



Innovation Creates Intellect, Increases Business Value



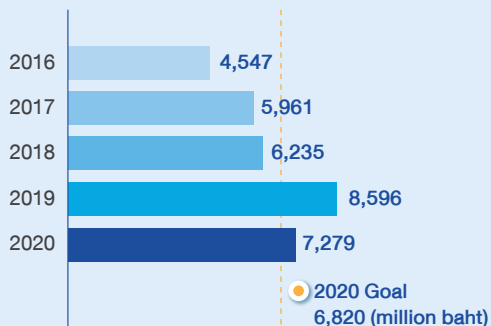
2020 Goal



To increase innovation value for products, services, and processes
by **50%** (compared to the 2016 baseline)

Performance Against Goal

Accumulated innovation value
(million baht accumulated)



Increase of innovation value (%)



Note: 1. Values on products, services, and processes
2. Deadweight factors are included in accumulated valuation

Key Performance in 2020



4,786 million Baht
in innovation value in
products, services, and
process



1,308 innovation
projects sent to award
competitions



677 innovation projects
related to technologies and
products

Supporting the SDGs



SDG8 Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labor-intensive sectors



SDG9 Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
9.5 Enhance scientific research, upgrade the technological capabilities of the industrial sector; encouraging innovation and substantially increasing the number of research and develop workers; as well as research and development spending



SDG17 Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development
17.8 Fully operationalize the technology bank and science, technology and innovation capacity-building mechanism and enhance the use of enabling technology, in particular information and communications technology

Risks and Opportunities

Our world presently is under constant change. One such rapid change is the development of digital technologies which have a role and influence on consumers' daily lives. CP ALL Plc. and Subsidiaries ("the Company") see the importance of constantly improving itself and the organization, including preparing for and adapting with change, especially during crisis situations. For instance, the coronavirus (COVID-19) pandemic in the past year has prompted the development of New Normal and consumption patterns through increased use of digital technologies. The Company has supported research and development, which included nurturing innovation that enables speed, convenience, and security for consumers in all areas of operation. This involved considering the importance of corporate governance, social, and environmental in tandem with business growth.

Progress in 2020



Product accounting through synthetic speech in smart phones



Technological implementation for product orders in 7-Eleven stores



Deepening of 2019 innovation projects

Management Approach

The Company recognizes the importance of developing research and technologies, while progressing into a leading organization in managing future innovations in various areas, including product development, service creation, and the organization's operating procedures.

This is to create value for the country, organization, society, and the environment. Additionally, the Company supports creating innovation with external stakeholders by defining frameworks and operating guidelines through various innovative channels as follows.



Guidance on Mitigating and Preventing the Risk of COVID-19



The negative impacts of COVID-19 pandemic have caused consumers to transform their ways of life into the “New Normal”, wherein they increasingly perform online shopping and food ordering, make a payment through mobile banking, work from home, and video conference to support social distancing and prevention the spread of COVID-19. The Company has recognized the importance of technology and innovation development to help make life during this crisis more convenient, safe, and effective as follows.

True Money Wallet Master Project

In adapting to the “New Normal”, customers less frequently left their home to avoid COVID-19 transmissions. The Company’s approach to increase its customer base and revenue was by expanding sales through the True Money Wallet application. It has developed skills of 7-Eleven staff on the use of this application and on communicating with customers the various benefits of making purchases through the True Money Wallet application. This builds the staff’s experience and stimulates customers’ purchases.

Impacts and Benefits



Revenues increased by

665 Baht/day/store



Customer base increased by

35 people/day/store

CPRAM New Normal Project

As the Company commits to keep its staff safe from COVID-19 disease, it has set social distancing and Work from Home policies, as well as requiring the suppliers and customers to have policies or measures in strictly preventing the spread of COVID-19. This has caused difficulties on assessment processes of suppliers and on-site verification of suppliers and customers. The Company leveraged digital technologies to facilitate work during the New Normal through online platforms and applications, including the Screening Online and Online Interview systems and the use of co-working spaces to reduce work processes and work hours, while maintaining social distancing measures per Company policy.

