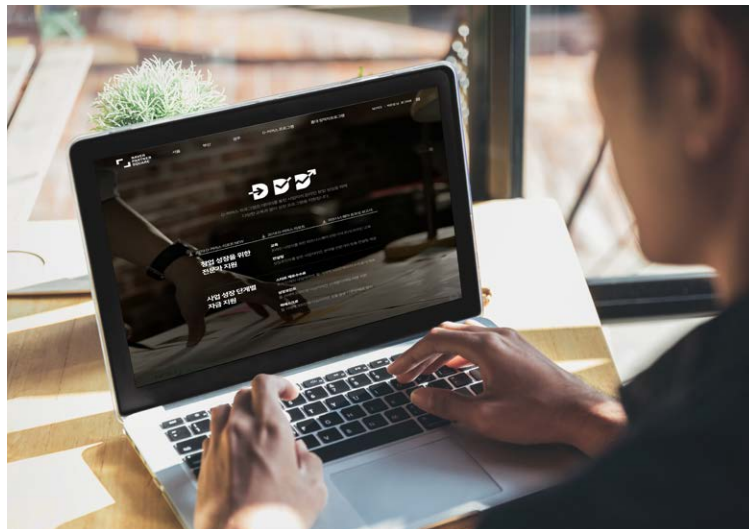




Technology Platform for
SME Growth



Reliable Partner in
Overcoming the COVID-19 Crisis



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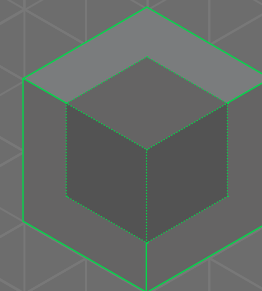
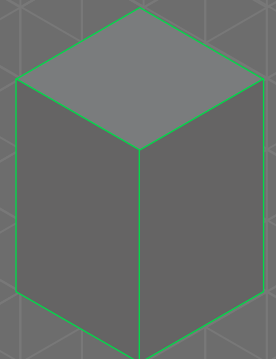
PART 5.

Biz Advisor, a Free Solution that
Provides SMEs with Data Insights



NAVER D-Commerce Report 2020 is published as an interactive PDF, allowing readers to move quickly and easily to pages in the report, and including shortcuts to related web pages.

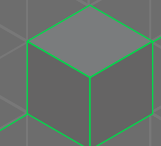
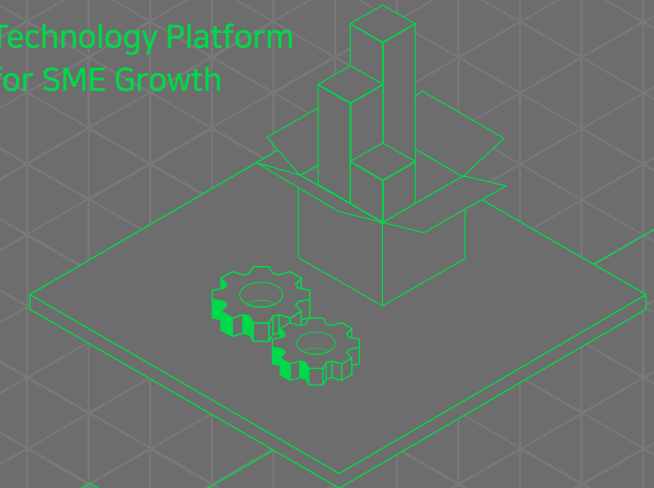
PART 1. TECHNOLOGY PLATFORM FOR SMEs



