

Innovative maintenance,  
it's a journey

*Bright farming is yours by choice*

*farming innovators*



**Lely**  
**today**

Annual Sales  
**€ 615 mln**

Number of employees  
**1.600**

Investments in R&D  
from our product  
turnover  
**6%**



Number of living  
patents  
**1.600**

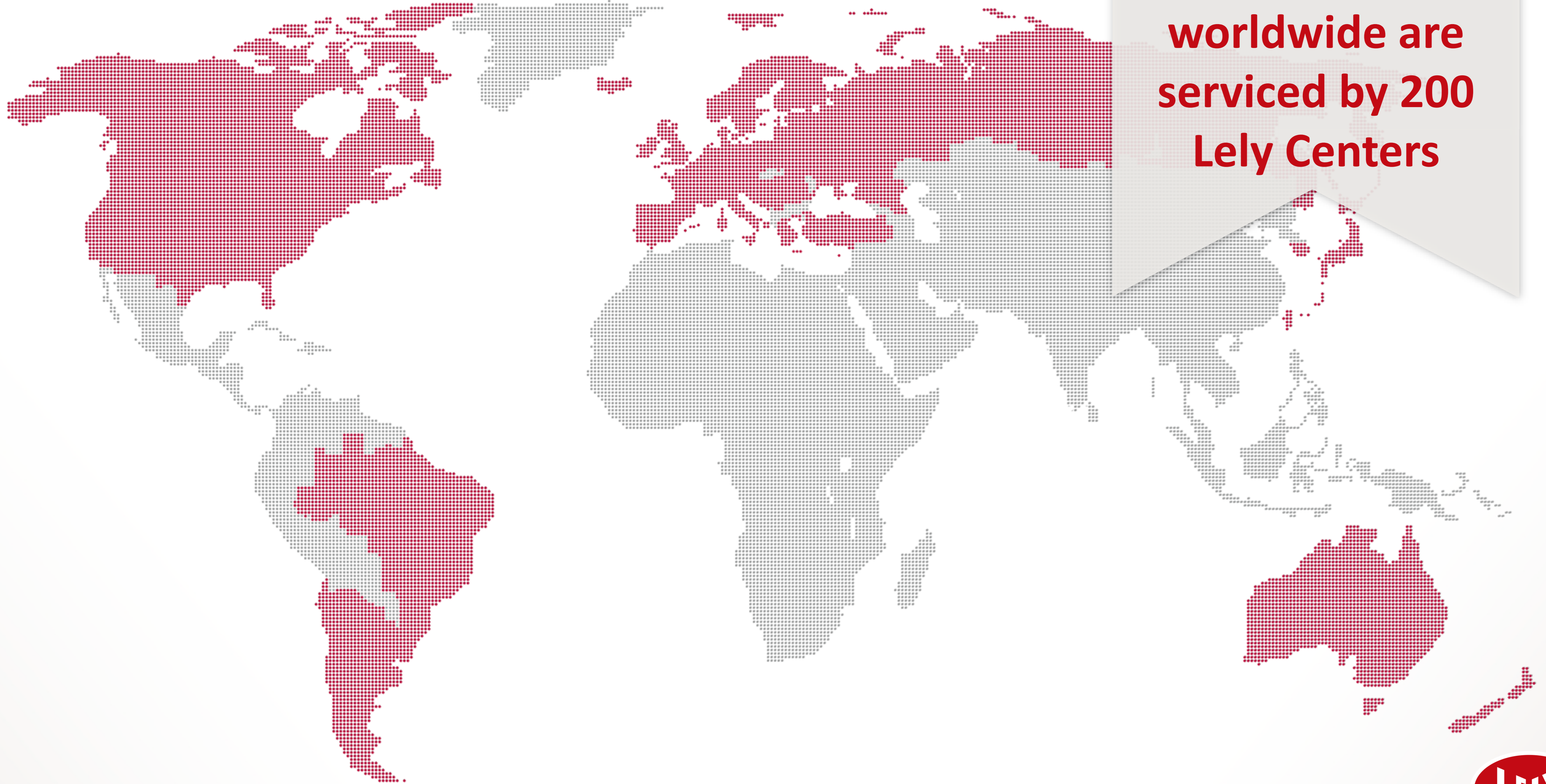
Number of  
R&D facilities  
**3**

Number of  
production facilities  
**2**

Number of  
markets  
**> 40**



**Our customers  
worldwide are  
serviced by 200  
Lely Centers**



## Vision

A sustainable,  
profitable and  
enjoyable future in  
farming



# *Why data driven maintenance?*

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# *Cost and Downtime*

- Next to cost, downtime is a second objective for optimization
- Downtime cannot be translated into cost
  - Market standard
  - Customer satisfaction
  - Employee satisfaction
  - Animal health

