

TECH-KNOWLEDGE

The Official PMG Engineering Newsletter



**FOOD & BEVERAGE
INDUSTRY**

**ENGINEERING
& DESIGN**

**SCIENCE &
TECHNOLOGY**

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Global Food Safety Initiative



Introduction

The Global Food Safety Initiative (GFSI) is basically a management system which helps in food safety and ensures safe delivery of food to consumers in the world. It is collaborated with different leading food safety experts like retailers, manufacturers, food safety companies and some service providers which are associated with food supply chain management. Some retailers have also identified the need of GFSI like enhancing food safety, ensuring consumer protection, and strengthening confidence in consumer.

GFSI is coordinated by consumer goods forum with almost 400 members. It was launched in Dublin, Ireland on 31st May 2000 at The CIES Annual Executive Congress. GFSI works on fulfilling food safety requirements for food safety schemes through the process known as benchmarking. In 2005 under the Belgian law the GFSI foundation was created as non-profit entity. There are certain objectives, certifications, benchmarks, accreditation, and governance which need to be discussed in this article.

Objectives of GFSI

1. Converges promotion among food safety standards by maintaining benchmark processes for schemes related to food safety management.

2. Cost efficiency is improved by retailers when standards of GFSI is recognized and accepted during food supply chain.

3. Unique international stakeholders' platform is provided to share the information, understandings, interactions, and knowledge related to food safety standards and practices.

Benchmarking

Benchmarking is a procedure in which schemes related to food safety are compared with the GFSI Guidance Documents. Guidance Documents includes key elements to produce food requirements, guidance to schemes seeking compliance, requirements for the delivery of conforming schemes.

Benchmarking process has several applicants going through it and GFSI does not restrict any opportunity for schemes to be formally recognized. There are some benchmark schemes:

1. Manufacturing schemes
2. Primary production schemes
3. Primary production and manufacturing scheme

Certifications

Certification body is basically not a scheme owner to give issuance of the certifications or develop an impact or change requirements of audit. It just carries out the audit as per the scheme requirements. For the issuance of certification, the certification body must submit result to the scheme owner. It is accredited to carry out audits through on program audits. There are different certifications for every individual:

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1.Certified Auditor- SQF, BRC, FSSC22000

2.Certified Practitioner- HACCP Training Course must be completed, should have proper understanding of SQF Code(s), must qualify "Implemented SQF Systems" exams.

3.Certified Trainer- must have successful completion of "Train and Trainer" course, training experience in food safety and quality, successful implementation on SQF 2000 Systems, SQF 1000 Systems, SQF Auditor Course.

4.Approved Training Provider (ATP)- ATPs are professional individuals having working knowledge of food and requires many years of training in consumer products sectors.

Strengths

- The benchmarking process assures consistency in evaluating content and program.
- The audits have more review of product control procedures, process control and includes additional elements to personnel.
- All the non- conformances is to be cleared for the requirement of certification which forces the site to identify issues in order to obtain the certification.

Weakness



1.The documentation emphasizes the Audit.

2.The paperwork emphasizes on food safety program as proof.

3.Consulting is not allowed during the Audit. The auditors are extremely limited in how to improve the information to assist the plant.

Conclusion

The global food safety initiative is basically a private organization which was established by the Consumer Goods Forum. The GFSI maintains the standards of food safety and ensures safe food delivery. It has certain objectives which maintains benchmarks to food safety management, have improvement in cost efficiency during food supply chain and have a unique stakeholder platform. Benchmarking process is an important role with the help of GFSI Guidance document. There are some certifications which is important for every individual performing the task of GFSI management system.

Impact of Climate Change in Food Processing



Introduction

The term "weather" refers to how the atmosphere behaves in a specific area over a short period of time, usually hours or days. "Climate" refers to general weather patterns over a broad area for a long period. Both weather and climate account for qualities like temperature, precipitation, and humidity.

Both climate and weather are often used together. But climate is different from the weather because it is measured over a long period of time, whereas weather can change from day to day, or from year to year. The climate of an area includes seasonal temperature and rainfall averages, and wind patterns. Different places have different climates. Climate change is the long-term alteration of temperature and typical weather patterns in a place. Climate change could refer to a particular location or the planet as a whole. Climate change may cause weather patterns to be less predictable.

