

Innovation Creates Intellect, Increases Business Value

KEY PERFORMANCE IN 2019



The total value of Innovation of products, services and process improvement was

6,788 million baht



The total number of innovative products submitted to Innovation contest was

1,286 products



The total number of researches, innovation development, and products was

521 products



The total budget for research and development of technologies, as well as innovation was

297 million baht

Supporting the SDGs



SDG8 Valuable Employment and Economic Growth
8.2 Achieve higher economic productivity through diversity, technological advancement and innovation.



SDG9 Promotes Industry, Innovation and Infrastructure
9.5 Increase scientific researches and enhance the technological capacity of the industrial sector.



SDG17 Participation in Sustainable Development Framework
17.8 Establish mechanisms for science, technology and innovations as well as improve technological readiness.



2020 GOAL



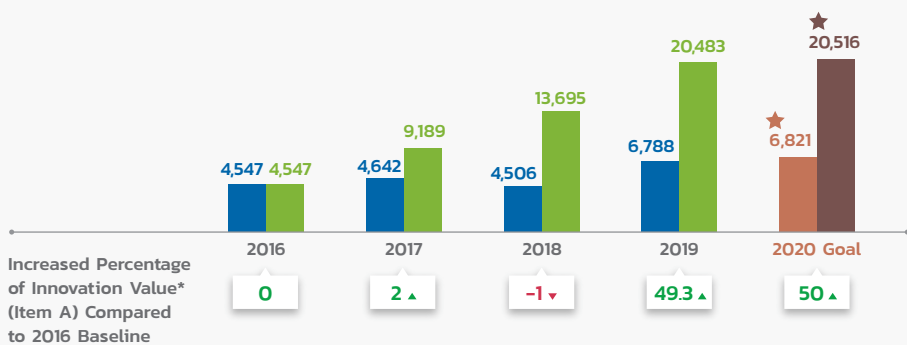
To increase in products, services and process innovation value by

50% by 2020, compared to 2016 baseline.

PERFORMANCE AGAINST GOAL

■ Innovation Value* (million baht per year)

■ Accumulated Innovation Value* Accumulated from 2016 Baseline (million baht)



*Innovation value for products and procedures

Challenges

The rapid changes of digital technology has played an important role in influencing consumers' lifestyles. As a result, new approaches and means of consumption are created to meet the increasing expectations for the products and services' values. This is a global challenge. Moreover, technological changes also have effects on the business formats and operational contexts. For example, innovation is used in business operations to deliver fast and convenient services to consumers. It is also used in the business operations whose priority is on both society, environment, and business growth. Readiness to withstand digital technology changes is therefore a matter that every organization should emphasize and adapt to, simultaneously.

PROGRESS IN 2019



Launch of the pilot 'Digital Store' including "7-Eleven Store, True Digital Park Branch" and "Makro Food Service, Lat Krabang Branch"

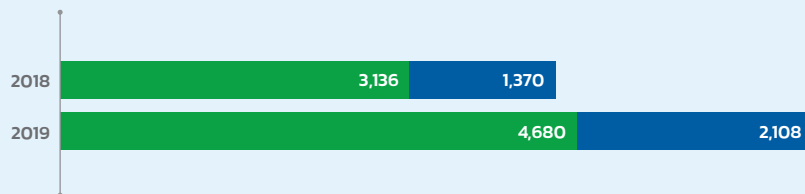


Launch of Innovative services for Banking agent, parcel delivery, automatic vending machine, and '7-Eleven Delivery', an online ordering application delivering to home

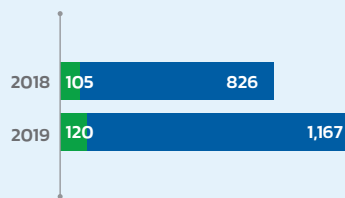
INNOVATION DASHBOARD

■ Open Innovative ■ Close Innovative

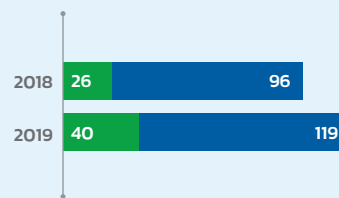
Value of Innovative (million baht)



Submitted to Innovation Contest (products)



Awarded – Winning (products)



Innovator (persons)