Reliable Partner in
Overcoming
the COVID-19 Crisis



Technology Platform
for SME Growth



1.1 Technology Platform for SME Growth

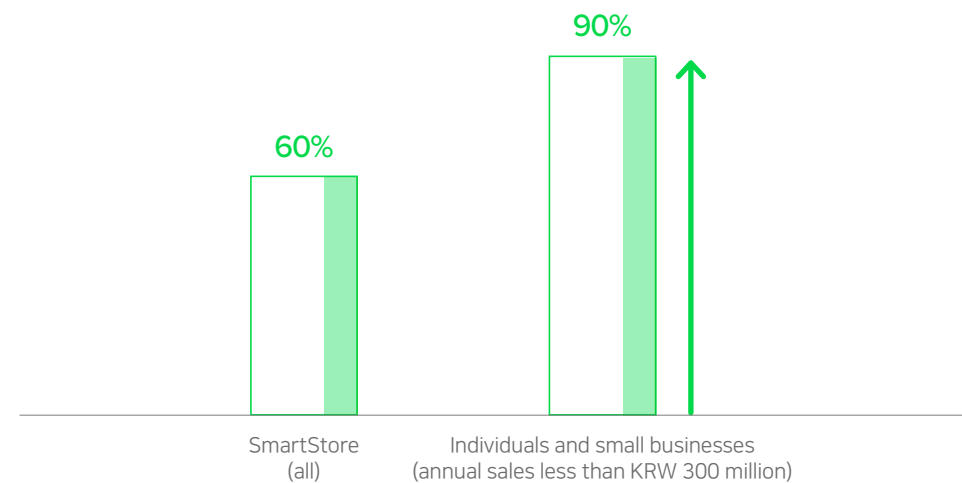
NAVER SmartStore is an e-commerce retail platform that helps businesses to register and sell their products online with ease. NAVER is taking the lead in building a healthy ecosystem for online commerce through the SmartStore, by providing various education and consulting programs, financial support at each stage of business growth, and online tools developed to help SMEs begin and grow their businesses.

01 SMEs are growing rapidly on NAVER SmartStore

Individuals and small businesses (annual sales less than KRW 300 million) using NAVER SmartStore are growing faster than the overall growth rate of SmartStore. In the first half of 2020, total SmartStore transactions grew by 60% year-on-year. During the same period, individuals and small businesses recorded an average growth rate of more than 90%, far exceeding the overall growth rate

NAVER benefits from the strong connection between NAVER platform and SMEs driving the overall growth of SmartStore. That is why NAVER provides easy-to-use technology platforms aimed at promoting meaningful discovery and interaction between SMEs and users such as NAVER SmartStore and SmartPlace. NAVER enables SMEs through data, technology, education, consulting, and financing with the goal of facilitating SME digital transformation and growth.

YoY growth rate as of 1H, 2020



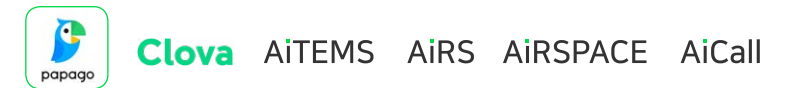
Growth support system for SMEs and creators by NAVER

CONNECT & DISCOVER

Platform



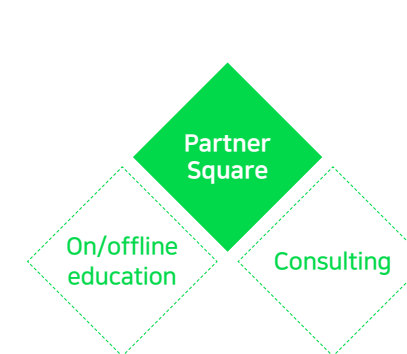
Technology



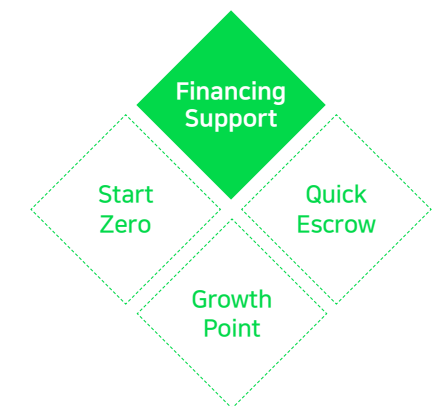
Data



D-COMMERCE PROGRAM



On/offline support for digital transformation of SMEs and creators



Financing support for business development of SMEs and creators

02

NAVER SmartStore is the optimal technology platform for SMEs to launch and grow their businesses online

SMEs can register and build their online store for free with NAVER SmartStore. A selling fee of 2% is charged only when sales are generated through NAVER Shopping(e-commerce search engine), and this fee is significantly lower than the industry average¹⁾.

We are lowering the barriers to opening an online store by offering a simple and cost-effective solution so that sellers with insufficient initial funds and technological capabilities can open stores easily. We provide a convenient platform for both users and sellers so that even new sellers lacking the relevant technological competence or business experience can easily register to open a SmartStore and start selling their products immediately. We listen to the voices of users and sellers in order to provide a platform that SMEs can use easily and conveniently, and reflect these opinions in the constant improvements of the SmartStore.

