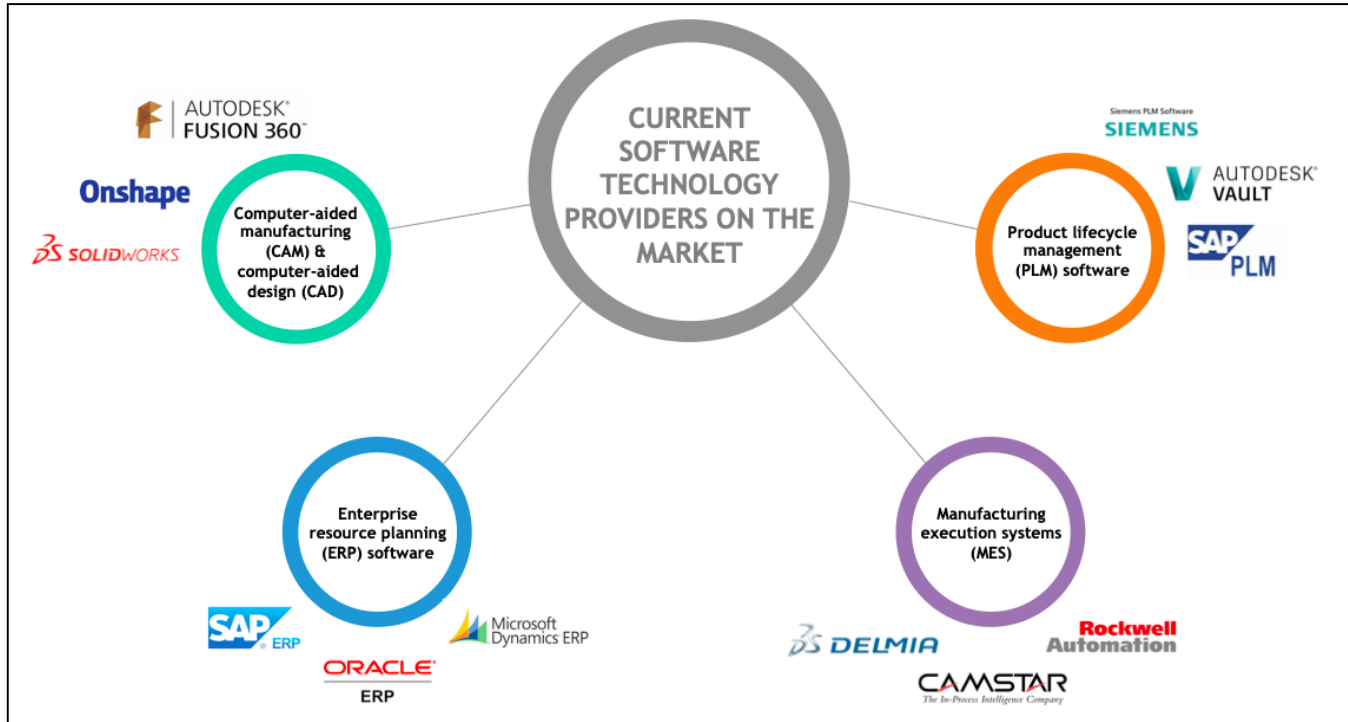
Examples 8: Platforms and Ecosystems

What means platforms and ecosystems for prima Power

- Additionally to highly performing machines information flow between stakeholders is important
- Stakeholders in manufacturing
 - Customer and their customers (Managing order and deliveries)
 - Customer and designers (Managing common design)
 - “Asset providers” (Material, Tools etc.)
 - Logistic companies (Transportation)