521 projects of Research and Development



8 patents



1 petty patent



254 personnel for Research and Development

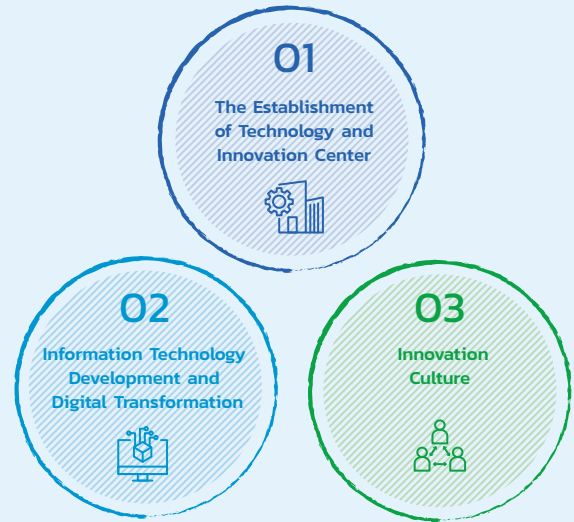


297 million baht for total Research and Development Budget

Management Approach

CP ALL Plc. and its subsidiaries (“the Company”) aim to manage innovation continuously. The Company aspires to become a corporate leader in innovation development, comprising development of new products and creative services, as well as the development in operational procedures of the organization. The Company aims to create positive impacts on society and the environment through the value-added innovation applied in new products and product development. For the Company and its subsidiaries, innovation development is welcomed from both within the organization and from its external stakeholders. Additionally, the Company promotes technological progress and innovations management through its management approach, as follows: 1) the establishment of Technology and Innovation Center; 2) Information Technology development and Digital Transformation; and 3) Innovation Culture.

Management Approach to Technology and Innovation Management









1) The Establishment of Technology and Innovation Center

The Company focuses on innovation development with the hope to foster business growth, along with society and the environment. In tandem, the Company has set up a research department on technological development and innovation, which can enable economical, social, and environmental values as follows.

Science Technology and Innovation Development Office (STIDO)

is responsible for consecutively driving the Company’s capacity and its role towards innovation and technology. Through research and development works, innovation and dissemination of new technology, STIDO is expanding the capacity into business operations in accordance with the Company’s strategy. The Science Technology and Innovation Development Office operates of 7 centers as illustrated below:

-  **Biological Technology Center**
-  **Management of Technology Center**
-  **Commercial Technology Center**
-  **Logistical Technology Center**
-  **Construction Technology Center**
-  **Robotics Technology Center**
-  **Digital Technology Center**

Results and Benefits



The total number of researches and technology developed was **8** projects



The total budget for research and development was over **30** million baht

Per past research and development projects, the Company has applied the technological knowledge into new products’ development, enabling nutritional values to be well preserved. The Company has expanded this product innovation into 7-Eleven stores, which is its commercial space. Product examples include Jumbo Big Pao Vegetarian with vitamin B, and Chicken Brown Sticky Rice Burger with Thai Spicy sauce with vitamin B.

CP Food Lab Co., Ltd

is a research development information hub. It was formed to support food research and development for CP ALL Plc., C.P. Groups, and other subsidiaries, both domestic and international. The Lab serves as the center of research and development collaboration efforts between public sector and private sector.



Results and Benefits



The total number of researches and technological development was **29** projects



The budget for research and development totaled to over **70** million baht



The total number of research and development personnel was **9** persons

The Office of Rock-Quality Designation (RQD) of CP ALL Plc.

is tasked with

1 Establishment of Standards

on Food and Beverage Products such as meals, snacks, bakeries, vegetables, fruits and beverages. RQD’s actions start from concept outline for products responsive to consumers’ needs, such as healthy food and food nutrition. Therefore, the Company sets the concept of products for healthy food and nutrition values. The office of RQD conducts food and nutritional value analysis, recipe development, and production process innovation, packaging process, preservation process and logistics. This ensures products reach consumers are of consistently high quality. As for the preservation of vegetables and fruits, the Company has conducted researches from agricultural process all the way to packaging, identifying methods to ensure the products’ freshness upon reaching consumers.