As a result, sellers within 1 year of registration accounted for 48% of all SmartStores that generated sales between January and June 2020. In-house data indicate that SmartStore is serving as a stepping stone for new sellers by helping them launch their online businesses and reach sales goals in a short amount of time.

Share of sellers within 1 year of registration out of all SmartStores with sales²⁾



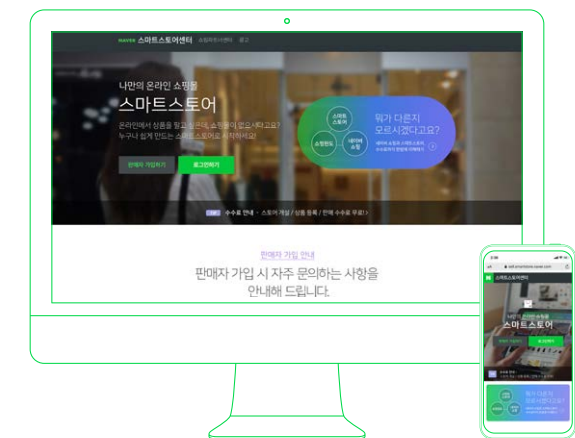
¹⁾ According to the Korea Fair Trade Commission's survey of large retail companies (December 2019), the average selling fee charged by online stores in 2018 was 10.8% (nominal: 13.1%)

²⁾ Based on sellers generating revenue during the first half of 2020. Years of operation calculated by subtracting year of registration from year when revenue was generated.

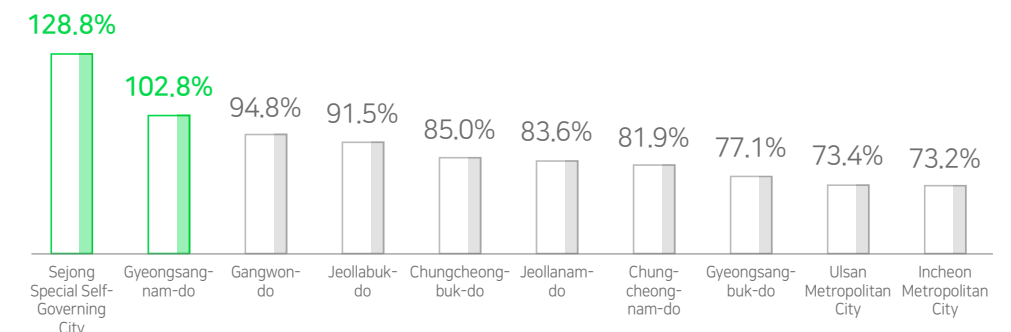
03

SmartStores based in non-metropolitan regions are achieving meaningful digital growth

As of the first half of 2020, SmartStore recorded a year-on-year growth rate of 68.8% nationwide, with businesses largely located outside the Seoul metropolitan area - including Sejong Special Self-Governing City, Gangwon-do, Gyeongsang-do, Jeolla-do, Chungcheong-do, and Ulsan Metropolitan City - recording higher growth rates. Through SmartStore, a larger number of SMEs in these regions are expected to overcome the constraints of physical distance and grow by reaching users online.



YoY growth rate by region



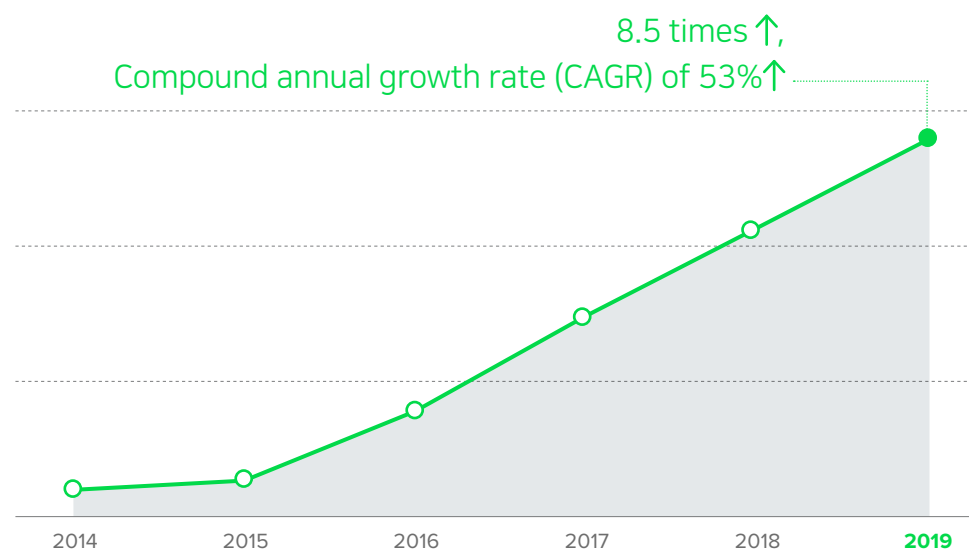
04

NAVER provides systematic support for SMEs' sustainable online growth through tech- and data-based education and support programs