Impacts and Benefits



The Company is able to continue business operations



Employees have knowledge on self-protection against COVID-19 disease in their daily lives



Employees have safe working conditions

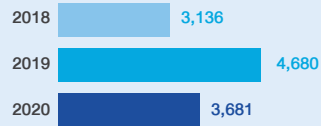
Innovation Dashboard

Innovation Value (Million Baht)

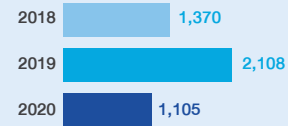
Type of Innovation



Open Innovation



Closed Innovation

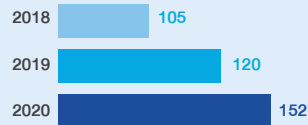


Project Submissions in Award Competitions (Initiatives)

Type of Innovation



Open Innovation



Closed Innovation

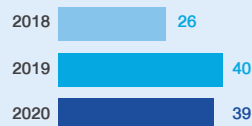


Awarded Projects (Initiatives)

Type of Innovation



Open Innovation



Closed Innovation



Number of Innovators (Accumulated number)



2018
270 persons



2019
2,491 persons



2020
4,979 persons



677
Research and
development
projects



3
Patents



9
Petty patents



400
Research and
development
personnel



16 Million-Baht
for research &
development
investments

1. Progress on Technology and Innovation Centers

The Company has established a Technology and Innovation Center to develop research, technology and innovation with added value to the Company, including for the economy, society, and the environment, as follows.



Science Technology and Innovation Development Office (STIDO)

In order to upgrade capabilities in developing the organization's technologies for continuous expansion following the organization's strategy, these seven (7) technology centers engage in research and development, the creation and transference, and monitoring of new technologies, as follows.



In 2020, three (3) technology research and development projects were completed as plan. These include (1) an In-store Product Recognition from Multiple Views Images through AI Technology Project, (2) a Vocational Interest Test project through the use of gamified career aptitude analysis, and (3) an Equipment handling robot development project through the use of multi-sensors Robotics Technology. These projects enabled the organization to leverage acquired research knowledge to conduct further in-depth research and make real-world applications.

Additionally, the Company has the following subsidiaries and units engaged in Research and Development, as follows.

CP Food Lab Co., Ltd.

The CP Food Lab Co., Ltd. is a knowledge hub on testing and certified in the research and development of food products for the CP ALL business group, the Charoen Pokphand Group, and other businesses within and outside the country. It is also a coordination center on research and development with other public and private agencies. It currently has a Research and Development staff of 7 employees. In 2020, it produced 6 technology development projects, and has invested 6.4 million Baht in Research and Development.



The Product Development and Quality Assurance Division (PDQA), CP ALL Plc.

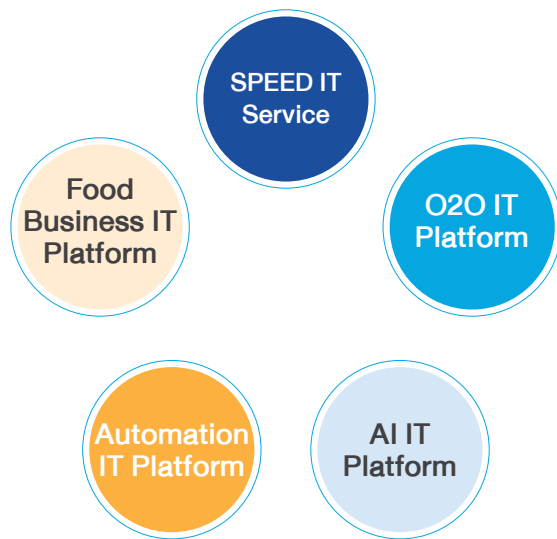
Responsible for product development focusing in the food and beverage category, the scope starts with determining products' approach in responding to consumer needs, which include health and nutritious products and fruits and vegetables. It also is responsible for developing product recipes; designing production, packaging, safe storage, and delivery processes to ensure that products meet quality standards before they reach consumers. Furthermore, environmentally-friendly packaging has also been developed in alignment with the corporate sustainable packaging policy. This is guided by the primary goal of preventing and mitigating negative environmental impacts