2 Development of Packaging that is Eco-Friendly

Results and Benefits



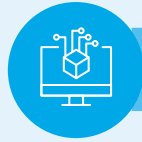
The total number of product development was **484** projects



The total budget for development totaled to over **7,087,656** baht

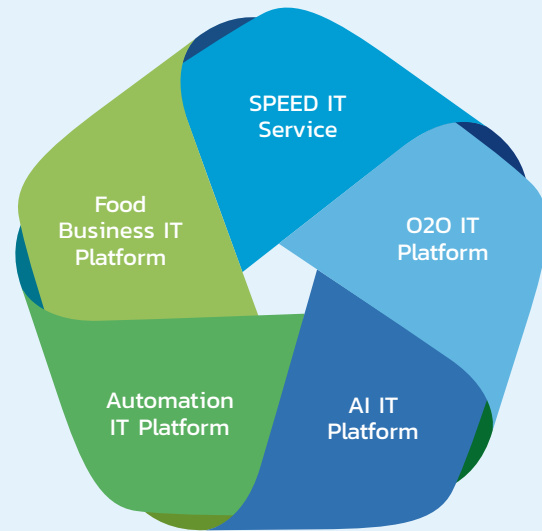


The total number of research and development personnel was **66** persons



2) Informational Technology Development and Digital Technology

The Company established the information and digital technology department under the guidance of high-level executives. With a purpose of reviewing information technology and cyber security strategies, the department is responsible for the security of information system of the company. It is also tasked with raising awareness regarding technological risks to employees of the organization. The information technology and digital technology department works on the system improvement to detect any abnormal activity within the information system. This results in reduced investigation time and issue-resolving time. Additionally, the department serves as a data collection hub for data analysis. Data on information technology and other novel technology is used to elevate the Company's operations, products and services. The 5 strategies promoting informational technology and innovations are illustrated in 5 parts as follows.



In tandem, the Company determines to consistently work on information technology security. Through IT Cyber Security Strategy, the Company aims to enhance capacity of security system, data network protection, and raise users' awareness on cyber threats. The Company is also determine to increase the efficiency in detecting

and preventing against cyber threats via internet. It has conducted risk analyses, while ensuring the security policy is in alignment to the laws. As for the information technology and security personnel, the Company builds capacity and expertise to security personnel, ascertain they are aware of imminent changes or possible threats.

Innovation and Business Development Towards the 4.0 era (Digital Transformation)

Nowadays, changes in economy are competitively increasing at both local and international levels. To respond to the changes, the company has planned on the developmental procedures of technological innovation. Under the determination to level up the competition and prepare to keep up with the world, the company has provided knowledge and encouraged the engagement of creativity. All of which are used in technological development for new type of projects that can remain up to date at all times. In addition, the company encourages thinking out of the box, while integrating such ideas into project management for further business expansion. This practice can create a sustainable competitive advantages. The examples of projects are as follow.



INNOVATION STORES

1 7-Eleven Stores, True Digital Park Branch

This is a pilot 'Digital Store'. By installing Face Recognition technology, 7-Eleven stores can procure or present the products that customers want easier. The Face Recognition system works by remembering and storing consumers' behavior data. Moreover, it can increase the security measures inside the stores as the connection between CCTV and face recognition system can help distinguish between the employees and strangers.

2 Siam Makro, Digital Store Branch

The 129th branch is now the latest branch in service under the concept of Makro Food Service in Lat Krabang. This is the first pilot digital store branch of Siam Makro, as well as the first pilot digital store in the wholesale and food service business in Thailand. As a prototype for a smart wholesale department store, it took over 1 year for development and construction. For this digital branch, Artificial Intelligence (AI) technology, including 32 types of digital devices and technology, are applied with the purpose of connecting employees, partners and customers.

Operation

25 AI smart cameras have been installed in 20% of the sales area. This is to increase the ability to monitor out of stock products and supply the products to be sufficient for customers' demand at all times. In terms of sales, there is a genius price tag, which takes only 40 seconds to update new information into the system of the store with more than 8,000 items. The Q-Busters system helps the assistant team to take payments with higher speed. There is also an automatic cooling system and heat detection system, which can maintain the temperature and quality of the products better. In terms of electricity generation, the Company has installed solar panels to help with the generation of electricity at the branches. The installation of these helps reduce energy and save electricity bills by more than 35 percent. In addition, the Company has also increased an installation of an electric screen, which reports the reduction in energy consumption and greenhouse gas emission produced. For customers who opt for electric cars, the Company has also provided electric vehicle charging service, respectively.