⇒ Multi factor – Multi component model

*100% uptime*

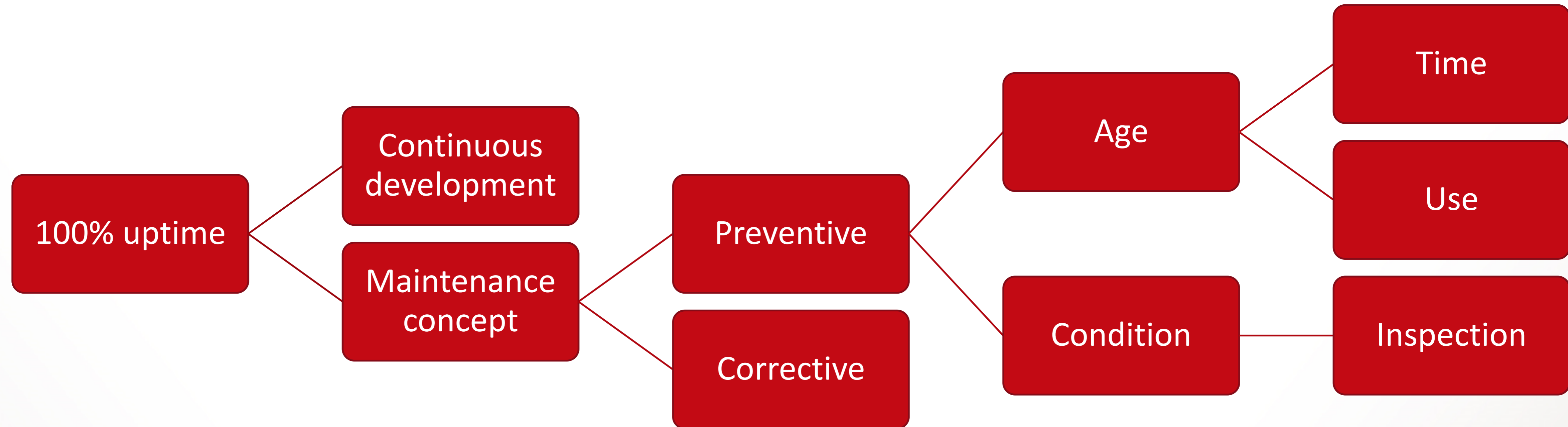


**Tools:**

- Predictive maintenance
- 3D-printing
- Augmented Reality



# *Framework towards 100% uptime*

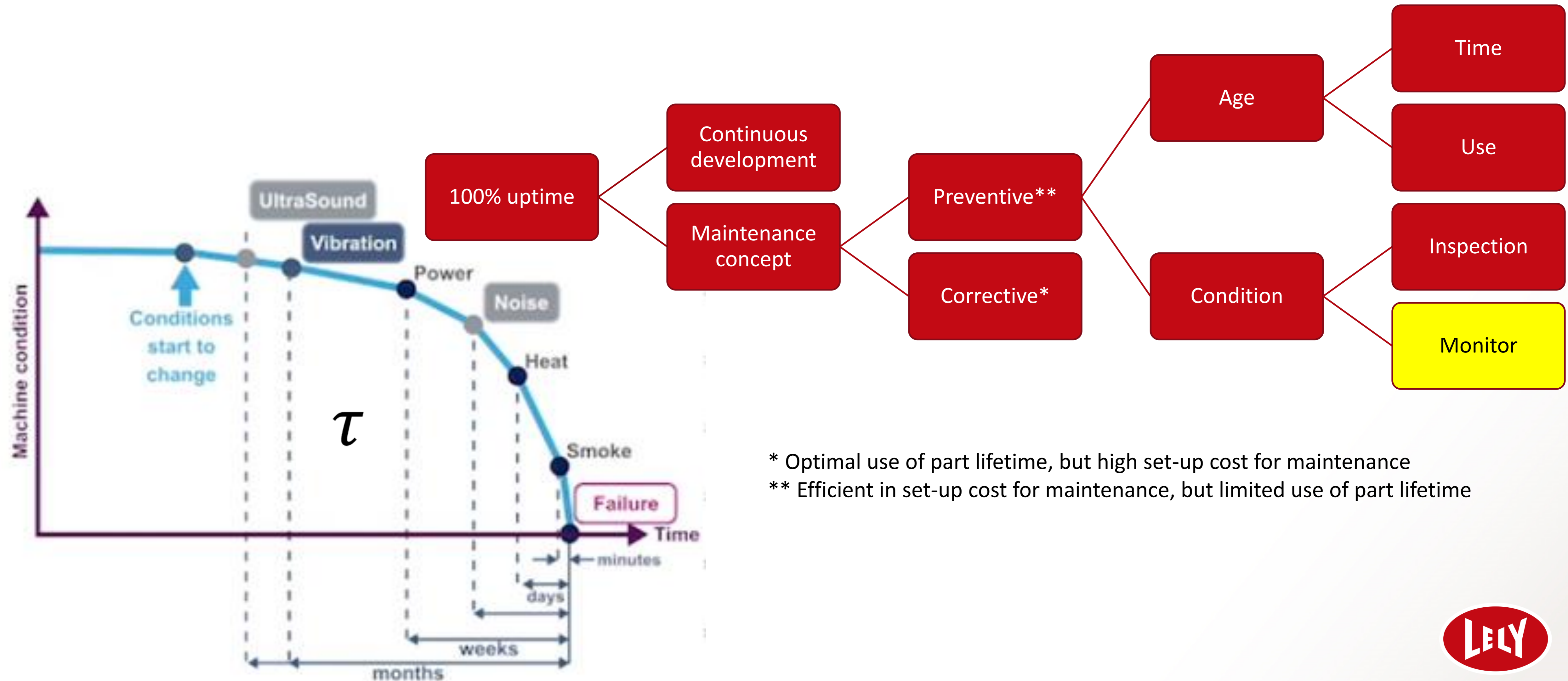


# *Next steps*

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# Predictive maintenance



\* Optimal use of part lifetime, but high set-up cost for maintenance

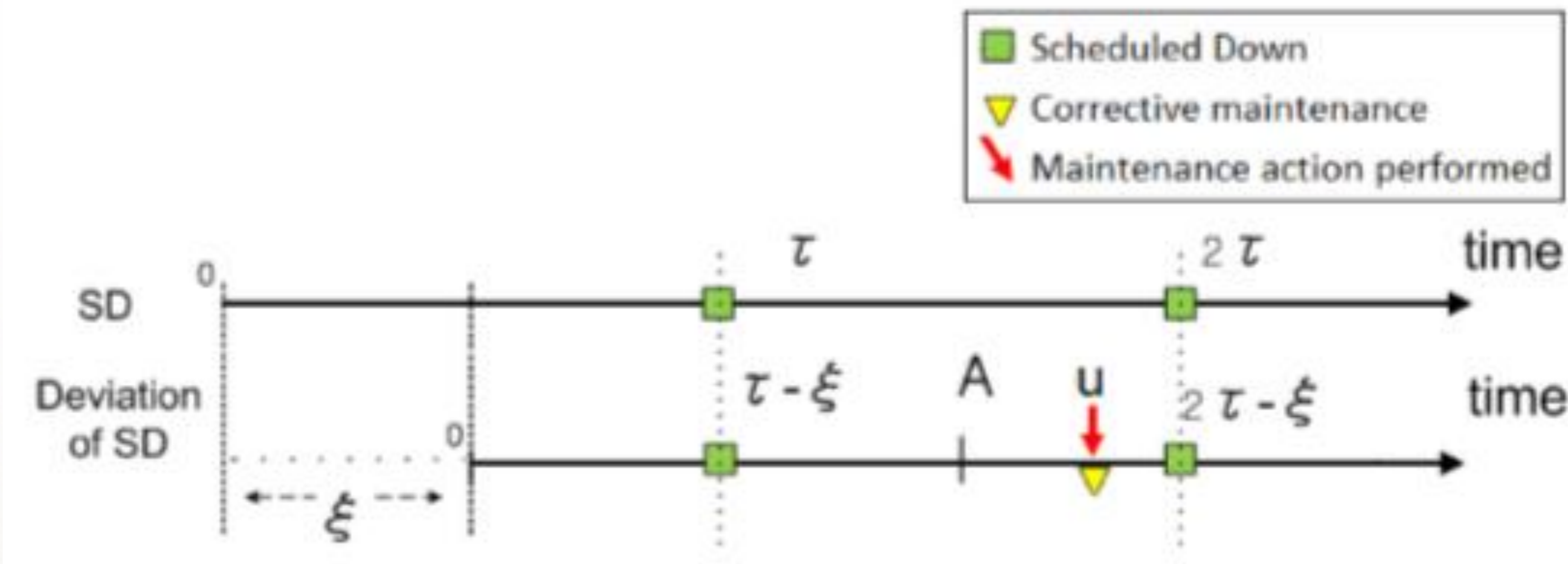
\*\* Efficient in set-up cost for maintenance, but limited use of part lifetime

# *Dynamic maintenance concept*



# Dynamic maintenance concept

- Dynamic in:
  - Timing of the maintenance action
  - Content of the maintenance action



## Lely A4 Astronaut Owners Maintenance

Information for all tasks can be found on Computer- Operator Manual

✓ - item OK ; no action needed    ✗ - item needed attention, now OK



Daily Maintenance		Day:			
Task	Times per Day	Time: By:	Time: By:	Time: By:	Time: By:
Examine the Attention Alarms on the E-Link,T4C and CRS+	3				
Replace the Filter Element of the Milk Filter	3				
Check Jetter Position , Calibrate Arm as needed	2				
Clean the Laser Screen	2				
Clean the Robot Arm , Box , Mothership, Twintubes, Cords, Tilts	2				
Examine the Cleaning Brushes, Clean Thoroughly	2				
Clean the Bleed Holes	2				
Examine the Teat Cup Liners	2				
Examine the Twin Tubes for Rips, Length , Hang Test	2				
Examine the Cup Cords	2				
Examine the Teat Cup Sleeves and Centering	1				
Calibrate Laser – always after any work on tubes, cords, cups	1				
Clean the Field of Vision of the 3D camera and photocell	1				
Check Feed Trough, clean as needed	1				
Examine the Air Compressor and the Air Dryer- filter, water separator	1				
Examine the Robot Performance List, refer to the T4C manual	1				