and manifesting sustainable development through the circular economy approach, wherein packaging design and materials selection decisions are conscious of the product's life cycle. Factors that are within our direct control include: benefits, safety to consumers and communities, alignment with market needs, competitive production cost, appropriate waste management with the highest value returns, and sustainably procured from renewable resources. Currently, there are 55 staffs for product research and development. In 2020, there were 668 product development initiatives, and a research & development investment of 9.55 million Baht.

2. ICT and Digital Transformation Development

The Digital Transformation Unit, oversees by the Company's senior management which directs the management of the organization's information technology systems security, and increases awareness of the organization's employees on information technology systems. This also includes improving and monitoring information system malfunctions to reduce inspection and correction time in the case of incidents. The Company has set up a center to consolidate various ICT data for analysis. There is also improvement of operating systems and various innovation on the products and organization's services, including social and environmental governance. It has a strategy to upgrade its performance in information technology in five (5) areas, as shown in the diagram below.

ICT and Digital Transformation Development



The Company has also established an IT Cybersecurity Strategy to analyze risks and update its IT Cybersecurity Policy to be in alignment with IT Cybersecurity laws. Key areas include security protection of information systems, protection of information networks, improving detection effectiveness, awareness on cyber threats, and skills and expertise building for users and cybersecurity personnel. Knowledge will also be provided to employees at all levels to ensure their awareness regarding changes and potential threats, ascertaining the Company is protected against future attacks.

Additionally, the Company has developed other innovations and technologies to grow the business and upgrade its competitiveness to meet constantly evolving changes of the present time by leveraging knowledge and creativity in developing the following new projects, as follows.



Technology for 7-Eleven Store Product Ordering Project

Operations, Business Development and IT Divisions jointly developed a product procurement process using technology to help calculate and recommend procurement volumes for 7-Eleven staff. Processing important information such as past revenue, ranking of top-selling products, and remaining stocks. 7-Eleven staff are able to verify and correct product purchasing orders on a case-by-case basis, irrespective of whether they are new, promotional, or special-case products. Insights are classified by product expiration dates, including long shelf-life products (Suggest Order), and short shelf-life products (OA/GOT). Presently, said technology has been deployed in all 7-Eleven stores nationwide. Additionally, studies have been conducted on the use of Artificial Intelligence in managing products in stores by analyzing factors that affect revenues and product purchases, such as customer behavior, weather conditions, promotions, and other special situations in each store.

Impacts and Benefits



Employees' product ordering decisions are more accurate.



Reduced lost sales opportunities.



Reduced time spent on product ordering, both long and short shelf-life products, resulting in more time for customer service and contributing to better customer experience.



Product availability and appropriate volume.



Loss prevention that occurred from product write off.



Food waste reduction from product shrinkage.

Promotion of Small and Medium Enterprises (SMEs) Through O2O Sales Channels

24 Shopping Co., Ltd., in partnership with the IT Division, developed an online platform, which included a website and an application, to support and prepare for the expanding online market-widening opportunities for consumers to more conveniently purchase wide varieties of quality products. It serves as a credible and easily accessible platform equipped with convenient purchasing and payment gateways, and is supported by diverse delivery systems and good service. Additionally, it has supported Small and Medium Enterprises (SMEs) through an Online to Offline (O2O) sales channel. This upgrades capabilities and increases competitiveness of SMEs, who are now able to send their products to 7-Eleven stores nationwide without restrictions. This also includes seasonal agricultural products, such as Monthong durian, organic mangosteens, Siam Ruby pomelos, and Sai Nam Phueng oranges. This distributes income among farmers, increasing their income and promoting social value.