Results and Benefits

It increases work efficiency and staff services to be more accurate

Customers can make purchases as conveniently and quickly as possible

The ability to reduce energy and save electricity bills is at **35%**



SERVICE INNOVATION

CP ALL 4.0 concept has been adapted to business operations to respond to all lifestyles. By providing a 'Banking agent', a service for deposit money at all 7-Eleven stores nationwide; 'Speedy', a delivery service throughout Thailand; 'counter services', a service for all payments, including purchasing concert tickets through counter services; and 'vending machines services', a distribution of automatic vending machines to various communities such as residences, office buildings, universities, schools, airports, bus stations, factories, exhibition centers, including a large hospital with over 200 beds. The minimum sales of each vending machine is approximately 1,600 baht per machine per day. In 2019, the total number of automatic vending machine was 761. In addition to the mentioned service, '7-Eleven Delivery', or an application of an online delivery service platform was developed with a concept of 'delivery service to the front of the customer's house'. For orders with the minimum purchase at 100 baht, there is no delivery service fee. Also, staff at 7-Eleven stores will be the direct messenger to deliver the order to the customers. In 2019, the company has provided this pilot service in 100 residential areas and communities only.



3) Innovation Culture

CP ALL Plc. recognizes the importance of the organization driven by an innovation culture. Therefore, the company has promoted knowledge and understanding and created the atmosphere for employees to be creative through the CP ALL Plc. Closed innovations competition. To honor the projects that result in economic, social, and the environment, the Company encourages knowledge management within the organization. It aims to deploy new approaches to scale-up results and share best practices. Moreover, the Company promotes the application of knowledge retrieved from outside of the organization into business operations. By this, the company has cooperated with external stakeholders to create new approaches to the business. To encourage the improvement of work processes, the company has reduced unnecessary tasks for the organization to be more flexible. As a result, the employees are able to create valuable work and innovations for the company. They can keep up with the changing competitive conditions. Also, an innovation culture in which the executives and employees are involved is created. All of which delivers values to the nation, the people and the organization, consecutively.

Close Innovation



President Awards

is a project focusing on the innovation development within the company in order to search for products and services and new approaches. The project is based on a variety of businesses, which can meet the customers' needs and those of consumers, including communities, society and the nation.



Big Fish Project

is a project that focuses on the development of innovation derived from 7-Eleven stores that are distributed throughout the country and have provided services for a large number of customers each day. The project focuses on the cooperation among various departments within CP ALL Plc. In order to increase work process efficiency.