These unexpected weather patterns can make it difficult to maintain and grow crops in regions that rely on farming because expected temperature and rainfall levels can no longer be relied on. Climate change is a natural process that is undergone on the planet from its beginning. But the problem we are facing now is the accelerated rate of climate change due to human intervention.

What Causes Climate Change?

Global Warming is one of the major causative issues for climate change. Certain gases in the atmosphere block heat from escaping. Long-lived gases that remain semi-permanently in the atmosphere and do not respond physically or chemically to changes in temperature are described as "forcing" climate change. The major gases that contribute to global warming are: Water vapor, Carbon dioxide, Chloro-Fluoro carbons, methane, nitrous oxide, etc.

Food And Climate Change

A stronger greenhouse effect will warm the ocean and partially melt glaciers and ice sheets, increasing the sea level. Ocean water also will expand if it warms, contributing further to sea-level rise. This will eventually affect the marine species and on a bigger scale, the land available for the production and cultivation of crops reduce on a larger scale unnoticeably which will cause issues in the food supply throughout the globe.

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Scientific Research

The solution to climate change will come from science alone. In 2011, research on the impact of climate change on agriculture and possible ideas to mitigate the risk was started by the Union agriculture ministry, and the National Innovations on Climate Resilient Agriculture (NICRA) was launched through the Indian Council of Agricultural Research (ICAR). The primary objective was to develop suitable technologies for production and risk management for crops, livestock, and fisheries.

Solutions and Development from India

Scientists have been working hard to breed varieties of different crops that are climate resilient. One such success is Sahbhagidhan, a variety of paddy which was jointly developed by the International Rice Research Institute and Central Rainfed Upland Rice Research Station of ICAR at Hazaribagh. It was released in 2010 and since then, it has gained success in uplands in eastern India in drought conditions. It matures in 105 days while most other varieties take 120-150 days to maturity. Farmers can plant another crop after harvesting this.

What can we do?

When it comes to climate change, the major question that arises in everyone's mind is that what can a single person do in it. There are many things individuals can do in reducing the pace of climate change. Some of them are:



1. Speak Up:

Raising voices is an easy and most effective solution against any huge problem in the current era of social media. The issues can reach up to the government and policymakers, which is in fact happening now from various parts of the world.

2. Switch to Renewable energy:

Switching to possible renewable energy sources will reduce the carbon emission in the atmosphere.

3. Invest in Energy Efficient Appliances:

This is a basic thing which each individual can focus on if he/she wants to take part in climate protection activities.

4. Reduce water wastage:

Saving water reduces carbon pollution, too. That is because it takes a lot of energy to pump, heat, and treat your water. So, take shorter showers, turn off the tap while brushing your teeth, and switch to Water Sense-labeled fixtures and appliances.

5. Reduce Food wastage:

The food industry uses a tremendous amount of energy per year to feed the global population. Food wastage hence has a drastic effect on climate change. If you're wasting less food, you're likely cutting down on energy consumption.

6. Shrink your Carbon Profile:

You can offset the carbon you produce by purchasing carbon offsets, which represent clean power that you can add to the nation's energy grid in place of power from fossil fuels.



INDUSTRY BUZZ

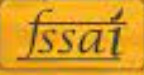
The FSSAI starts a food safety awareness campaign at Delhi's well-known markets.

In partnership with the Food Safety Department, Delhi, the Food Safety and Standards Authority of India (FSSAI) has initiated a comprehensive awareness and sensitization campaign aimed at major marketplaces in the nation's capital.

The awareness campaign, which will begin on April 8, 2024, in Delhi's well-known Khan Market and INA Market, will concentrate primarily on identifying and removing pesticide residue and other contaminants from food items.

Market groups and vendors, recognizing the importance of the issue, have actively joined in spreading awareness about the negative impacts of pesticide residue, particularly in fruits and vegetables, and the significance of testing for it. As a testament to our commitment to food safety, we have introduced the groundbreaking 'Food Safety on Wheel' mobile lab. This lab is equipped with multiple quick testing kits that can identify roughly 50 pesticide residues in various food matrices, including fruits, vegetables, milk, and cereals.