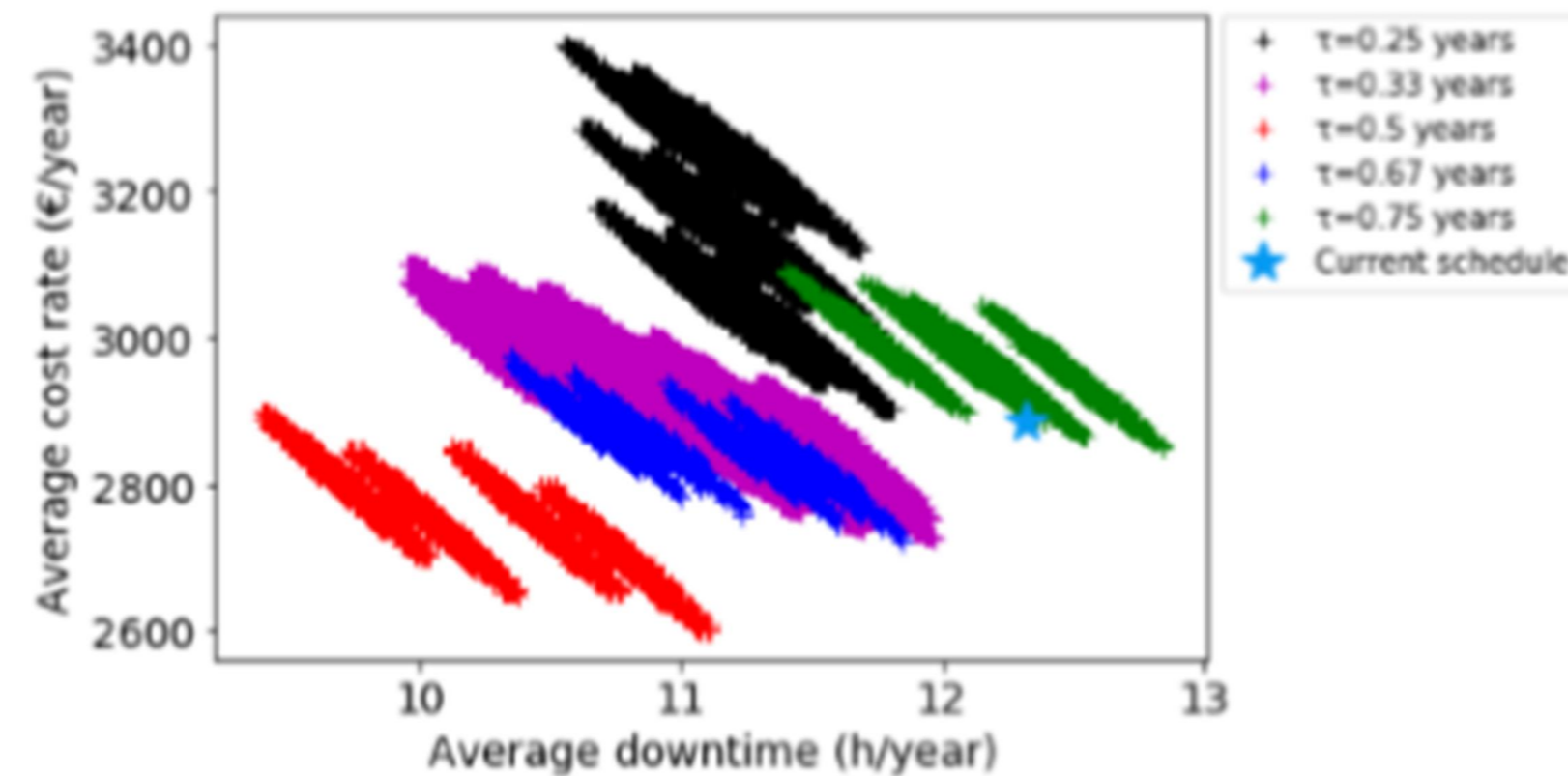
Weekly maintenance		Times/Week	Date:	By:
Task				
Cut Off Frayed Cords, Re-tie, Check Length	1			
Check Chemical and Teat Dip Levels	1			
Measure concentration of Astri-L	1			
Test the spray beam of the teat disinfection nozzle	1			
Clean the touch screen of the E-Link	1			

Maintenance during the year		Months	Milkings	Date:	By:
Task					
Synge Udders as Needed- To Reduce Bedding etc in Robot and improve cow hygiene	1				
Inspect and Clean Buffer Tank	1				
Calibrate the Feed Portion	Each load				
Replace the Teat Cup Liners - Notified by T4C Attention			10,000		
Replace Milk Pump Bladder - Notified by T4C Attention			40,000		
Replace the Shut-off sleeves - Notified by T4C Attention			30,000		
Replace the Cleaning Brushes - Notified by T4C Attention			30,000		
Examine the Air Compressor and the Air Dryer	3				
Trim the tail hair of the cows approximately 3 cm (1.2 in) below the tail bone	3				
Examine the Oil Level of the Vacuum Pump	3				
Clean the Exterior of the Vacuum Pump	6				

Reminder- do not touch the "Settings" tab on the E-link. Always use the "Test" tab for maintenance procedures.