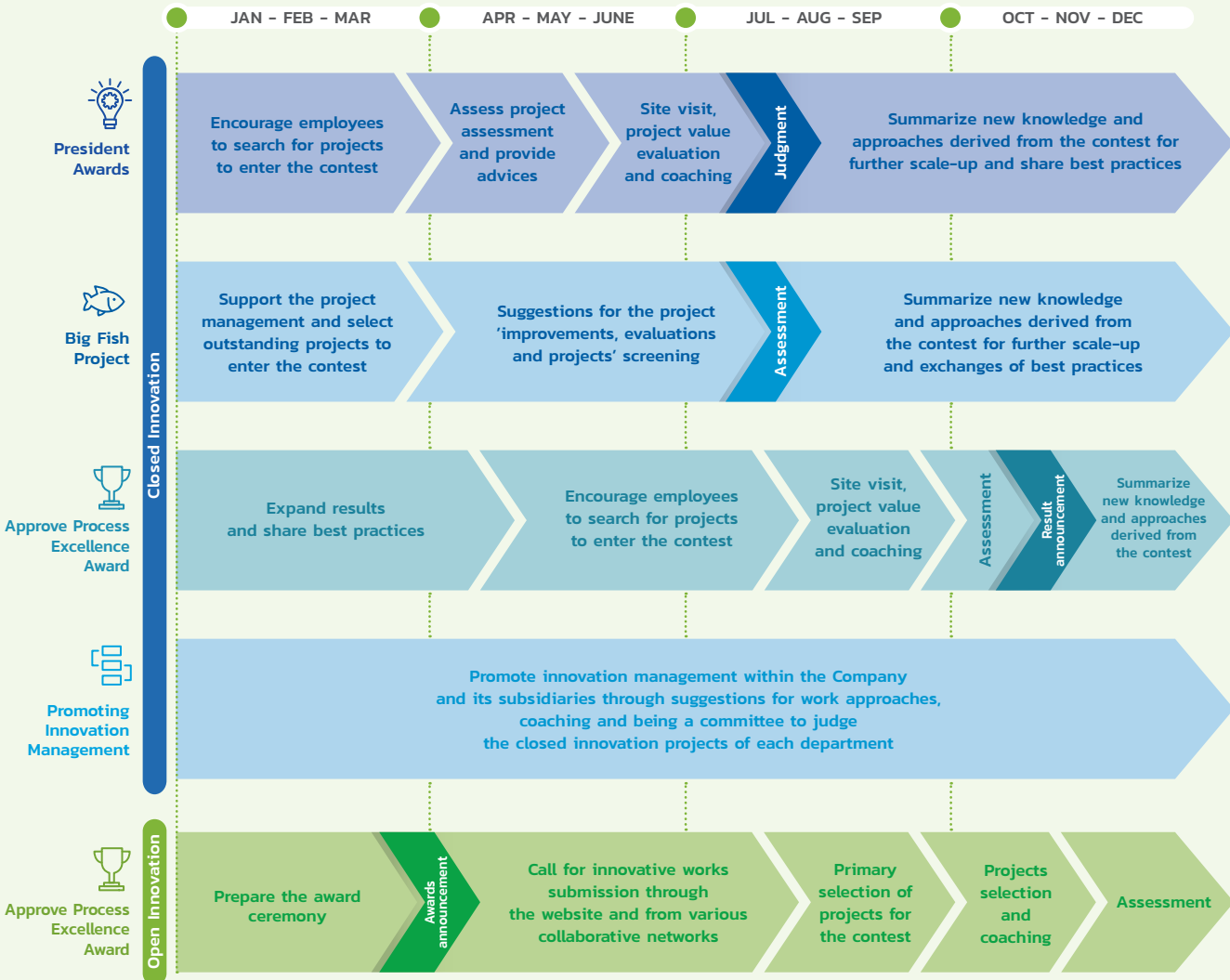
Approval Process Excellence Awards

is a project that focuses on improving the efficiency of the approval and decision making processes. To increase Speed and Quality for operations, IT system has been applied for more work efficiency. The end result of this project is to meet requirements of all relevant departments and helps employees become satisfied.

The rapid and sudden change of technology have caused fierce competition. As there are a lot of new startups businesses and entrepreneurs with a lot of innovations, this situation may affect the Company's business. Therefore, in order to keep up with the changes, the company has seek and identified strategic opportunities by joining partnerships with external stakeholders for new business approaches. Through Open Innovation in economy, society and the environment, the Company has delivered sustainable value to the nation, the citizens and the Company itself.

Open Innovation

CP ALL Plc., together with 11 national organizations, jointly organized the “Thailand Synergy to Propel Thai SMEs (for economic, society and the country)”. This Thailand Synergy Forum aims to support organizational researches from both public and private sectors, as well as support small and medium-sized entrepreneurs (SMEs) with channels and increasing market opportunities. It also honors the researchers and entrepreneurs who create innovative projects, which help develop and enhance the market competitiveness of the country. The ‘7 Innovation Awards project’ is also regarded as the channel to support cooperation between public and private sectors.



CP ALL Innovation Calendar

In 2019, a total of 1,287 projects were submitted to innovation contest. Outstanding project works are as follows

Close Innovation

Examples of President Awards

1 Souvenirs Across Thailand, Just a Click Away (24 Shopping)

BEING INNOVATIVE

In accordance with the demand of bestselling provincial products among people who reside in different regions, 24 shopping Co. Ltd. has selected most famous food products of each province to be distributed via online channel. It supports products for Thailand’s FDA certification standards, and to develop a delivery system that can preserve the food’s freshness until reaching customers. The distribution channel can be either via 7-Eleven stores nationwide or house delivery for customers’ convenience.

Results and Benefits



Support to entrepreneurs applied for this project participation was

76 persons



The estimated number of total sales in 2019 was

2.1 million baht



The project is an alternative for consumers to access the bestselling product of each province

2 Transforming the “Sealing Film for Pork Basil with Rice Packaging” Being Innovative

Being Innovative

With the total sale of pork basil with rice over 14 million boxes per year, the team and its manufacturer have developed a laminated film for packaging sealing. The laminated film allows more heat resistance and more basil’s fragrance to be stored. Also, as the film is more visible, the food inside is portrayed as more appetizing. The product design can also be printed on the film directly, enabling products to become more aesthetically pleasing than using previous counterparts with stickers. As a result, the basil rice menu looks more appetizing, leading to increases in sales.