 
FOOD SAFETY AND STANDARDS AUTHORITY OF INDIA

Agrimax Foods launches Bake&Co., nutritious baked goods with millet, under the PMFME Scheme.

The ISO 9001:2015 food solutions company Agrimax Foods LLP has unveiled 'Bake&Co.,' its new name. According to the company, the brand's emphasis on nutrition, health, and unrivalled taste is poised to transform the market for baked goods based on millet completely. The government's PMFME program, which aims to support microfood businesses nationwide, supports the launch. Agrimax Foods received substantial support, including a subsidy of Rs 10 lakhs, under the PMFME initiative, which enabled the creation of its manufacturing operation in Gautam Buddha Nagar.

Its speciality is "Healthy Snacking," which provides a delectable assortment of baked goods designed to blend well-being and enjoyment. Among the options are Indulgence Cookies and Millet Cookies. Millet Cookies are prepared with healthy components such as natural jaggery, oats, fruits, nuts, seeds, and millets. They are ideal for health-conscious consumers looking for solutions devoid of preservatives, sugar, and gluten.



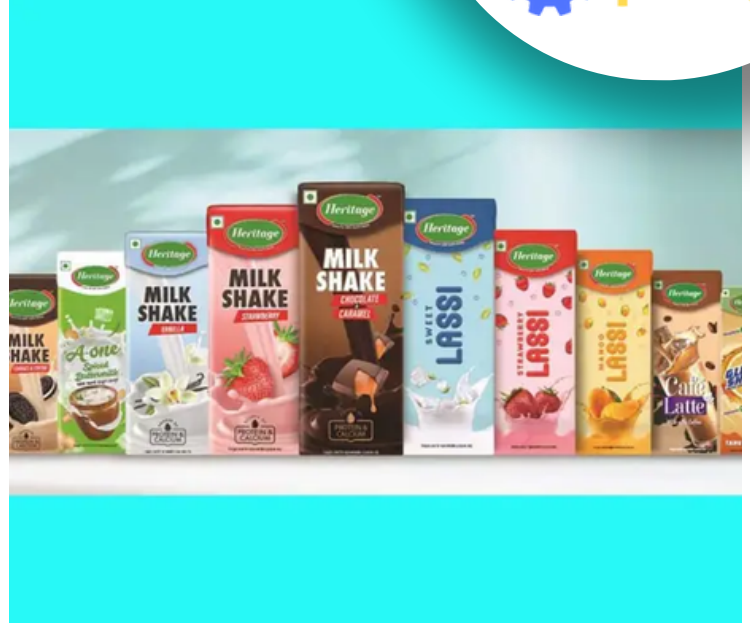


Training on the Food Import Clearance System is held by NACIN.

Recently, in Lucknow, the National Academy of Customs, Indirect Taxes and Narcotics (NACIN) held a Food Import Clearance System training session for its officers.

The training was specifically on Food Import Clearance for Authorized Officers with the collaboration of FSSAI for Trainee Inspectors at NACIN, Lucknow. The officials called it an integral part of CBIC's (Central Board of Indirect Taxes and Customs) Induction Training Program for Inspectors. The trainee inspectors were visited by Manvesh Kumar, Director (Import), and Dr. Sujata Singh, AD (Import), FSSAI, New Delhi.

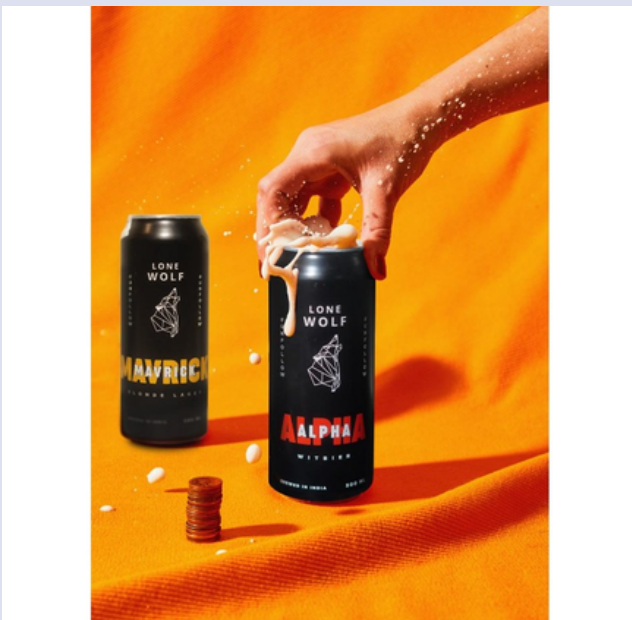
FSSAI says that as part of a new initiative to incorporate its training into CBIC's induction training program for Customs Officers, it trained recently hired Inspectors at NACIN in Lucknow.



Heritage Foods can leverage SIG technology's versatility for aseptic carton packaging of beverages.

The second-biggest private dairy in India, Heritage Foods Limited, has teamed up with SIG to package its drinks in aseptic carton packaging. Heritage Foods Limited will be better positioned to satisfy changing customer expectations thanks to SIG's unique aseptic packaging and cutting-edge, highly flexible filling solutions.

In the Medchal-Malkajgiri area of Telangana, the company has installed an XSlim 12 Aseptic filling equipment at its manufacturing site. The filling machine can fill nine various volume sizes (from 80 ml to 200 ml) on the same filling line, and it can fill 12,000 XSlimBloc carton packs each hour. The volume change takes less than 15 minutes to accomplish. This will enable it to target various price points and consumer segments.



In Goa, Onkara Beverages & Hospitality introduces the well-known beer brand Lone Wolf.

With its house brew, Lone Wolf, Onkara Beverages and Hospitality has become India's most reliable option for alcoves. Lone Wolf is an unusual beer that is locally crafted. It is available in three unparalleled varieties: Lone Wolf Alpha, which is a Belgian Witbier; Lone Wolf Maverick, which is a light and crisp malt lager; and Lone Wolf Strong.

Lone Wolf beer, which has captured the hearts of spirit enthusiasts throughout north India, is now being introduced in Goa. With its exquisite flavour, distinct taste, and remarkable smoothness, the Lone Wolf brand defies expectations and establishes itself as a high-end beverage. Lone Wolf, a beverage for the rebellious person at heart, exhorts people to take control of their lives and push limits.

Goa, a well-liked vacation destination in India, has a thriving alcove culture. Lone Wolf is poised to entice the young and the young at heart with its free-spirited taste, thanks to its well-balanced selection of upscale and local bars and a healthy influx of visitors from all over India and the globe.

WEEKS HIGHLIGHT

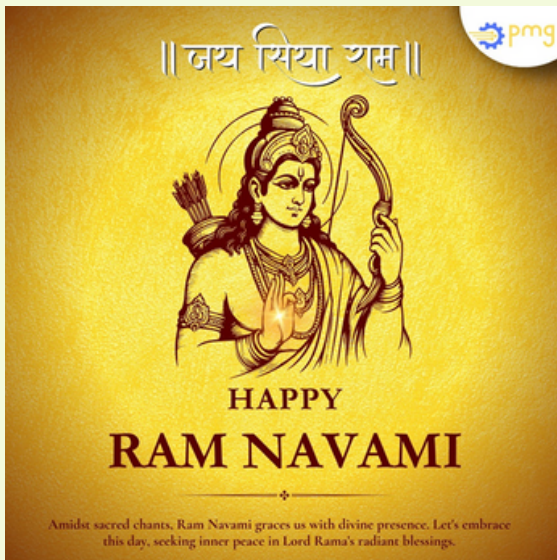
NON-TECHNICAL CONTENT



13 APRIL

BAISAKHI

Baisakhi celebrates the spirit of harvest and new beginnings, uniting communities in joyous festivities. As we rejoice in the abundance of nature, may this auspicious occasion bring prosperity and happiness to all.



17 APRIL

RAM NAVAMI

Ram Navami is a Hindu festival celebrating the birth of Lord Rama, the seventh avatar of Vishnu. It falls on the ninth day of Chaitra month in the Hindu calendar. Devotees observe fasts, offer prayers, and participate in processions to honor Lord Rama's virtues.

APRIL

DID YOU KNOW?



Frozen herbs are herbs that have been cleaned, chopped, and frozen for preservation purposes. Herbs are typically used to add flavour, aroma, and nutritional value to various dishes, and frozen herbs provide a convenient and practical way to use them in cooking.