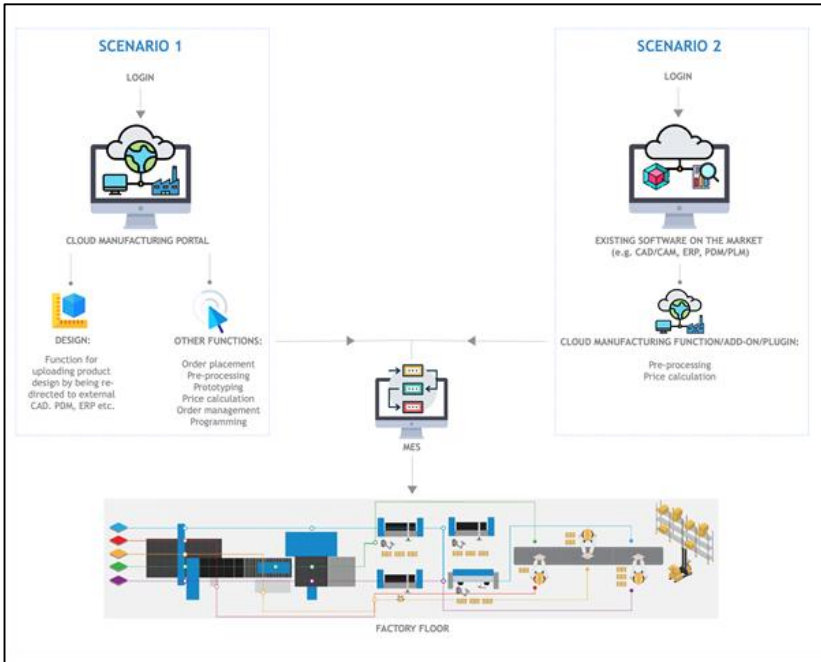
How is this managed, Single “master” software , Many badly integrated software, Will there be platform providers ?

Examples 8: Platforms and Ecosystems



Examples 8: Platforms and Ecosystems

- At this moment there is not single platform provider and maybe newer will be
- We must be prepared for different scenarios



What to do and what not to do

Advice 1: Do not go technology as front

- Engineers are eager to go technology in front
- First some interesting exist technology , but how to use it
- “We want to do something with Amazon or some AI tool”

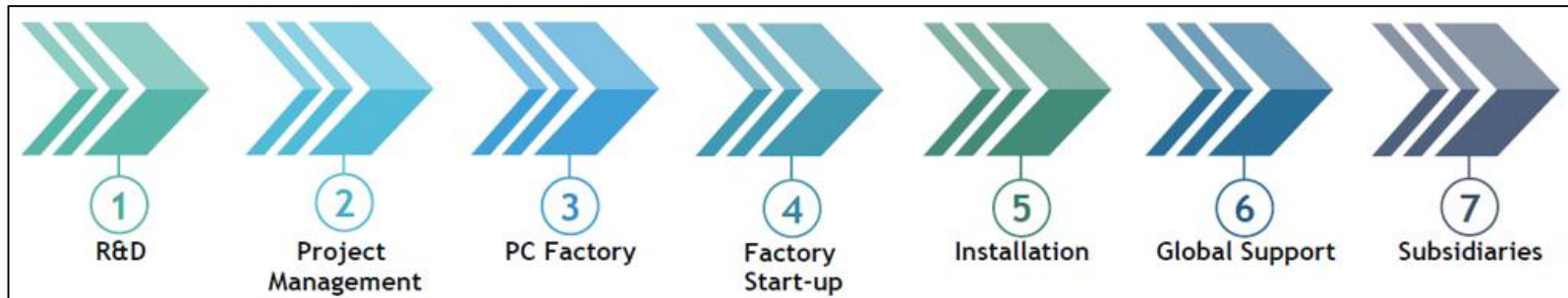
Problem to be solved or advantage to be gained must be first then look about technology to solve problem

Concept of “Value hacking”

What to do and what not to do

Advice 2: Is outcome Product or Process which requires coordinated operations across organisational units ?

- If outcome of AI project is ex. Software in web. Risk to fail is small
- If outcome of AI project is service where many organisation even in different countries must be aligned risk for failing is big.



What to do and what not to do

Advice 3: Do not underestimate internal and external communication

- Many AI products are “Soft” Products and “intangible”
- Do everybody internally understand Product content and benefits
- Solution user conceptual designers in visualization, this is also differentiator

What to do and what not to do

Remote Care **reduces machine downtime and improves machine availability**

Travelling & fixing machine on-site

Machine is back running in 2 days



2 days



VS

Fixing machine remotely

Machine is back running in 2 hours



2 hours

What to do and what not to do

Advice 4: This is not hobby and short time project

- Data intensive products needs always to be further improvement.
- Requires sometimes years to be really good
- Only excellent products will be successful
- Not job for summer trainer or person as “Side” job

Summary

Do not hesitate to start

Use Experts in the beginning to avoid mistakes



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