Results and Benefits



Profits derived from the pork basil with rice was over

4 million baht per year



Amount of sticker wastes was reduced up to

16 million pieces per year



The packaging process had been improved for mass production manufacture

3 Fresh Cream Bun Development

Being Innovative

CPRAM Co. Ltd. (Lat Krabang) has invented fresh, creamy bun that is delicious and soft, and has light texture. The bun is filled with generous amount of light cream filling that melts in the mouth. A special recipe of flour, the proportion of fat and sugar, as well as the method of forming and baking, are used for the creation of fresh cream bun. Meanwhile, a technology is used for cream fillings insertion, which can maintain the appetizing look of the product. Fresh cream bun has received great feedbacks from customers. Moreover, the company is the only manufacturer of fresh cream bun at the industrial level in Thailand. The fresh cream bun products are only available at 7-Eleven stores nationwide.

Results and Benefits



The target income for 2019 Fresh Cream Bun sales was

100
million baht



Fresh cream bun product is an alternative in the category of chilled bread in 7-Eleven stores for bakery customers



Develop Fresh Cream Bun into other products in the similar category

4 Happiness Delivery to Thailand's Axe Handle Province

Being Innovative

Based on the education expansion opportunities provided by CP ALL Plc., it was discovered that the 5 provinces in the southern part of Thailand has needs for education format that allows income-generation in-between, and a job to secure upon graduation. This results in a cooperative project between the Company and local government agencies, which provide guidance and co-developed a system to care for students with different religious and cultural practices. There continues to be an influx of interested prospects in the program. This project creates revenue into the area, fosters life quality, and improves local economy

Results and Benefits



The total number of current students in undergraduate level in this program is

285 persons



The total number of graduates who are already employed is

80 persons



The project benefits the development of economic and social stability of the nation

Close Innovation

Examples of Approval Process Excellence Awards

1 Smart CDC from Platform to Learning Center by Bang Bua Thong Temperature-Controlled Distribution Center (CDC)

Being Innovative

As the workload at temperature-controlled distribution centers increases, there is a tendency for working hours to spike. Therefore, the team has adjusted the work process to become a Digital Platform, starting from human capital development – elevate them to become change-leaders.

The platform reduces work procedures to be more concise and improves data connectivity; this includes selecting the most suitable technology for the business, starting from product delivery, arrangement, delivery and logistics. The approval process has also been streamlined.

Results and Benefits



The work processes was cut from

40 steps to
21 steps



The approval processes was streamlined from

16 steps to
4 steps



A total wage from reduced working hours was

4.29
 million baht per year



The number of resigned employees was reduced from

231 persons to
111 persons



Employees' engagement score has increased from

75% to
84%

2 Smart Process Automation by Accounting and Finance department

Being Innovative

The projects uses Robotic Process Automation (RPA) to help with repetitive work processes of no-value workload. The team chose to use freeware via self-studying. The results have been expanded by developing employees' knowledge on the use of RPA system in order that they can apply it to any tasks. The collaboration between human and machine results in a reduced workload, as well as building foundation for the employees to skillfully cope with any future tasks. In addition, the reduced work load means employees can work on increasing analytical works and other new tasks. Consequently, the arrangement has brought happiness, career advancement and work motivation for employees.

Results and Benefits



Reduction in work process and working hours after the use of RPA system is

24.76
 million baht



Employees can increase skills in system learning, which can be applied to other tasks to prepare for the competition in the digital era.

3 Effective Planning for Supply Chain Project by CPRAM Co., Ltd (Lat Lum Kaeo)

Being Innovative

Nowadays, purchase demands of 7-Eleven customers continuously increase. It results in more orders of tray packaging. The planning department has to reduce or increase the order of the tray package in accordance with the actual usage required per each day, due to a limited warehouse space. However, it leads to repetitive work in planning department, procurement department, and suppliers. Due to frequent changes in the Chilled Food

Production, suppliers were often unable to deliver the products or met the urgent orders, resulting in delayed release of new products later than the original plan. To cope with this situation, the team had adjusted work processes in 3 areas, including creating Workflow Online for quick data management, improving order processing and creating Visual Stock to instantly connect with suppliers.