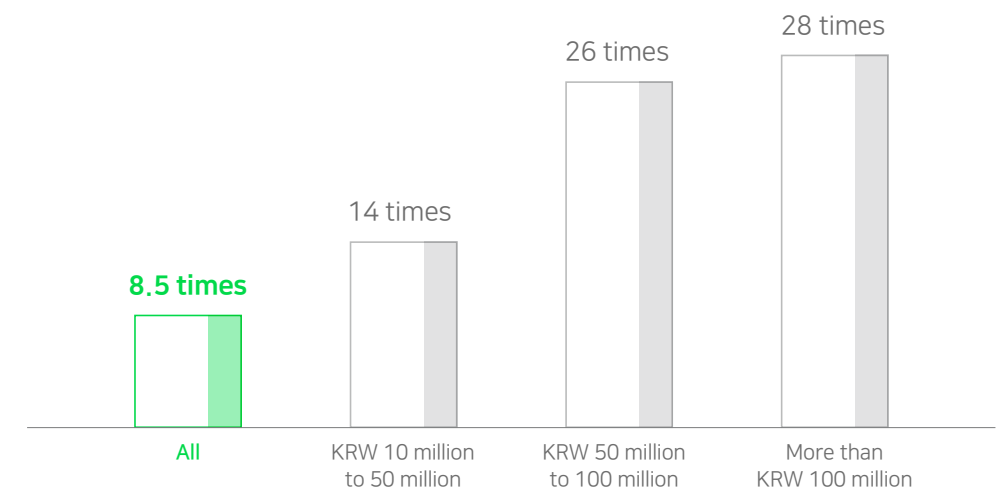
NAVER provides SMEs with not only specialized education, consulting, and data optimized for each growth stage, but also various types of systematic financial support, including Growth Point, Start Zero, and Quick Escrow, in order to ensure that online sellers continue to achieve sustainable growth following their initial success. As a result, the number of sellers generating sales via SmartStore increased by 8.5 times between 2014 and 2019, resulting in a compound annual growth rate (CAGR) of 53%. Most notably, sellers with average monthly sales of KRW 10 million or more grew by a compound annual growth rate(CAGR) of 73%, far exceeding the overall growth rate of 53%.

In terms of average monthly sales, number of sellers with average sales of KRW 10-50 million increased by 14 times between 2014 and 2019, whereas number of sellers with average sales of KRW 50-100 million increased by 26 times, and number of sellers with average sales of over KRW 100 million surged 28 times. In addition, share of sellers with higher sales revenue continued to grow during the period – share of sellers with average of KRW 10-50 million and KRW 50-100 million increased by 1.7 times and 3 times, respectively. Share of sellers with average monthly sales of more than KRW 100 million increased by 3.3 times.

Number of sellers generating sales in 2014-2019



Growth rate of number of sellers by average monthly sales between 2014 and 2019

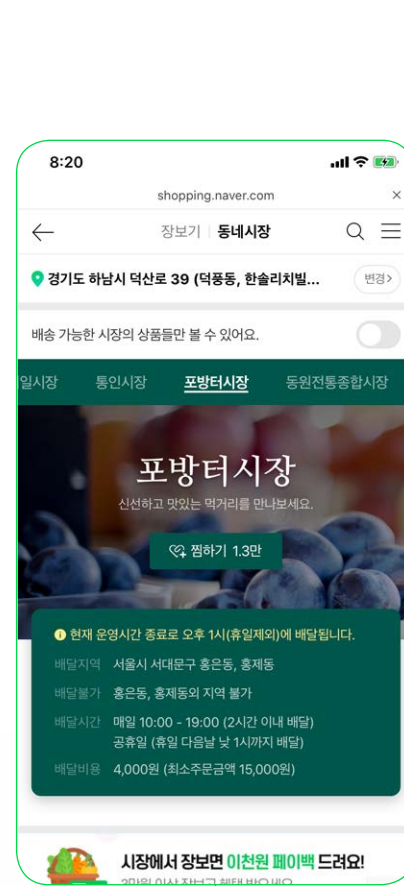


1.2

Reliable Partner in Overcoming the COVID-19 Crisis

The world is undergoing an unprecedented economic and social crisis caused by the COVID-19 pandemic. As a major tech company in South Korea and a true partner to SMEs, NAVER is using its digital capabilities and technology platform to lead the society in overcoming this crisis and preparing in advance for the post-COVID era.