COMMERCIAL PRODUCTION

- 1. Cultivation:**
Cultivated in open fields or greenhouses, depending on the type of herb and the local climate.
 - 2. Harvest:**
Harvested when they reach maturity, which varies depending on the type of herb.
 - 3. Processing:**
Washed, trimmed, and sorted to remove any impurities, such as dirt, debris, or damaged leaves.
 - 4. Freezing:**
Frozen using either blast freezing or quick-freezing techniques to preserve the flavour and nutrients.
- 1/3

Market Scope

- The market scope for frozen herbs is relatively small compared to other frozen food categories such as vegetables, fruits, and meat products.
- North America and Europe are the largest markets for frozen herbs, accounting for a significant portion of the global demand.
- The major players operating in the industry. Some of the major players in the market include Givaudan, McCormick & Company, Inc., Kerry Group, and Naturex SA.



Fact 1

Frozen herbs are subjected to a stringent preservation process to retain their sensory attributes. Following harvest, herbs are promptly washed, diced, and rapidly frozen to inhibit enzymatic deterioration. Swift freezing minimizes ice crystal formation, preserving cell integrity and flavor compounds. Vacuum sealing in impermeable packaging prevents oxidation and maintains herb quality. This meticulous technique ensures frozen herbs retain their aroma, taste, and nutritional value.



1/3

Frozen meat is meat that has been frozen at a very low temperature to preserve its quality and extend its shelf life. Freezing meat involves lowering its temperature to below 0°C (32°F), which stops the growth of bacteria and other microorganisms that can cause spoilage and foodborne illness.

COMMERCIAL PRODUCTION

1. Processing:

Processed to remove any excess fat, bone, or other unwanted parts.

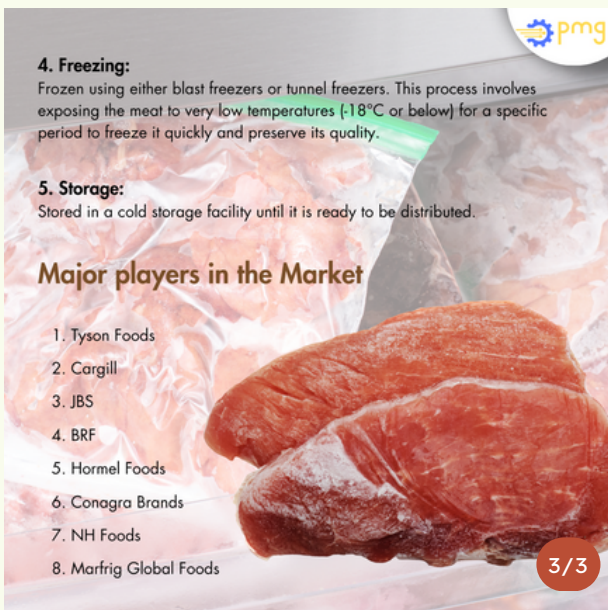
2. Cutting:

Cut into the desired shape and size, such as whole cuts or ground meat.

3. Packaging:

Packaged into appropriate containers, such as plastic bags or vacuum-sealed packaging, which helps to preserve its quality and prevent freezer burn.

2/3



3/3

Fact 2

Frozen meat preservation relies on advanced cryogenic techniques, where temperatures plummet below -18°C to inhibit microbial proliferation and enzymatic degradation. Before freezing, meat is meticulously prepared, trimmed, and vacuum-sealed to prevent moisture loss and oxidation. Flash freezing methods minimize ice crystal formation, ensuring meat retains its original texture and flavor upon thawing. Rigorous storage protocols maintain the integrity of frozen meat, preserving its nutritional quality and safety.



Frozen vegetables are vegetables that have been picked at their peak ripeness and then quickly frozen to preserve their flavour, texture, and nutrients.

- Blanching the vegetables in hot water or steam, which stops the enzymatic processes that cause deterioration in fresh vegetables.
- Flash-frozen at very low temperatures, usually between -18 to -40 degrees Celsius, which prevents the growth of harmful bacteria and preserves the vegetables' freshness for several months.

COMMERCIAL PRODUCTION

1. Harvesting:

The vegetables are harvested at the peak of their freshness and ripeness.

2. Washing:

The vegetables are thoroughly washed to remove any dirt, debris, or other impurities.

2/3



Fact 3

Frozen vegetables are a convenient and nutritious option for meals. They are typically harvested at peak freshness and quickly frozen to lock in nutrients. This freezing process also helps to preserve the flavor, texture, and color of the vegetables. When preparing frozen vegetables, they can be easily steamed, boiled, or microwaved, making them a versatile choice for various recipes. Additionally, frozen vegetables often have a longer shelf life compared to fresh ones, reducing waste.



1/3

Frozen meat products are any meat products that have been frozen to preserve their quality and increase their shelf life.

Types

1. Whole cuts of meat:

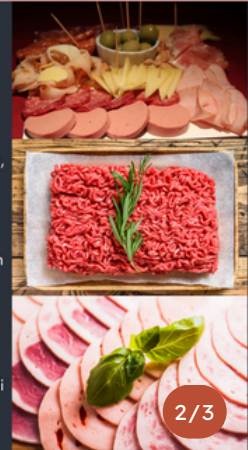
Processed beyond basic trimming and deboning, such as whole chicken, beef roasts, or pork chops.

2. Ground meat:

Ground beef, turkey, or chicken that has been formed into patties or shaped into meatballs.

3. Processed meat products:

Processed beyond basic trimming and deboning, such as sausages, hot dogs, or deli meats.



2/3

4. Prepared meat products:

Prepared, such as frozen meatballs, precooked chicken breasts, or frozen meatloaf.

5. Specialty meat products:

Include exotic meats, such as bison or venison, or specialty cuts, such as Kobe beef.

Major players in the Market

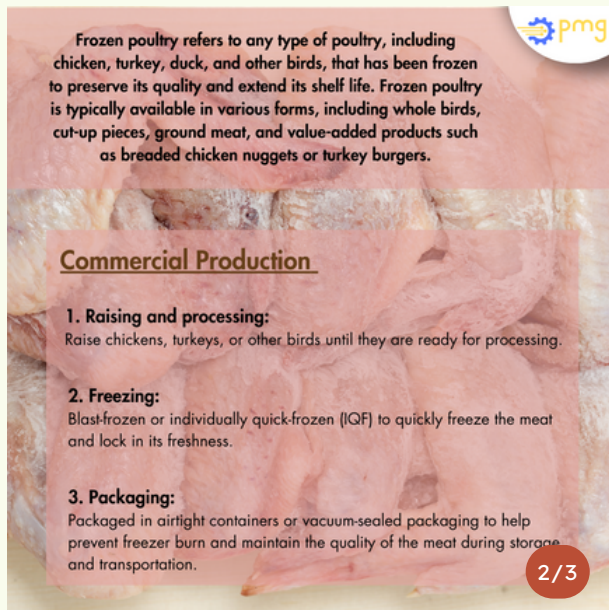
1. Tyson Foods:
2. JBS S.A
3. Cargill
4. Hormel Foods
5. Conagra Brands
6. Nestle
7. Smithfield Foods
8. Perdue Farms



3/3

Fact 4

Frozen meat products are subjected to rigorous technical procedures to uphold quality. Following meticulous trimming and portioning, the meat is rapidly frozen using cryogenic methods, ensuring temperatures below -18°C to halt microbial activity and enzymatic degradation. Vacuum sealing expels air, reducing oxidation and preventing moisture loss. Controlled storage conditions maintain optimal freshness and safety, preserving the nutritional profile and sensory attributes of frozen meat products.



Fact 5

Frozen poultry preservation involves meticulous processing steps. Following thorough cleaning and processing, poultry is rapidly frozen using cryogenic techniques to temperatures below -18°C , effectively halting microbial proliferation and enzymatic degradation. Vacuum sealing in impermeable packaging prevents moisture loss and oxidative spoilage. These precise methods ensure that frozen poultry maintains its texture, flavor, and nutritional content, meeting strict industry standards for quality and safety.



PMG ENGINEERING

About PMG

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Meeting Global Benchmarks

In ENGINEERING DESIGN and PROJECT MANAGEMENT
for FOOD and BEVERAGE Industry with SINGLE POINT ACCOUNTABILITY

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- ENGINEERING MUST CREATE BUSINESS VALUE
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