1. Company, Plant/Factory Profile

Mondelez International, Inc., a global snack company was separated from Kraft Foods in October 2012. Kraft Foods began in 1903 with James Lewis (J.L.) in Chicago, Illinois. Now Mondelez International is operating is in 165 countries and is the world's largest snack company, No. 1 global leader in Biscuits and No.2 Largest Global leader in Chocolate and Candies & Gummies. Also, Kraft Foods Group, Inc., is operating as a North American grocery products company.

Mondelez Brazil has Two Plants, Vitoria de Santo Antão and Curitiba. Is competing in the 4 Most important markets, being the 3rd largest food company in Brazil, as well as we are a leader or co-leader position in 4 categories: Chocolate, Gummies & Candies, Powder Drinks and Meals (Cheese and Groceries). Curitiba Plant have had JIPM TPM Consistence Award in 2021. We, VSA Plant, are sharing, and are communicating with their efforts as a model plant in Brazil and Latin America.

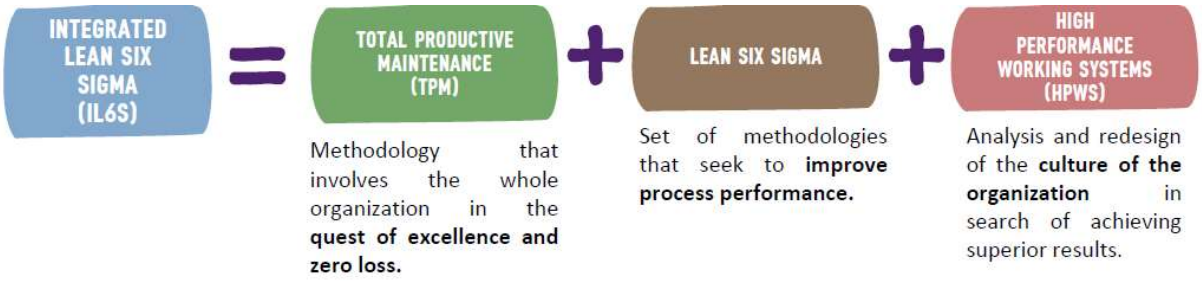
The VSA plant is in the state of Pernambuco, 50km away from the state capital Recife, it was built in 2009 with an investment of R$100 million in a total area of 300,000 m² and 59,825 m² of built area, and originally with five production lines. Currently, 42% of the city lives in extreme poverty and the per capita income is R$30 reais, which makes the plant's relevance even greater for the city. Mondelez employees represent 20% of the city's economically active population.

VSA plant has 1341 employees (December 22 Update), has a production capacity of 138 thousand tons/year and produces a volume of 127 thousand tons/year, being the 3rd largest operation in Mondelez Global Operations. The organizational structure is formed by one director and eight managers who lead the areas of: Manufacturing, quality, maintenance, TPM, human resources, engineering, safety / health and environment and logistics.

The factory produces a variety of 62 SKUs in nine production lines: Five lines are dedicated to biscuits, producing brands such as Oreo, Trakinas, Lacta Cookies, Belvita, Chocolícia and Club Social and four lines dedicated to enrobed wafers chocolates such as Bis, Sonho de Valsa and Ouro Branco.

2. Milestone on the Journey of Manufacturing Excellence

In order to improve our results and become even more competitive in the market, we understand that the best path would be to implement an excellence system: Integrated Lean Six Sigma Program (IL6S). After the decision and declaration by Mondelez Brazil, we started the training with the leadership and extensive communication reinforcing that from that moment on IL6S would be part of the plant's routine. IL6S is composed by three methodologies: Lean Six Sigma, TPM and HPWS (High Performance Work System). The official kick off was in 2014 and covered plant's leadership and operational team.



After that, we've defined the model line (Bis 1 Line) where the methodology would be applied first. We have also defined all eight pillar leaders (Autonomous maintenance, Focused improvement, Planned maintenance, Education and training, Initial control, safety, health and environment, Quality maintenance and TPM office). To guarantee success we've structured these pillars from various areas teams composed by specialists, supervisors, and operational team. We have also elaborated IL6S master plan and rollout for autonomous maintenance.

Currently we have TPM in 100% of the plant through fourteen autonomous maintenance teams distributed in nine production lines and five processes areas and our model line is in AM step 6. An important point of our excellence journey is the definition of objectives and goals through KPIs to be achieved at each given period, which we call CBN (Compelling Business Need), where these goals are shared with the entire plant and illustrated in many departments of the factory. The strategic actions to achieve these KPIs are structured and deployed through Hoshin Kanri. The KPIs evolution is monitored through the plant's balance scorecard.

In addition, we highlight the importance of starting improvement cycles led by the focused improvement pillar, which identifies, measures, and eradicates the plant's biggest losses through methodologies such as SMED, 12 Kaizen steps, DMAIC, PM Analysis, etc. The plant performs two improvement cycles per year, where we prioritize the losses to be attacked through the loss trees, we form the work teams and they eradicate or drastically reduce the loss, creating an environment that leads us to the Zero Loss Journey: Zero accidents, zero defects, zero breakdowns.

The evolution of 5S, plant's indicators, as well as the development of people during this journey, was driven by the skills matrix that is currently implemented in 100% of the plant. We share our knowledge through the OPL tool (one point lesson).

To analyze the effectiveness of the program, the pillars carry out a monthly assessment to verify their evolution and the result is shared with leadership at the weekly TPM Governance meeting.

3. Benefits Achieved

Since implementing in TPM, VSA plant is prioritizing to improve Safety, so MAT TAR (Moving Annual Total Accidents Rate) to 0.33 in 2022 from 5.8 in 2014 by half. Also, we are continuing to Zero Lost Time Accidents for over 860 days. As well as GE (Global Efficiency), which is the common KPI in Mondelez Global, for measuring OEE + Asset Utilization, improve to 83.5 % in 2022 from 60.3% in 2014, as a result, Conversion Cost was improved by half. Those improving speed is beyond the average in Mondelez Global.

How do we get the good results. Plant Leadership Team clearly shows Vision, 100% Shop-floor People take part in TPM and use JIPM Step-by-Step Process, it is not only Autonomous

Maintenance but also All other pillars. Most significant results is that People have changed Mindset, create more better idea and behave routine task with high moral.

4. Key of our Manufacturing Excellence

The key to our success in the TPM journey lies on our employees, we want our people to become more autonomous, so that we can achieve better results, guaranteeing the safety of the workplace environment and the quality of our products for our consumers and costumers.

A strength of the plant is the commitment of the top and middle leadership maintaining the program, demonstrated through support for activities led by the TPM pillars and clarity in communication. We can also highlight that the company's strategic plan comes from the board and is promoted to all employees from the top to bottom. Thus, leadership shows what must be done by its own example. This is very impactful in terms of defining the clear vision. This journey led us to be elected as the best Mondelēz Latin America Plant in 2021.

More than maintaining TPM activities throughout the company, now it's time to make TPM a practice outside the factory walls. We want our suppliers and partners to be involved in TPM as well as we are. With that said, we want to use the tools and processes as facilitators of the company's vision: to achieve a stable and reliable Supply Chain.

Achievement Record

Company & plant name	Mondelez Brazil LTDA – VSA Plant
TPM Slogan/Objectives	Integrated Lean Six Sigma – Identify, eradicate and inspire. Objective: Achieve a stable and reliable Supply Chain.

Category	Index (Calculation Formula)	Unit	Bech Mark (Baseline) Year	%of Reduction/ Increasing (2023)	Target 2023
S	MAT TAR (Moving Annual Total & Total Accidents Rate)	Number of accidents last 12 months (Total) / hours worked last 12 months * 200.000,00	(2014) 100	(2023) -96%	-92%
S	MAT TIR (Moving Annual Total & Total Incidents Rate)	Number of accidents last 12 months (Total) except First Aid Cases last 12 months / hours worked last 12 months * 200.000,00	(2014) 100	(2023) -97%	-94%
P	Productivity for main products (Output/FTE)	Volume (weight in Ton) / Total labor utilized on conversion contributing to the produced volume of the period (includes all employees, indirect, internal and external	(2015) 100	(2023) +3555%	+3211%

P	OEE (Overall Plant Efficiency)		Operating Time / Production hours (%)	(2014) 100	(2023) +41%	+38%
P	GE (Global Efficiency)		Operating Time / Available Hours (%)	(2014) 100	(2023) +40%	+39%
P	Number of breakdowns package lines		Number of breakdowns package lines / year	(2019) 100	(2023) -52%	-57%
P	Breakdowns Frequency Rate package lines		Number of breakdowns / hours used	(2019) 100	(2023) -67%	-78%
P	Number of breakdowns from original 4 lines		Number of breakdowns from original 4 lines / year	(2019) 100	(2023) -69%	-83%
P	Breakdowns Frequency Rate from original 4 lines		Breakdowns Frequency Rate from original 4 Lines / hours used	(2019) 100	(2023) -69%	-87%
P	MTBS (Mean Time Between Stop)		Uptime / Number of breaks + number of small stops + operating losses	(2018) 100	(2023) +973%	+691%
Q	Number of customer complaints		Number	(2019) 100	(2023) -76%	-80%
Q	Number of consumer complaints		Number	(2019) 100	(2023) -54%	-33%
Q	In-line defect rate	Scrap	%	(2020) 100	(2023) -89%	-90%
		Rework	%	100	-12%	-8%
C	Conversion Cost (M$/Ton)		Total plant operating costs per Ton of Production Volume (M$/Ton)	(2015) 100	(2023) -41%	-41%
C	Yield		(Raw material losses in R$ + Package material losses in R$)/production volume in R$	(2015) 100	(2023) -79%	-61%
D	Days Between Next Run (DBNR) - Number of days from the end of the last run until the start of the next run.		Average run length (Days)	(2015) 100	(2023) +13%	+32%
D	Compliance to Schedule (CTS) - Variance of actual production versus scheduled by item / week.		Scheduled Production – Actual (Production by Item) / Scheduled Production for All Items for the Week *100%	(2015) 100	(2023) -1,7%	-2.0%
M	Number of Ideas per person per month		Number of ideas/Headcount /months	(2015) 100	(2023) +176%	+163%
M	Absenteeism (%)		Number of working hours lost due to Absence / Total hours worked	(2015) 100	(2023) -48%	-39%