Results and Benefits



Business partners can deliver products to the company
100%
 on time



Approval steps was reduced by
 ▼ **9** steps



Operational procedures was cut from
20 steps to
 ▼ **4** steps



A new domestic product can be processed within
38 days from the
45 days goal



A storage costs and products moving was reduced to
 ▼ **2.04**
 million baht per year



Open Innovation

Examples of Social Projects

1 Activated Charcoal from Cassava Rhizomes

A project from Tom Cassava Company Limited

Being Innovative

A high quality, chemical-free, Activated Carbon, is produced from cassava rhizome. By developing a closed kiln system that does not require using external energy, the kiln can heat up to more than 1,000 degrees Celsius chemical-free. The system can be further developed into a product for improved life quality in safe food management and for vegetables' and fruits' preservation. This kiln system is environmental friendly. Also, the system can help cassava farmers to earn higher incomes.

Results and Benefits in Business, Social and/or Environmental



The buying price value for cassava rhizomes farmers has been increased to

700 baht per tonne



Relocating expenses for burning cassava rhizomes for farmers was reduced to

150 baht per tonne



More than 3,000 farmer households received higher income. The total number of income was

240,000 baht per year.



The import expense of Activated Carbon was reduced for more than

600 million baht



The cost for "fruits and vegetables" preservation in the business sector was reduced, resulted in longer preservation



The greenhouse gas emission was reduced as a result from the discontinuation of burning cassavas



The public health burden was reduced as a result from safe food management, and toxic air and water pollution management

2 New types of Probiotics to Prevent Tooth Decay

The project of the Faculty of Dentistry, Prince of Songkla University

Being Innovative

A research has found that the selection among a good, and safe microorganisms in Thailand can stimulate immunity in saliva and control the amount of Streptococcus mutans, which is the source of cavities or tooth decays. The said microorganisms can remain inside mouth and eliminate the source of cavity for a long time. Therefore, it is more effective to prevent cavity and it is cheaper than importing probiotic products from foreign countries. Moreover, the research team can further expand on this knowledge and apply it on a variety of products, such as curd milk, granulated milk, candy and powder form. All of which can help prevent tooth decay among children and helps reduce prematurely avulsion (losing tooth) among the elderly.

Results and Benefits in Business, Social and/or Environmental



It saves the cost of cavity treatment, according to the approximate evaluation of filling cavities for

1,500 children, total to **607,500** baht per year



It reduces the government's budget expenditures in addressing cavities and respective consequences



The result can be applied to a variety of other products, allowing the opportunity to expand and create a lot more value. Currently, the use of probiotic products for health is approximately

7,000 million baht per year

Examples of Economic Projects

3 137 Degrees, a Healthy Dairy Alternative
A project of Simple Foods Company Limited

Being Innovative

is a healthy dairy alternative, is a UHT almond drink product. It is an alternative for consumers aspires for good health and needing calcium, but are allergic to traditional cow’s milk. By choosing nuts, almonds and whole grains that are beneficial to the body, this product provides good fat through the quick extraction process at high temperature. This process allows preserving on nutrition. Also, this product contains sugar from coconut pollen that has low glycemic index (low GI). It helps to burn and degrade fat. This product contains 70 percent of folic acid that the body needs per day. In addition, it strengthens nerve cells and contains a nutrient that pregnant women need most. It is rich in vitamin B, E and Antioxidants to help strengthen the brain and reduces the risk of Alzheimer’s disease. The product is suitable for people who want to control sugar levels, heart disease patients and those with high cholesterol level. It does not use carrageenan to keep the milk texture as the carrageenan may be dangerous for health.

Results and Benefits in Business, Social and/or Environmental



This product generates sales in both domestically and internationally for over **350** million baht per year, exporting to **30** countries



Add value and affirms a positive reputation for Thailand’s produce, such as pollen and coconut flowers, so the products are world-renown.



The first to create almond milk market in Thailand and has driven the growth of market continuously



Increases options for people with health problems, who wants to control sugar and fat and those who are allergic to cow’s milk



Promotes employment in the country



Consumers can access healthy dairy products at accessible prices through more convenient distribution channels

Performance on Innovation

Innovation operation can be calculated as values to monitor their performances. The performance of innovations in 2019 is illustrated in economic values below:

