

FRONERI

VI EDIZIONE

MAINTENANCE TIME

Casi ed esperienze
per costruire la manutenzione 4.0

Organizzazione, pianificazione,
misura delle prestazioni
della manutenzione

23 Novembre 2016

Unione Industriali Napoli

A cura di

Ing. Patrizio Ioime

FESTO
Consulting

PATROCINIO



SKF



VI EDIZIONE

MAINTENANCE TIME!

**CASI ED ESPERIENZE PER
COSTRUIRE LA MANUTENZIONE 4.0**

23 Novembre 2016
ore 9.00 - 17.00

Unione Industriali Napoli
Piazza dei Martiri, 58, 80121 Napoli

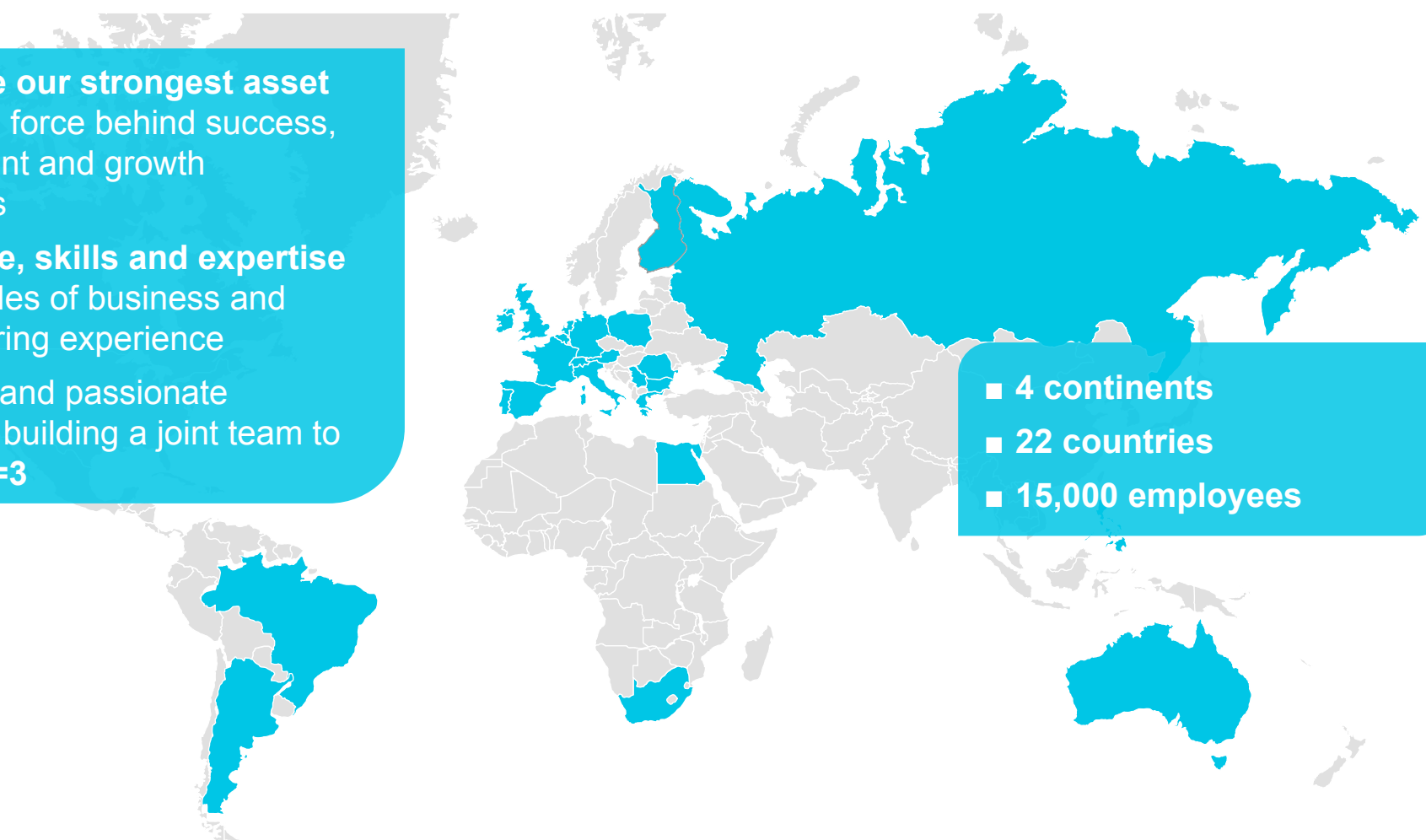


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- **Unique and complementary** portfolio and capabilities
- **Redefinition of competitive landscape** for ice cream, particularly across Europe
- Opportunities for **performance improvement** and **reinvestment savings** to fund growth
- **Strong combined retail presence** and out-of-home capabilities
- Combining **Nestlé's renowned brand** portfolio with **R+R's highly efficient** operational capabilities
- **15.000 employees** world wide in 22 countries
- **EUR 2.6 billion** sales

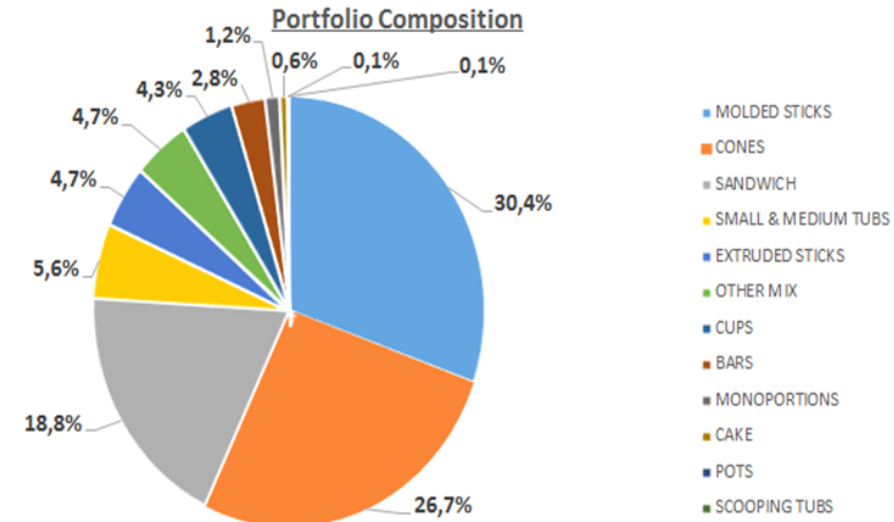
- **People are our strongest asset** and driving force behind success, development and growth of business
- **Knowledge, skills and expertise** from decades of business and manufacturing experience
- Innovative and passionate individuals building a joint team to **make 1+1=3**

- 
- **4 continents**
 - **22 countries**
 - **15,000 employees**

Joint people resources form a stable basis to realise growth targets

MAINTENANCE TIME

Terni Factory



Year of construction - 1973

Floor space – 33.550 m2, 19.250 built (57% total area)