Impacts and Benefits



81 items

seasonal agricultural products



21 persons

participating farmers



SMEs and consumers are able to more easily access products



3. Innovation Culture

The Company has created an innovation culture to promote knowledge and understanding of innovation among employees, and to create an environment wherein employees have the creative freedom to develop new innovations. The Company has organized an internal innovations competition to promote economic, social, and environmental results. Additionally, there is also an internal exchange of knowledge and practices, as well as external collaborations to internalize knowledge outside the organization in its business operations. There are also internal work processes in the organization have also been improved and transformed to reduce unnecessary workload for employees, so that they can continuously create value and kindle new innovative approaches for the Company. These all create an innovation culture that stems from a collaboration between management and employees which channels value to the organization and society. The Company has classified innovation projects into the following two (2) categories, as follows.

 Closed Innovation	 Open Innovation
<p>These are projects focused on promoting internal employees to create new innovations in the economic, social, and environmental sectors in order to improve the organization's operations and deliver value to the company. Projects are divided into the following three (3) categories:</p> <ul style="list-style-type: none"> • President Awards Projects • Approval Process Excellence Awards Projects • Big Fish Projects 	<p>These are projects created in partnership with the organization's external collaborators in order to seek and create strategic opportunities at the Thailand Synergy for Thai SMEs Award and the 7 Innovation Awards; and create new economic, social, and environmental innovations to deliver value to the organization and society.</p> 

Closed Innovation Projects

In 2020, 1,156 innovation projects were submitted for awards, with the following notable examples.

President Awards Project

The President Awards Project focuses on creating innovations within the Company in search new for products, services, and processes. This is achieved with the business's diversity in mind, meeting the needs of customers, consumers, communities, society, and the environment sustainably. Examples of outstanding projects include the following.

A Whole New World Project

As guidelines of the Bank of Thailand have restricted the ability to deposit and withdraw cash to ATM machines, certain population groups are not able to access this service. Counter Service Co., Ltd. hence initiated an approach to be a "Banking Agent", providing cash deposit and withdrawal services at 7-Eleven stores in order provide everyone 24-hour access to financial services. Store-front safety is also managed with risks prevention measures to create customer confidence.

Impacts and Benefits



Increased circulation within the economic system



Citizens are able to access financial services with greater convenience



Became part in uplifting people's quality of life



6,673 7-Eleven stores offer this service



66 million transactions facilitated

Counting with Synthetic Voice Project

As product counting and management is labor-intensive and adds to employee's responsibilities, which also includes accounting for store resources within their respective 7-Eleven store, BP Accounting-Retail Business division initiated a project to increase work efficiency and effectiveness by reducing time spent and errors in accounting for products and other resources within the store by changing the equipment and processes used to perform such tasks. Whereas employees would register product counts on their Personal Digital Assistant (PDA) in the past, store staff can now issue voice commands and wait for verbal confirmation on their smartphones. This not only makes product accounting more convenient, it also improves accuracy, speed, and precision. Furthermore, the Company has continued highlight projects from 2019, as follows.

Impacts and Benefits





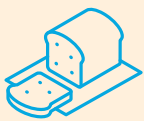

Reduced counting time by **10%**
(from 1.04 per piece to 0.94 seconds per piece)



Reduced employee working hours by **18,000** hours per month



Reduced monthly expenses by **900,000** Baht per month

Projects from President Awards	2020 Progress
Thai souvenirs at your fingertips (24 Shopping) 	<ul style="list-style-type: none"> Over 151 participating entrepreneur Total revenue of 98 million Baht Already expanded coverage to 5,738 stores Created income to 136 small business owners Supported over 800 community product items Consumers are able to easily access products, and products from each province are of good quality
Redesigned "Rice topped with stir-fried pork and basil" print" sealing film 	<ul style="list-style-type: none"> Reduced waste volumes from the use of stickers by 12 million items
"Fresh Cream Bun" product development 	<ul style="list-style-type: none"> Sales of 23.9 million pieces per year Total revenue of 8.4 million Baht per year Bakery customers have more access to Fresh Cream Bun product categories in 7-Eleven stores Scale up development of 3 products in the Fresh Cream Bun category: (1) Fresh cream, (2) butter and cream, and (3) pandan custard 85% consumer satisfaction
Happiness Network to Southern Thailand 	<ul style="list-style-type: none"> 1,855 students currently pursuing their bachelors' degree 8 cohorts of graduates who have now obtained employment, totaling 148 persons Crated an average income of 10,500 Baht/person for students while in school Improved quality of life of program participants Created economic, social, and country stability

Approval Process Excellence Awards Project

The Approval Process Excellence Award Project promotes improvements to the approval and decision-making process by using IT to improve the process's speed and effectiveness in order to meet the needs of all concerned units and reduce employee's duties. Examples of outstanding projects are as follows.

Smart Employment Certificate Project

As the process to send official documents or certification documents from headquarters to other offices or 7-Eleven stores often leads to delays and poses security risks during delivery, the Company's Human Resource unit initiated a process improvement, wherein documents can be shared as Electronic Files through the Employee Self-Service System. The Company's employees are able to perform this task from their own mobile phones, tablets, or computers.

Impacts and Benefits



Reduced steps in preparing documents



Reduced expense by **1.13 million Baht/year**, i.e. comprising logistic fees, and equipment rental costs



Reduced associated work time by **100%**



Reduced paper use by more **40,000 sheets/year**



Reduced errors in official documents and other certifications



Reduced loss risks of documents

"3 No's" Project (No Count, No Orders, No Verification and Approval)

As All Café products are among the best-selling product categories, there is a need to increase product volumes to adequately meet customer demands. This presented a challenge in accounting for remaining products, re-stocking, and verifying and approving purchase decisions for cup wares and other raw materials for beverage-making. These complicated work processes have resulted in employees' lost time, stores' lost sales opportunities, and an inability to offer valuable products to customers. The Company has developed a Robotic Process Automation (RPA) as a freeware to optimize all processes so that stores do not need to count, order, verify, or approve materials or raw ingredient orders, while ensuring an adequate inventory for daily customers. To date, 146 stores have implemented this system.

Impacts and Benefits



Employees no longer need to count, order, verify, or approve through legacy systems



Reduced **24 minutes/day** in ordering time



Created customer confidence of product availability



Reduced burden on inventory work



Reduced auditor time



85% Employee satisfaction (exceeding target)

Order Fast, Get Fresh Application Project

The integrated consumer goods business group, especially those of fresh product, have large numbers of suppliers in each store. Problems typically occur in the purchasing process as many documents and a long processing time are needed. This resulted to problems in making purchase orders, especially during holiday seasons when demands are high. Siam Makro PCL. hence initiated an approach to improve the efficiency in the verification and approval processes by developing a new purchasing system in the form of an application that automatically calculates purchase requirements and is able to confirm special purchase orders in each store location. The system is able to make purchase orders at any time and of any equipment, resulting to a purchasing practice that is able to adequately meet customer demands. Furthermore, the Company has continued highlight projects from 2019, as follows.

Impacts and Benefits



63% time reduction in Purchase Order (PO) Issuance



91% reduction in operating and approval processes



Suppliers are able to more easily plan production and raw material delivery






Better able to manage product purchasing; products are of good quality



Reduced paper use by **950,000** sheets



93% employee satisfaction, meeting the 90% target

Projects from Approval Process Excellent Awards	2020 Progress
Smart CDC from Platform to Learning Center by Bangbuathong Chilled Distribution Center 	<ul style="list-style-type: none"> Expanded the project to seven (7) distribution centers, with plans to expand to 6 more distribution centers Employee engagement score increased 99%
Smart Process Automation by the Accounting and Finance Function 	<ul style="list-style-type: none"> Reduced process steps and working hours, with total value of 1.3 million Baht Employees are capable of using the system and able to apply it to other work 80% employees' system usage satisfaction
Effective Planning for Supply Chain by CPRAM Co., Ltd. (Ladlumkaew) 	<ul style="list-style-type: none"> 100% delivery by suppliers to the Company as planned Reduced product storage and transport expenses by 2.041 million Baht/year Ability to release new products within the country within 37 days Expanded overseas product release to overseas

Big Fish Project

The Big Fish Project focuses on creating innovation from 7-Eleven stores through collaboration between various units within the CP ALL Plc. in order to increase work processes efficiency, with the following notable examples.

Shopping Bag (Hot Food Containers) Project

As 7-Eleven stores currently provide plastic bags for customers who purchase hot food containers, it was discovered that the bags used were oversized for an average of 1–2 boxes. This resulted to product spillage and excessive use of plastic bags. The Company has hence redesigned its plastic bags to be more appropriate for hot food product categories by enlarging the bag base to accommodate the size of food trays. This both ensures an appropriate fit for food containers and a reduction of plastic bags usage, following company policy. The redesigned bags can carry up to 4kg of content, and have already been distributed to over 11,000 stores nationwide.



Impacts and Benefits



Reduced plastic usage by

586 tonnes/year



Reduced production cost by

16%



100%

Customer satisfaction



Easy and convenience to use

Product Receipt Time Reduction through DC Project

When products from Distribution Centers (DC) arrive at stores, assistant store managers have to oversee the transfer for a long time to ensure that products are not lost. This resulted in increased time spent, and caused inconvenience to customers while products are being transferred into the stores. There are also accident risks, which may include customers being hit by incoming products or equipment. This led to an initiative to utilize the back of the store as entry point for incoming products from the distribution centers. Transportation is re-routed to the back entrance of the store instead. CCTVs have been installed at the back of the store to prevent unscrupulous and other undesirable situations. Additionally, store back spaces have been modified to increase its purpose as additional storage space for paper cartons and break case cartons, and as an employee meeting space. Currently, 409 stores have implemented this new approach.

Impacts and Benefits



Reduced employees' work time by

63.5 minutes/ day/ store



100% reduction in accidents



Increased product delivery trips by

0.65 trips/day



100% customer satisfaction



Customers receive quality service

Reduced Time for Close-to-Expire Dry Food Products with PDAs Project

7-Eleven staff have to monitor dry food products' expiry date to prevent the sale of expired products to customers by jotting down into notebooks. This practice is time-consuming given large volumes of products. A new approach has been initiated, wherein Google Forms are used through a tablet or a computer to document product expiration information. The use of Personal Digital Assistant (PDA) has also helped with data storage and work planning assignments presented in a calendar format for easy viewing and search. Currently, 11,000 stores have implemented this approach across the country.

Impacts and Benefits



Reduced time spent on verifying product

expiration by **45** minutes per month



Reduced the likelihood of absorbing cost of expired products



Delivery of quality products to consumers

Reduced Products Receipt Documentation Time from Direct Suppliers (Thai Namtip and Nestlé)

As products are received from suppliers, invoices are prepared. However, unclear invoice details have increased time spent by 7-Eleven staff and suppliers in this process. Hence, a new invoicing system has been conceived to share electronic files (e-files) to reduce time spent in documenting product receipt from suppliers. Employees are also provided with PDAs to scan the receipt of products. To date, this system has been implemented for products from Thai Namtip and Nestlé at 11,000 stores, with plans to expand this implementation to other suppliers.

Impacts and Benefits



Reduced product receipt documentation time by

12.55 minutes per round



100% reduction in product receipt documentation errors



Increased delivery trips by

0.02 trips/day



Employees have increased time for customer service

Additionally, the Company has applied the Kaizen strategy in developing innovations in Operations Management within the Company, in order to further increase efficiency and create good results in the long-term. With cooperation among supervisors and employees at all levels, examples of projects include the following:



Leveraging Robotic Process Automation (RPA) in managing battery information storage



Reduced time spent on Pick to Light reporting with Macros tools



Increased accounting process efficiency supported by Distribution Centers through RPA



Open Innovation Projects

The Thailand Synergy event for Thai SMEs and the 7 Innovations Awards ceremony are collaborative projects joining by 11 leading organizations that have are cognizant of the importance of leveraging existing research results within each organization. The new inventions created by SMEs will be tested and experimented with customer or consumer groups in real market conditions. This fosters a knowledge exchange and creates further development of higher-level innovation in the country. In 2020, 152 projects were submitted for the award competitions, with the following outstanding results.

In 2020,



152 projects were submitted for the award competitions, with the following outstanding results

Project Title	Pathumraksa: Diagnosis Process for Breast Cancer (1st Prize Winner, Social Category)
Agency Name	Medical Faculty, Khon Kaen University
Project Owner	Asst. Prof. Dr. Supinda Khunmee, Pathology Researcher

Nature of Innovation This is a process innovation in taking specimen of breast cancer patients' specimen through doctors, patients, and the lab to facilitate accurate, fast, and timely disease diagnosis through an IoT platform to control and monitor complete cell status. Cell integrity is maintained through storage, transport, and delivery, lab diagnosis, and results generation to physicians. This has led to an accurate, speedy, and efficient treatment planning for patients.

Impacts and Benefits

Survival rate increased from

43% to

80–90%



Reduced chemotherapy expenses

Surgeons receive speedier, more accurate, and precise diagnosis results, and patients receive treatment with appropriate medication, increasing survival possibilities

Far-flung hospitals have increased access to lab testing facilities, helping improve patients' and families' quality of life

Project Title	Perma: Fabric Fiber Innovation (1st Prize Winner, Social Category)
Company Name	Perma Co., Ltd.
Project Owner	Mr. Chaiyos Rungcharoenchai

This innovation is a synthetic fiber which has nano-zinc oxide as a component, possessing the quality to subdue bacteria growth, which is the cause of undesirable odor, bacteria-related respiratory allergies, and wound and skin infections. The production technology embeds Zinc oxide nano particles in fibers, which retains its special properties even after 150 washes. This is distinct from general coating, and has applications in the apparel and medical apparel industries, such in cases of bandages, pillow cases, patient bedsheets, undergarments, medical gowns, and patient gowns.

Impacts and Benefits

Created revenues of more than

98 million Baht/year



Equips the Thai apparel with globally competitive innovations

Test results revealed that its use reduces treatment time, improving the well-being of patients and medical personnel

Nano zinc oxide does not cause environmental impact by being permanently embedded in the fiber, avoiding chemical contamination from the product



Project Title UNC CALCIUM
Agency Name Yoo Fishball Co., Ltd.
Project Owner Dr. Keyun Choklamler

Nature of Innovation The calcium food supplement is 100% derived from nature. The project is supported by the Thai Chamber of Commerce, the Board of Trade of Thailand, and the National Innovation Agency in conducting research to extract calcium from fishbone by-products in food manufacturing, resulting into calcium molecules that are easily absorbed by the human body, and have no digestive side effects such as bloating, constipation—helping with bone repair and reduces ache symptoms.

In addition to creating value to society, these projects support business opportunities through the Company's various sales channels.

Impacts and Benefits

Over **70** million Baht
in revenue/year 

Health product development
opportunities using the Circular
Economy approach

Increases value of by-products of
the food manufacturing industry,
following the Circular Economy
approach

Increases consumer
choices of naturally-
sourced calcium