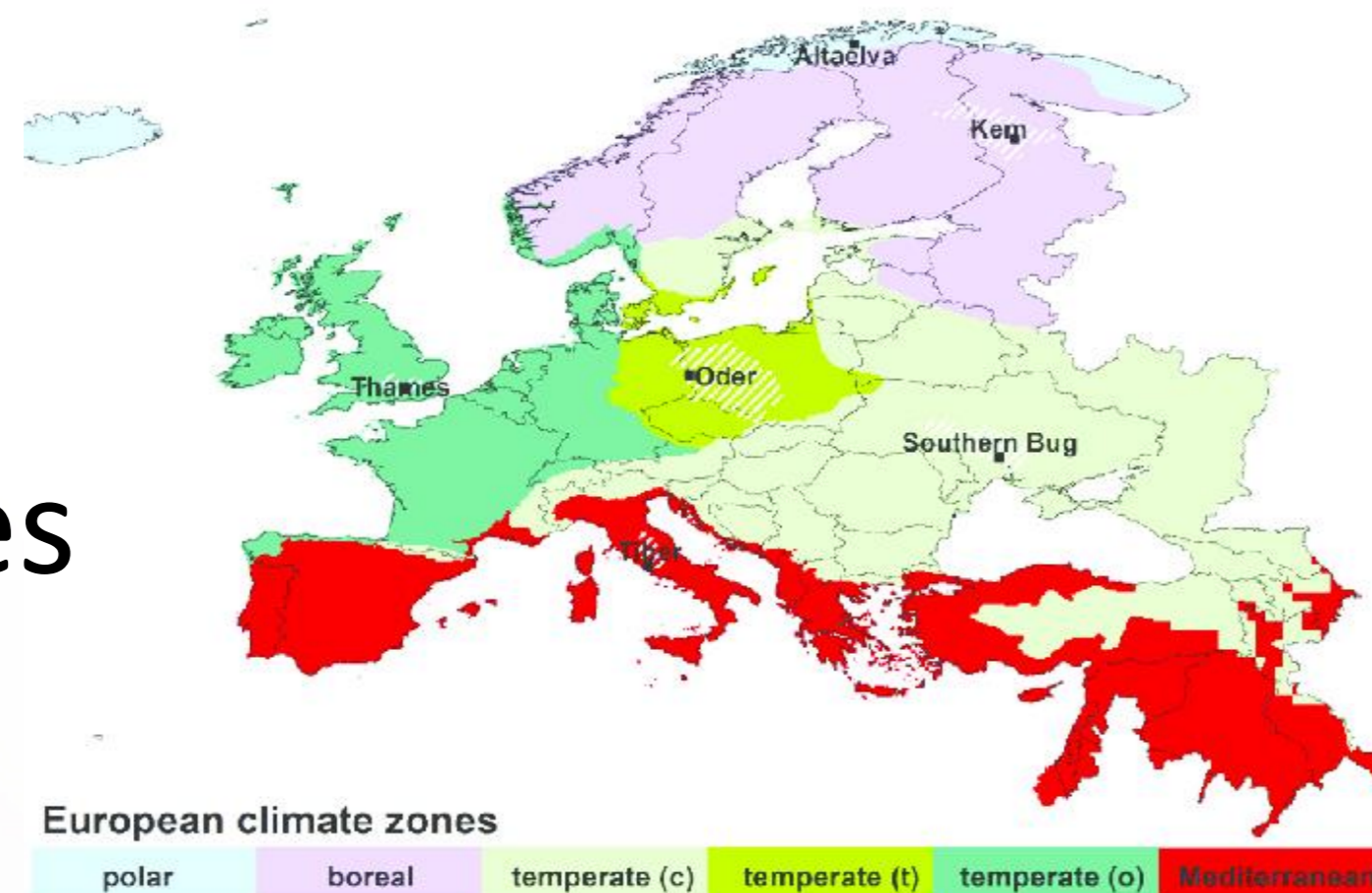
# Dynamic influencers

Customer preference



Service conditions

External circumstances



Machine usage



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