NAVER is actively providing technological support to South Korea's online and offline SMEs to help them overcome the ongoing crisis effectively.



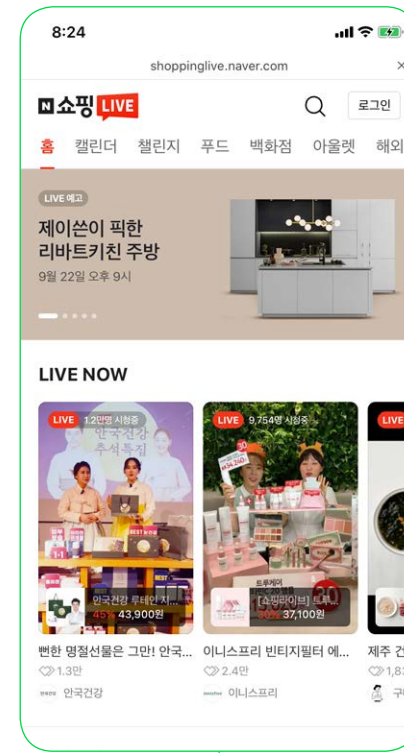
Local Market Shopping

Help local markets achieve digital transformation and find online sales channels



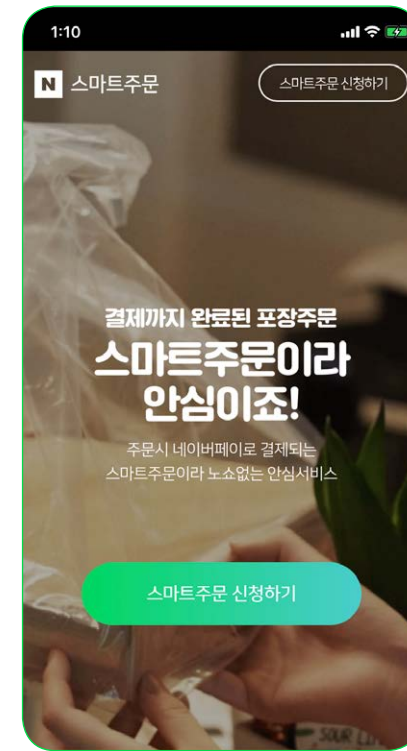
Public Private Partnership

Collaborate with government agencies and local governments to help farmers and SMEs find online sales channels



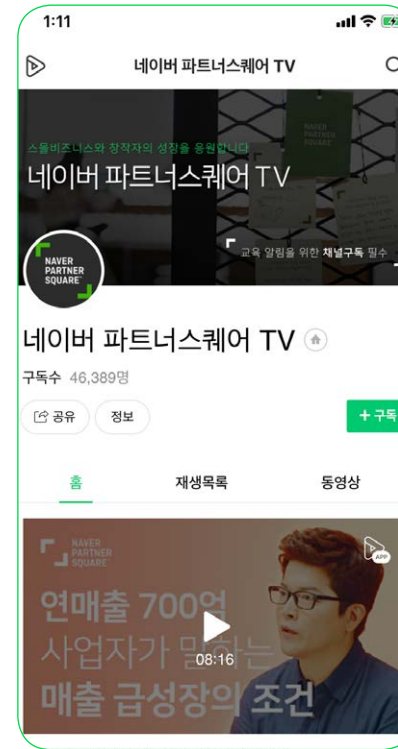
Shopping LIVE

Offer new media commerce tools to SMEs in the contactless era



Smart Order, In-store Payment

Provide online payment tools to offline SMEs and payment fee discount



Partner Square TV

Expand online education programs for SMEs and creators to improve their digital capabilities



Local Market Shopping

Help local markets find online sales channels and promote revitalization of local economy

“Local Market Shopping” is a delivery service that allows users to conveniently order products and foods sold in local markets online. Starting with the Amsa Complex Market in Gangdong, Seoul in January 2019, a total of 613 sellers in 39 markets nationwide, including the Suyu Traditional Market, Hwagok Bondong Market, Keumnam Market, Changwon Dogye Bubu Market, and Gimhae Sambang Market, are taking advantage of the service as of September 15, 2020. Rapid delivery service is made possible through a partnership with the startup “Our Neighborhood Commerce”.