Employees – 222 FTE + 282 seasonals (average)

Certification - ISO 9001/2008
BRC Grade A
IFS Higher Level

3 Key product Categories (75%)

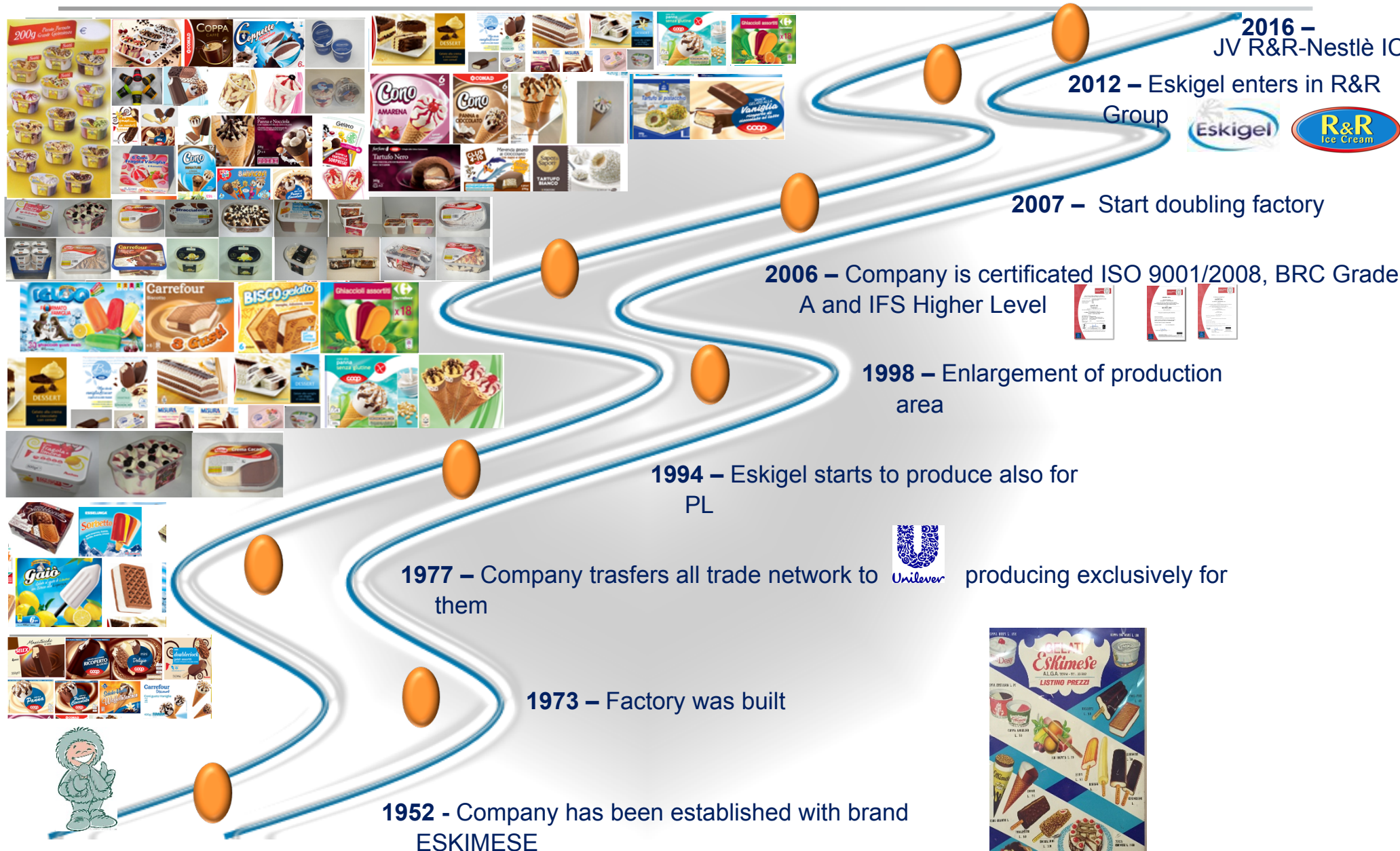
1. Sticks
2. Cones
3. Sandwiches

TOTAL 22 PRODUCTION LINES – 17 IN PARALLEL

MAINTENANCE TIME

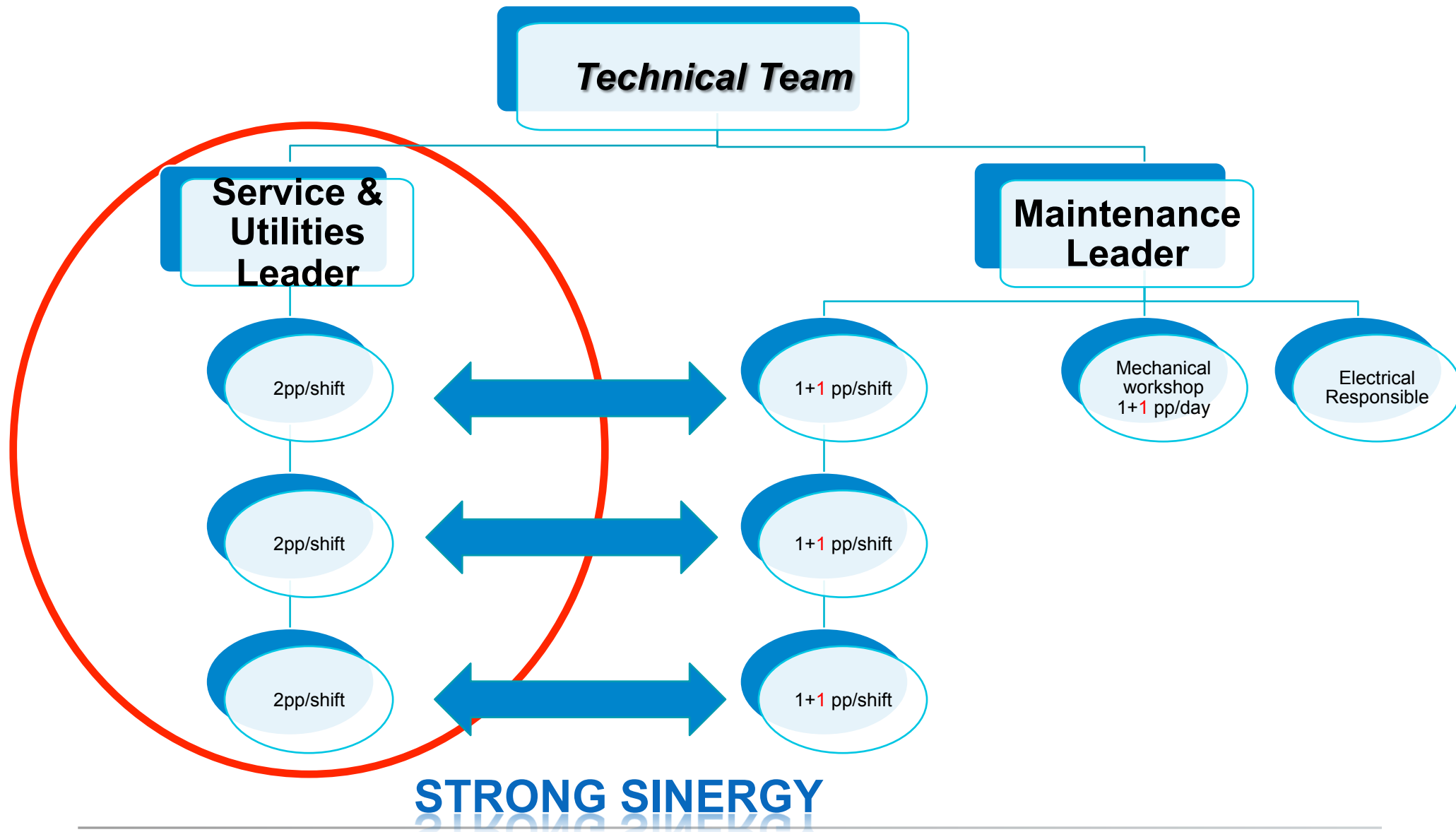
Eskigel History

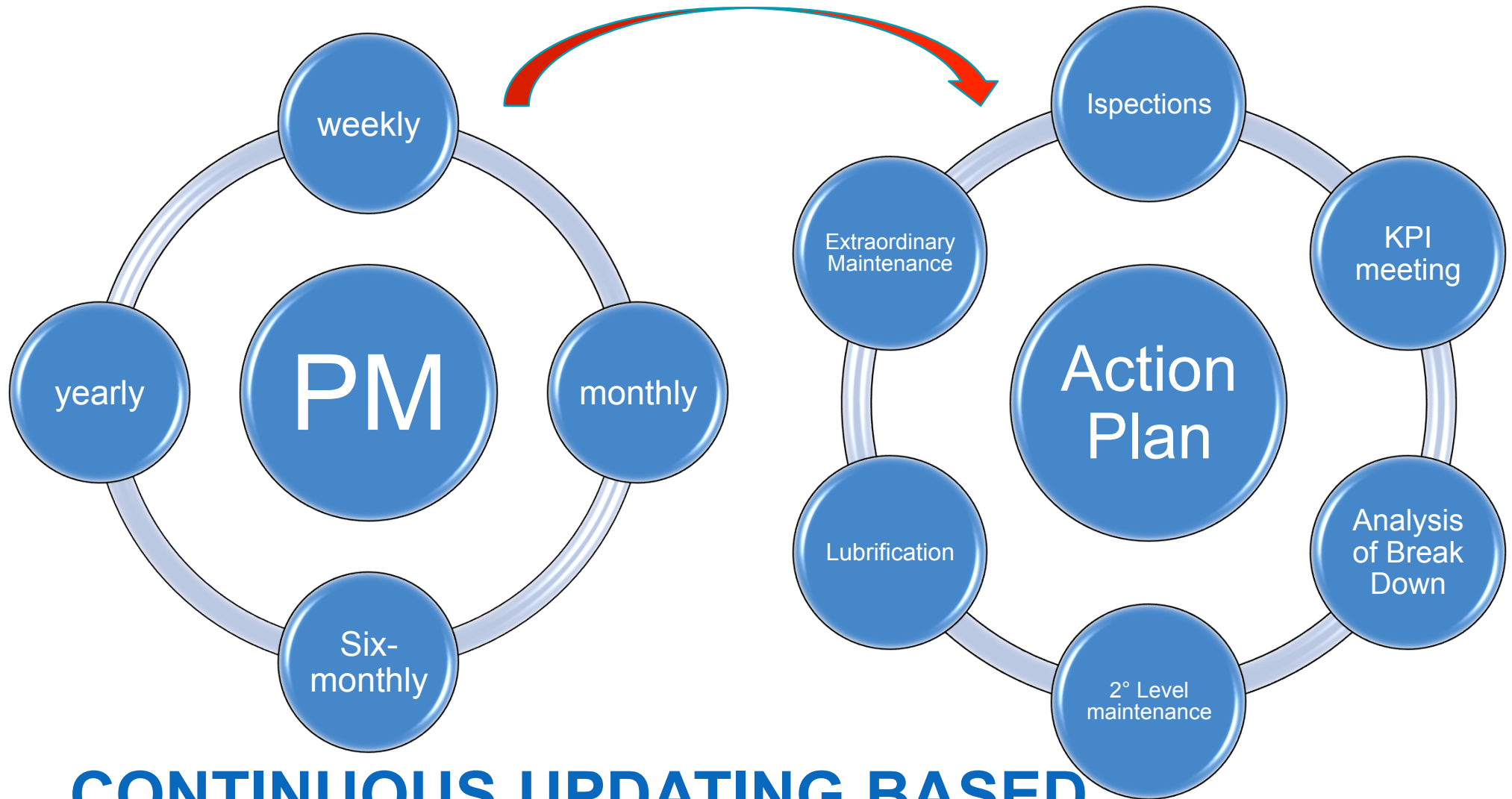
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MAINTENANCE TIME

technical team: 13 persone stabili + 4 stagionali

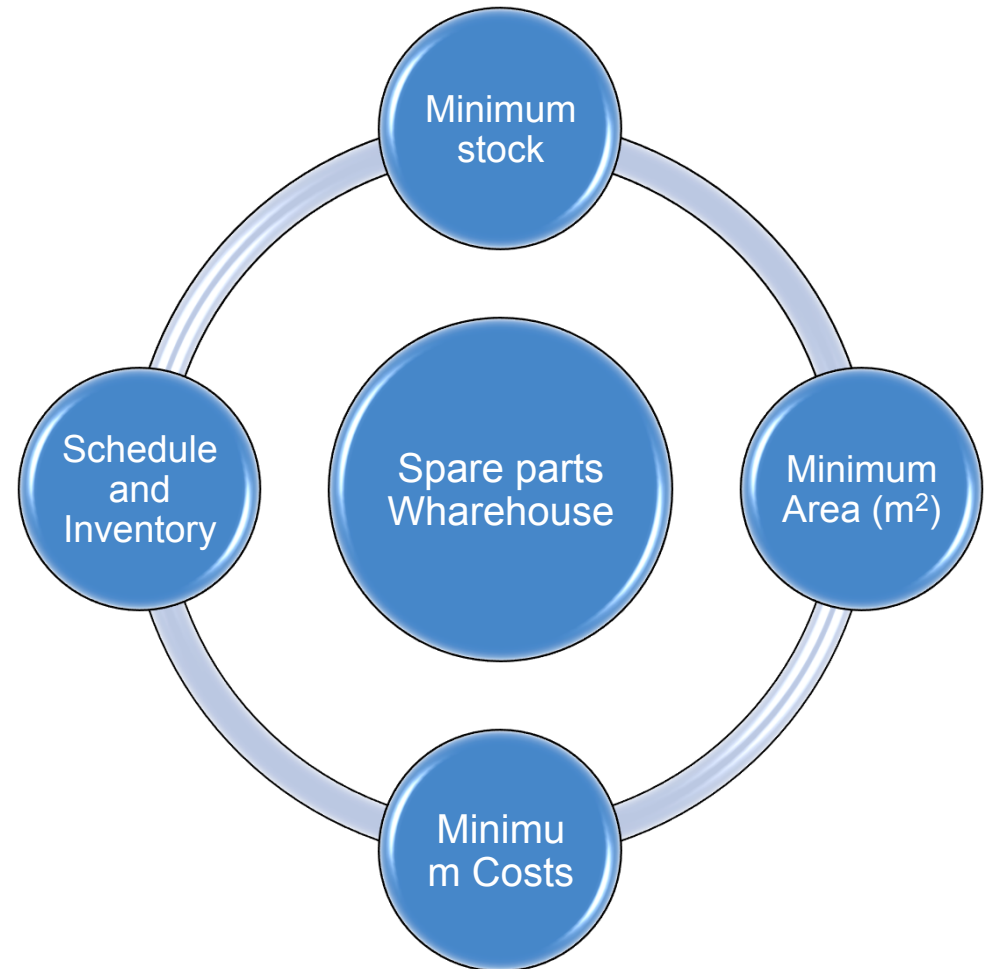


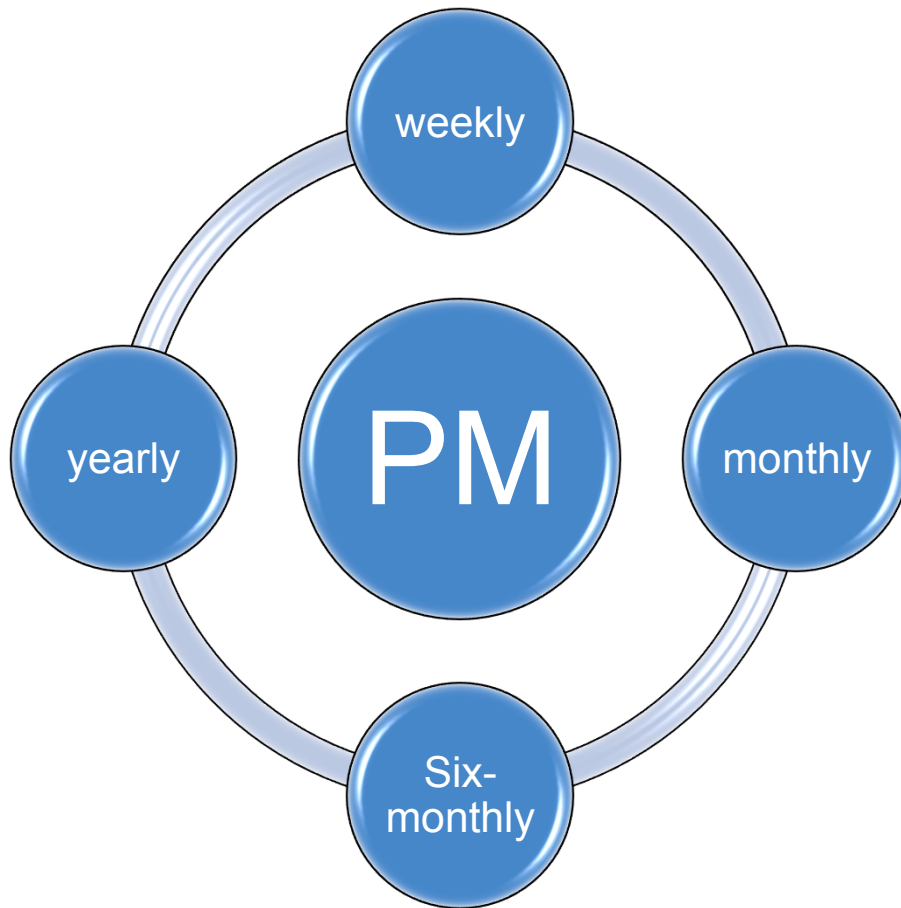


CONTINUOUS UPDATING BASED
ON ANALYSIS EVENTS

Target:

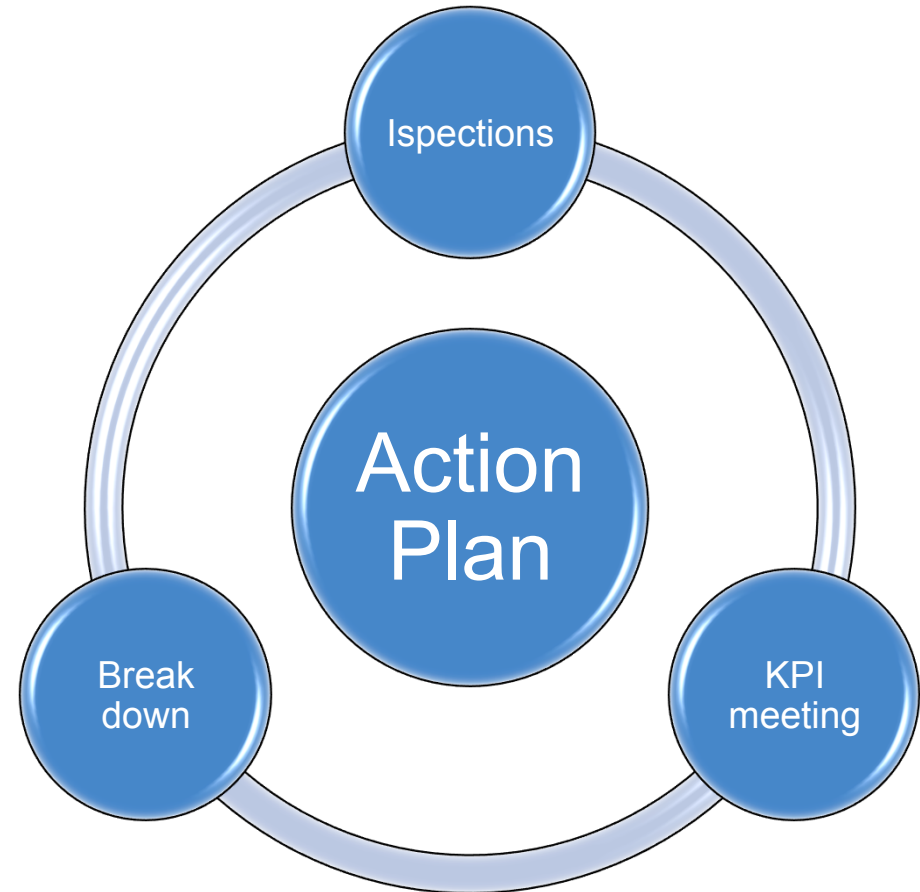
- Minimum stocks spare parts & Fixed Minimum Costs
- Technical partnerships with suppliers that make us warehouse





PLANNED MAINTENANCE

Scadenza e frequenza definite sulla base dell'esperienza nella implementazione dei massimali della macchina



MORNING MEETING

Guidato dall'analisi dell'OEE e dei breakdown

[illegible]

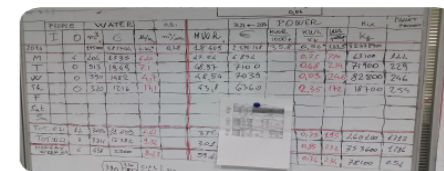
- **Daily**

- Daily review Factory meeting (factory)
- Daily review Engineering meeting
- Supply Chain Meeting

01/02									
20/02/2016									
DATA	TURNO	TIPO MTZ	CENTRO LAB. RESP.	REPARTO/CLINICA	MACCHINA	ORA INIZIO INTERVENTO	ORA FINE INTERVENTO	DURATA	FEEDBACK MACCHINA
05/01/16	1	Pronto Intervento	ELETRECCO	ESTRUI21	SL10HF2	09:00	10:00	1:00	NO
05/01/16	1	Mz Programmato	ELETRECCO	CORR1	OHL	10:00	11:00	1:00	NO
05/01/16	1	Pronto Intervento	HEDOGANCO	RASCHETTA3	CHOICE-FILLER 6-3-420	10:00	12:00	1:00	NO
05/01/16	1	Pronto Intervento	ELETRECCO	CORR2	PAKOGAGN5	12:00	13:00	1:00	NO
05/01/16	1	Pronto Intervento	ELETRECCO	ESTRUI21	SL10HF2	13:30	14:00	0:30	SI
05/01/16	1	Pronto Intervento	HEDOGANCO	ESTRUI21	SL10HF2	09:00	09:30	0:30	SI
05/01/16	1	Mz Programmato	ELETRECCO	CORR1	OHL	07:30	13:30	6:00	NO
05/01/16	1	Pronto Intervento	ELETRECCO	TRANSIO	SOPFALCO	13:30	14:00	0:30	NO
05/01/16	2	Mz Programmato	HEDOGANCO	COFFE		10:30	12:00	1:30	NO
05/01/16	2	Pronto Intervento	HEDOGANCO	ORED1		20:00	20:30	0:30	NO
07/01/16	1	Mz Programmato	HEDOGANCO	CORR2	GHF 800-IV	09:30	17:45	8:15	NO
07/01/16	1	Mz Programmato	HEDOGANCO	COFFE					NO
07/01/16	1	Mz Programmato	HEDOGANCO	RASCHETTA3	CHOICE-FILLER 6-3-420			1:30	NO

[illegible]

DATA	TURNO	MANUTENTO RE 1	MANUTENTO RE 2	ATTIVITA' SVOLTA	CDC	LINEA	MACCHINA	STATO LAVORI	ALLEGATI	MATERIALI UTILIZZATI	TEMPO (h)
05/10/16	C	MENICHELLI		riadattata sponda fermo scatole in officina e risaldata in opera su rulliera linea vaschetta 1	Guasti	PALETTIZZAZIONE		Evaso			01:00
05/10/16	C	MENICHELLI		smontata chiusura interna muletto n°5 e risaldata staffe per lo stesso	Guasti	MAGAZZINO		Evaso			01:00
05/10/16	C	MENICHELLI		iniziata copertura smontabile per quadretto elettrico prima stazione granella vaschetta 3	Migliorative		CHOICE-FILLER S 6-3-620	In corso			02:00
05/10/16	C	MENICHELLI		terminata e montata copertura quadretto elettrico prima tramoggia vaschetta 3	Migliorative		CHOICE-FILLER S 6-3-620	Evaso			00:30
05/10/16	C	MENICHELLI		fatta e montata copertura quadretto elettrico seconda tramoggia vaschetta 3	Migliorative		CHOICE-FILLER S 6-3-620	Evaso			01:30
05/10/16	2°	NUCCIARELLI		lavorazione cannocchiali	Guasti	CONI1	OML	In corso			03:50
05/10/16	2°	GIOYANNELLI		revisione lineare 2	Guasti	STECCHI 2	POLO 120	In corso			06:00
				costruiti n°5 attacchi 1/2 pollice - portagomma - tubi flessibili per eiecere solidali a collettore per lavaggio opio con uscita klamp.modifica collettore	Migliorative	STECCHI1	POLO 8-10F	Evaso		n°5 tronchetti 1/2 pollice - n°5 tronchetti portagomma 3/4 - n°5 tronchetti klamp - tubo flessibile.	03:00
				rettificate lame	Migliorative	FREEZER		In corso			04:00
				lavorazione cannocchiali	Guasti	CONI1	OML	In corso			04:00
				fatti e posizionati avvolci e guide su nastri	Migliorative	SECCHIELLO	ICEPACK KB-R1	In corso			05:00
				rettifica lame	Migliorative	FREEZER		In corso			03:00



PLANNED MAINTENANCE

MORNING MEETING

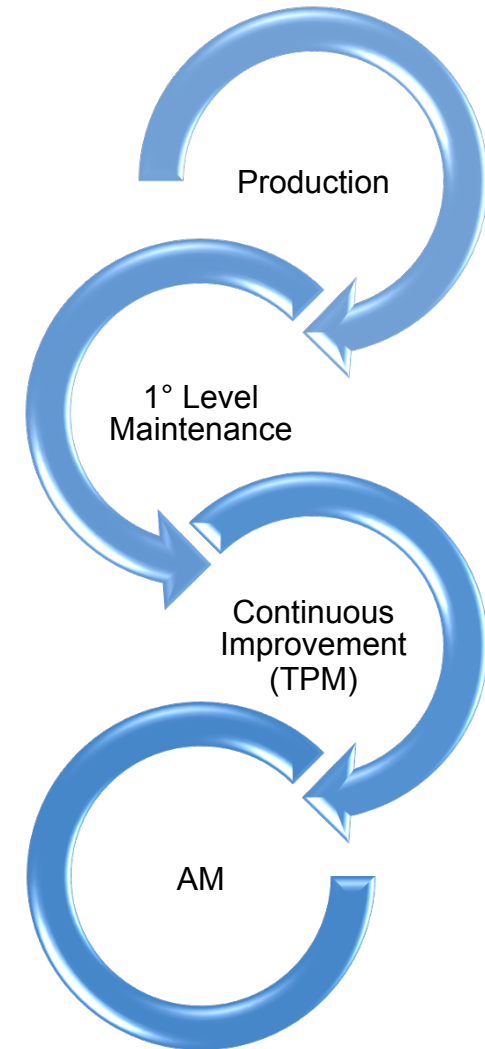
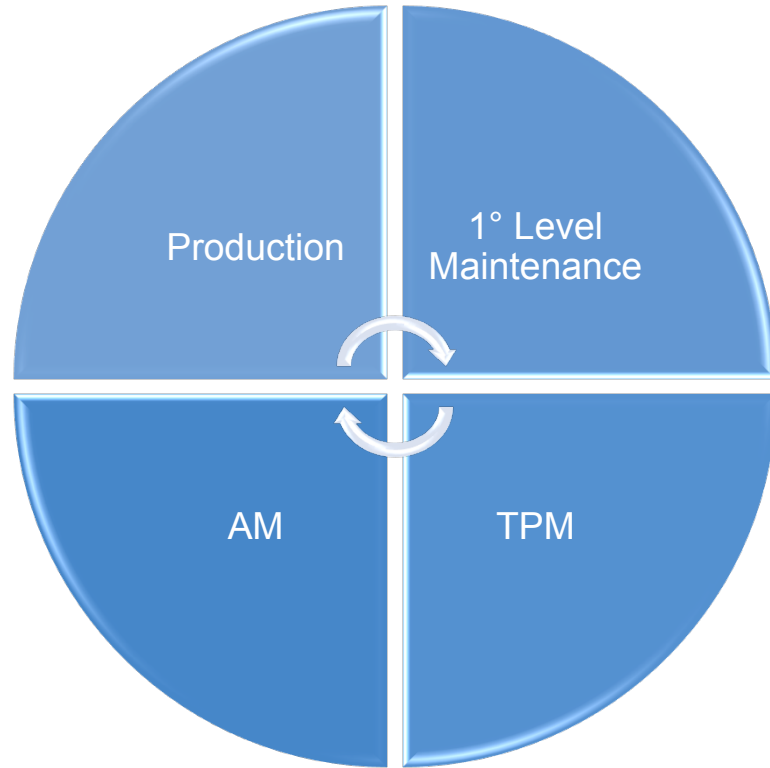


**Ancora oggi
in manuale**

Reporting & Analysis in real time



**Next step:
web software dedicati**



**FIRST LEVEL
OF MAINTENANCE
BY PRODUCTION TEAM**

Refrigeration plant:

N° 14 Ammonia compressors

**Refrigeration Capacity: 5.168 Kw at -45°C
6.218 Kw at -35°C
950 Kw at -10°C**

Total refrigeration Capacity: 12.336 kW



Total ammonia quantity: 18 tons

Air compressed plant:

N°4 Air compressors total capacity 4.500 m3/h

Steam plant:

N°3 Steam boilers total capacity 5.55 tons/h

Trigeneration plant:

Electrical power 2.680 kWe

Steam generator 950 kWt

Water Chiller 500 kWt



Trigeneration plant:

Electrical power 2.680 kW_e

Steam generator 950 kW_t

Water Chiller 500 kW_t

Energy consumption 2015

Electricity: 20.882 MWh

Gas: 663.202 Sm³

Water: 175.559 m³



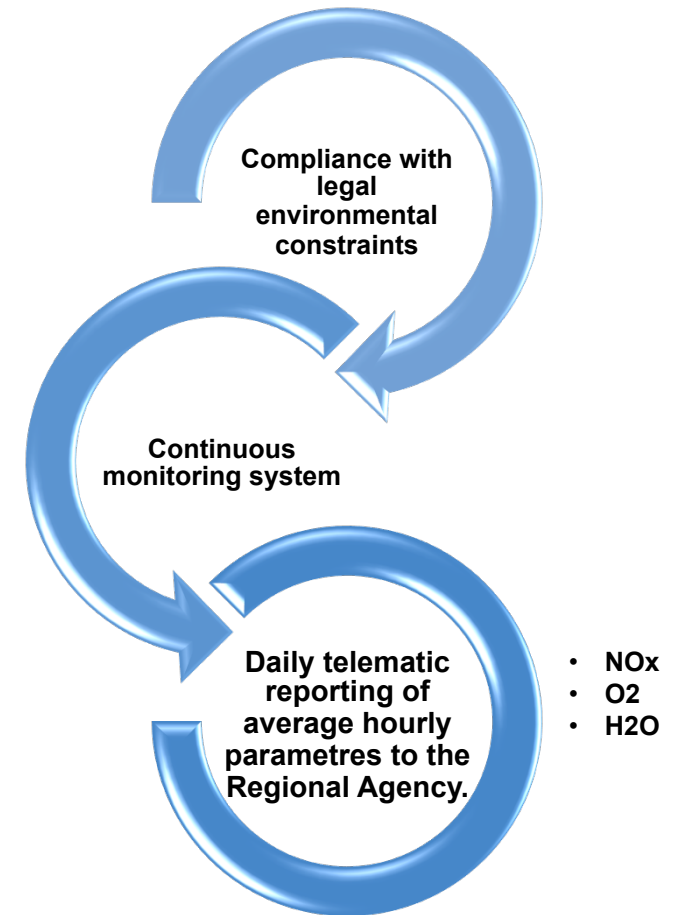
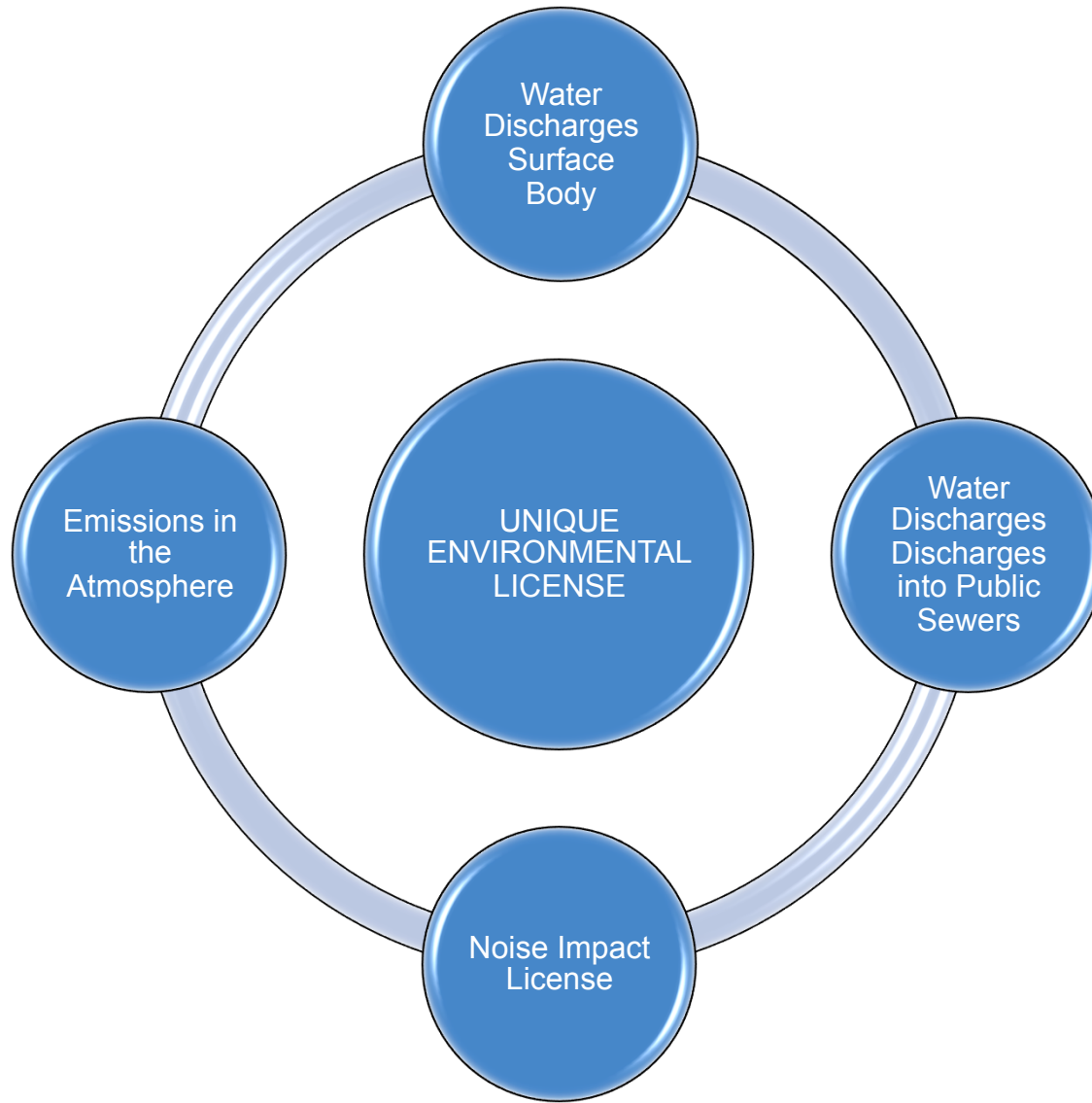
Total energy bill 2015 3.299.000 €

Total water bill 2015 667.124 €

Trigeneration plant Benefit (Installed July 2016) :

Actual energy bill 2016 vs 2015 - 280.000 €

CO₂ reduction - 81.151 kg





SAFETY TEAM	N°
Manager with power of attorney for safety	1
Head of the prevention and protection service	1
Assigned to the protection and prevention service	2
Responsible for security (for workplace)	58
Fire Team	32
First Aid Team	18
Toxic Gases Team	7

SAFETY TRAINING	N°
Elevating Platform	31
Forklift	68

TARGET:

✓ **Reduce Workplace Accidents**

ENGINEERING

Total Overheads
Maintenance
Other Materials
Salary
Other Advisory
Literature
Travel Expenses
Rent
Technical Gas

Descrizione

- **Maintenance**
 - Ricambi per macchine e impianti;
- **Other Materials**
 - Materiali di consumo
- **Salary**
 - Riferiti a tutto il personale di manutenzione (interno e esterno)
- **Other Advisory**
 - consulenze
- **Literature**
 - Documentazione tecniche, cataloghi e libri macchina
- **Travel Expenses**
- **Rent**
 - Ogni attrezzatura e macchina noleggiata per l'utilizzo in manutenzione
- **Technical Gas**
 - Eliminato dai centri di costo (valore reale = 0€)

Il budget degli investimenti è circa il 4% del fatturato annuo della fabbrica.

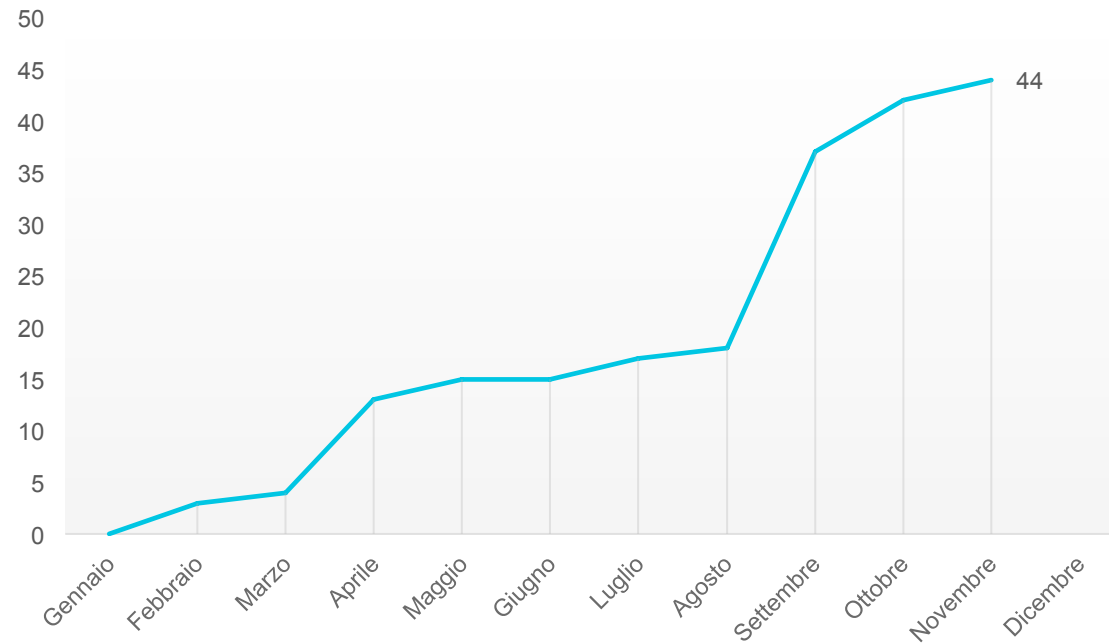
Le proposte di investimento sono basate su due livelli di priorità PN1 e PN2

<u>PRIORITY NUMBER</u>	<u>PRIORITY TYPE</u>	<u>CATEGORY OF CAPEX</u>
1	Lab	Quality
2	BPV	Cost Savings
	FLW	Capacity
	Usage	Compliance/ Legislation/ Safety
	OHD e Distr	Innovation
	Mapex	MAPEX
	SL Inc	IT
		Contingency

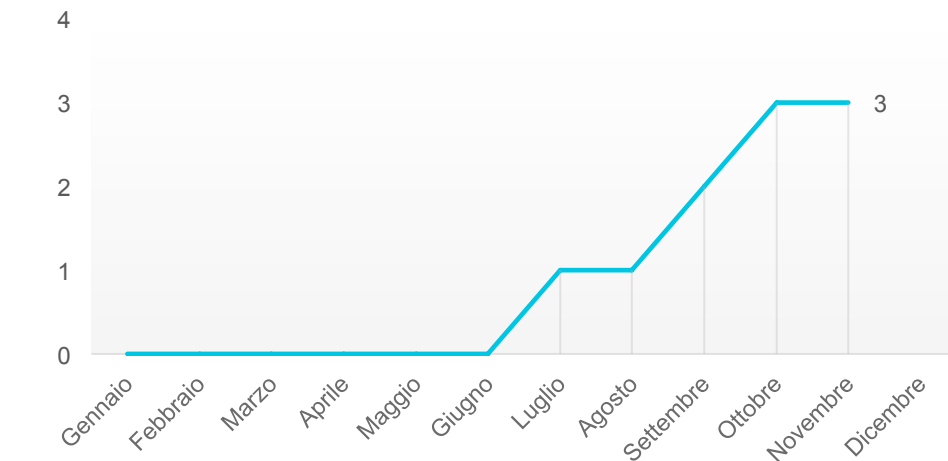
MAINTENANCE TIME TPM



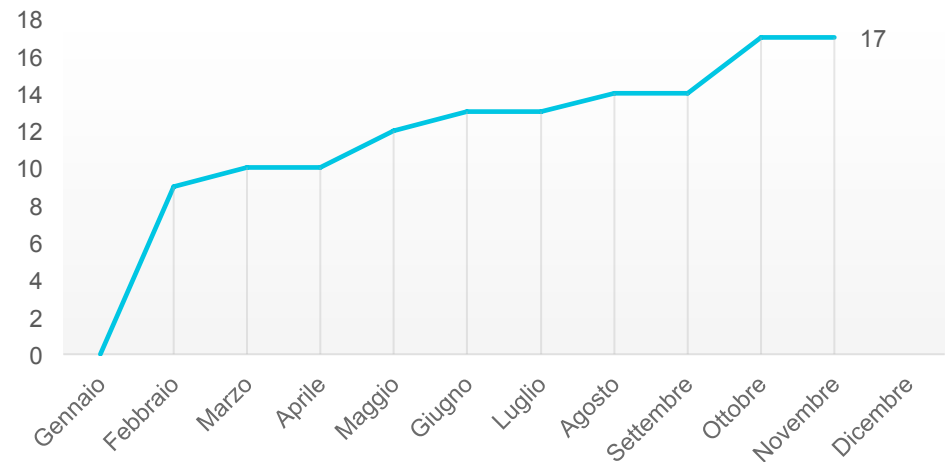
Progressivo OPL Eskigel



Progressivo Kaizen Eskigel



Progressivo Speedy Kaizen Eskigel

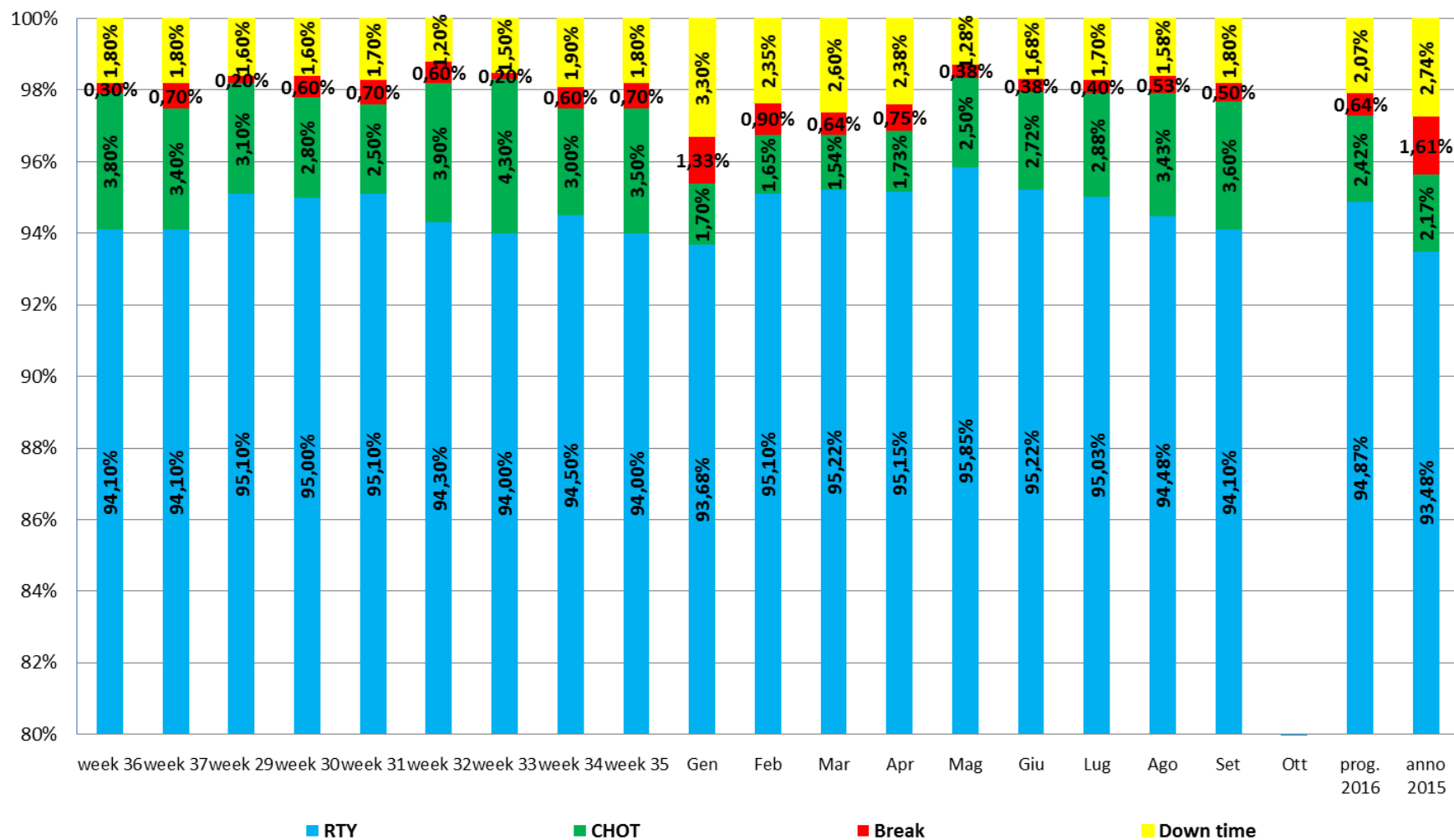


MAINTENANCE TIME

Analisi "week by week" P.E. Stabilimento & Linee di produzione



Terni plant -- past nine weeks



MAINTENANCE TIME

Next Step: Organization & Tools

Tools for:



- Web Software Analysis
- Statistics
- Testing
- Reporting
- People Skills and Competencies

IMPLEMENTAZIONE DEL NUOVO
WEB SOFTWARE PREVISTA
PER GENNAIO 2017



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