Local Market Shopping service completes the delivery of diverse products such as fresh foods, side dishes, and other foods sold in local markets within two hours for orders received between 10am to 6 or 7pm depending on the location, thereby bringing local market sellers closer to online shoppers.

Most purchases at supermarkets consist of fresh food and daily necessities, whereas the most popular shopping items in local markets are ready-to-cook dishes, meat, side dishes, and processed foods. Unique characteristics of the local markets are reflected in the users’ online purchase of items such as soup, fried chicken, side dishes and pork ribs.

* The actual delivery time may vary depending on the distance between market and delivery address

33%

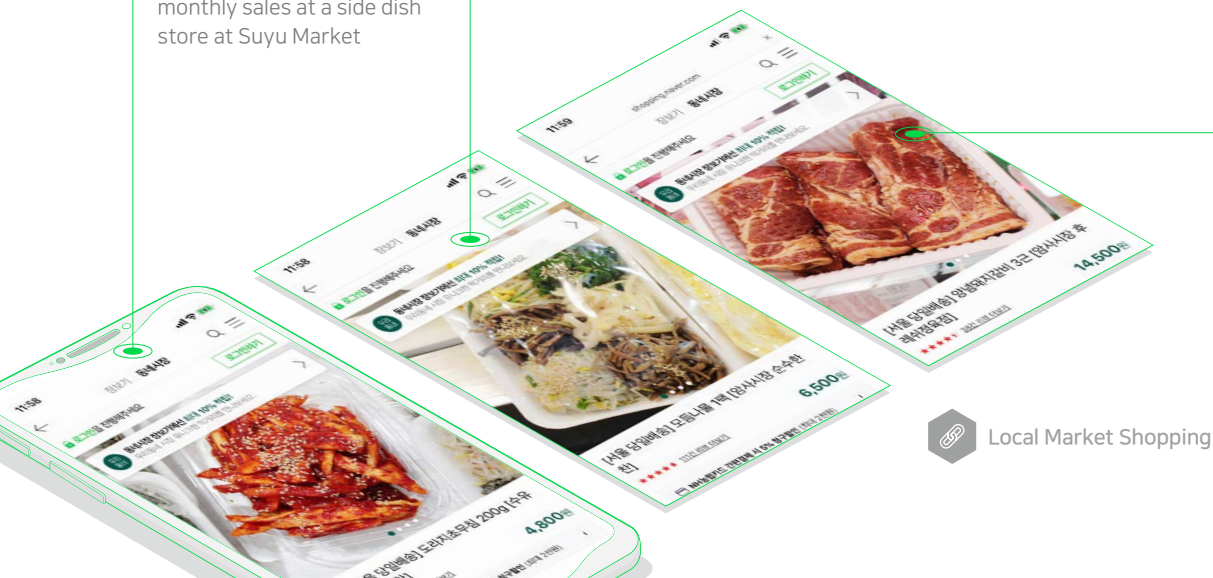
Monthly online sales of Sunshanchan at Amsa Market rose 33% compared to its offline sales

20%

Share of sales generated through NAVER Pay accounted for 20% of total monthly sales at a side dish store at Suyu Market

10%

Share of online sales of Fresh Butcher at Amsa Market rose to 10% of its monthly sales as of September 2020, with the upward trend continued



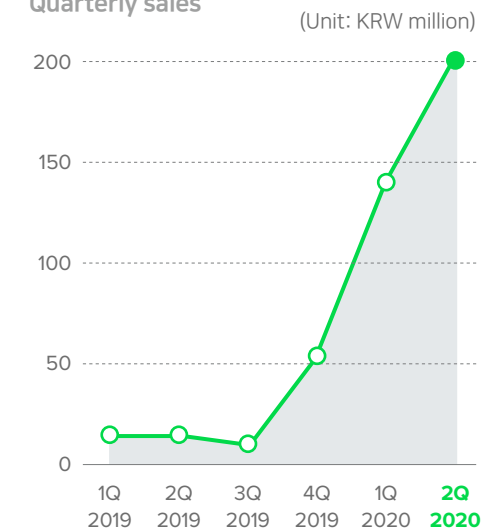
Local Market Shopping

Because NAVER had begun building the platform for the digital transformation of traditional markets since 2019, contactless orders through Local Market Shopping increased in February and March 2020 by 79% and 92% respectively, month-on-month, despite offline visits to markets virtually coming to a stop. In the first half of 2020, offline stores all suffered badly as a result of the COVID-19 pandemic. However, the markets saw their sales increase by 12 times year-on-year, with the number of orders rising more than 9 times during the same period. Most notably, during the second quarter, when offline activities were even more severely restricted, sales volume increased 15 times in April, 13 times in May, and 18 times in June compared to the previous year, showing that the efforts to build contactless sales channels for traditional markets were effective.

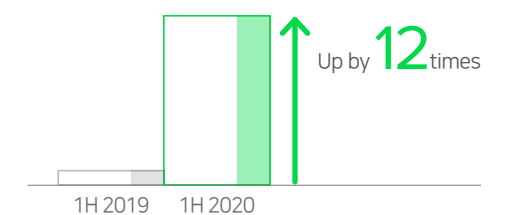
As such, NAVER is helping local markets build new online sales channels through its technology platform, allowing them to use online marketing channels and overcome the COVID-19 crisis.

Key achievements of Local Market Shopping

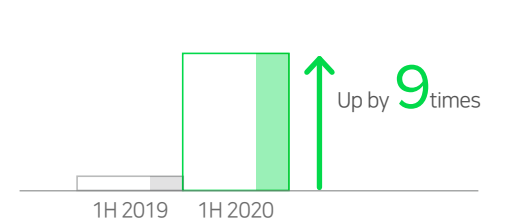
Quarterly sales



Sales



Transaction count



Public Private Partnership (PPP) with government agencies and local governments

Helping farmers and SMEs find online sales channels

NAVER joined forces with various government agencies and local governments to form a in PPP to develop online marketing channels for agricultural and fishery producers and SMEs that lost their export markets due to the COVID-19 pandemic. Total sales volume of all participants of the PPP increased by 57.9% compared to the previous year as of the first half of 2020, and the number of transactions increased by 37%. A total of 87 sellers offering 351 products participated in the "Online Market for the Delicacies of Eight Provinces". Co-hosted by the Ministry of the Interior and Safety, the Ministry of Culture, Sports and Tourism, and 16 local governments, the fair featured young summer radish from Gyeonggi-do, spring greens from Gangwon-do, mushrooms from Chungcheong-do, abalone from Jeolla-do, melons from Gyeongsang-do, and black pig pork products from Jeju-do.

* Participating organizations: Seoul Business Agency, Gyeonggi Technopark, Gangwon Mart, Gangwon Creative Economy Innovation Center, Daegu Digital Promotion Agency, Ulsan Economic Promotion Agency, GB Agency on Marketing for Agrofood & Farmers Academy, Ministry of the Interior and Safety, and Ministry of Culture, Sports and Tourism, etc.

NAVER actively used its technology platforms, including Shopping LIVE in line with the contactless trend, and promoted the event through various NAVER advertising inventories. The event was meaningful in that NAVER joined hands with local agricultural and livestock producers, SMEs, and governments to invite producers and SMEs to experience the advantages of online business and to open their online stores using SmartStore, so that they can develop a sustainable online sales channel.

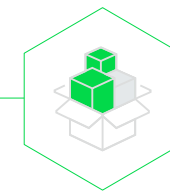
Gangwon Mart, a success case of PPP, initially launched its own website but faced various challenges related to growing online traffic such as server management, user login, and online payment that could not be resolved easily at the local government level. However, these issues were quickly resolved when Gangwon Mart transitioned to SmartStore, resulting in the sale of 50,000 boxes of potatoes in 7 minutes and 2,000 boxes of asparagus in 57 seconds. As such, NAVER was able to provide farmers, whose domestic and overseas supply chain had been seriously disturbed, timely assistance in overcoming the negative effects of the crisis.



16 local governments



351 products



87 sellers

Shopping LIVE

Offering more new media commerce tools to SMEs in the contactless era

Since March 2020, NAVER has been providing sellers with "Shopping LIVE" service, a new type of marketing tool that enables sellers to interactively sell products and promote their stores while communicating with users in a contactless way. SmartStore sellers can now meet users easily by simply installing the SmartStore Center and the Shopping LIVE apps on their smartphones, and can receive free video training via "Partner Square TV".

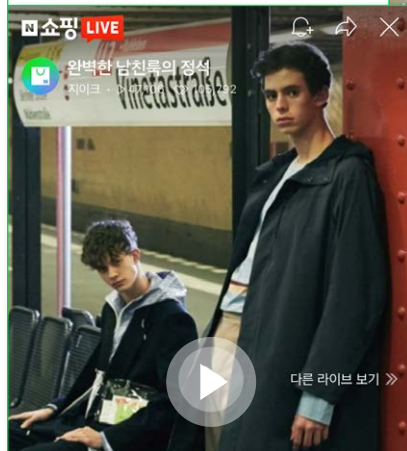
Sales through Shopping LIVE increased by 63 times between March and August 2020. Number of monthly sellers using Shopping LIVE surged 11-fold, number of broadcasted contents increased 16-fold, and the number of viewers increased 14-fold. Shopping LIVE is becoming established as one of the new shopping behaviors in the contactless era.

In August 2020, the cumulative number of viewers reached 3 million, and the maximum number of concurrent viewers was about 24,000. During the initial beta test period, Shopping LIVE mainly targeted offline sellers, such as department stores and outlets, to help them overcome the COVID-19 crisis. It is now being actively used by various sellers who want real-time communication with consumers and new marketing opportunities in the contactless era. In September, NAVER organized Shopping LIVE for Farmers to support local farmers suffering from the COVID-19 pandemic and seasonal typhoons, and helped them with display advertisements among other things. On September 9, Gapyeong Farm sold out 3,500 boxes of apples worth more than KRW 80 million.



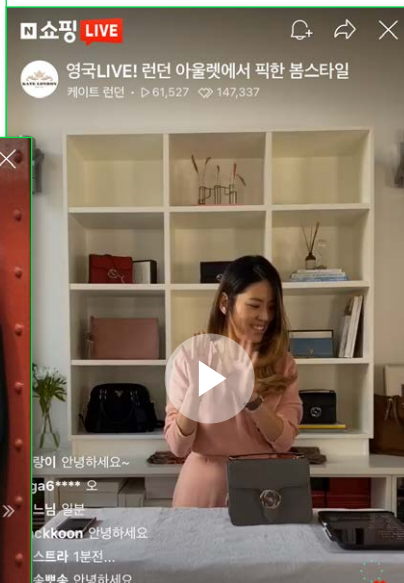
30%

SIEG brand at the Trade Center branch of Hyundai Department Store sold 30% of its average monthly sales in one hour



250%

Kate London, a purchasing agency, sold over 250% of its average daily sales in one hour



260 KRW million

My Little Tiger, which sells goods for kids, recorded sales of KRW 260 million in one hour



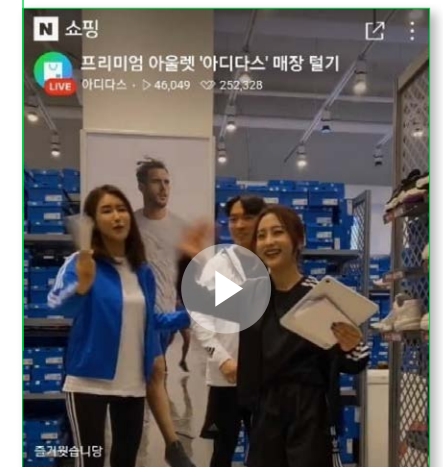
500,000 likes

Attrangs, a women's fashion SoHo mall, received 500,000 likes during its one-hour live streaming session



240 KRW million

Lotte Outlets Paju Store recorded 46,000 views and KRW 240 million in sales during its warehouse sale event for Adidas



Smart Order, In-store Payment

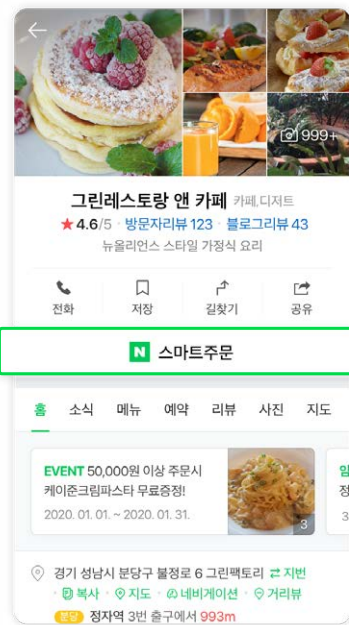
Providing online payment tools to offline SMEs and supporting fee payment

To help SMEs overcome the prolonged COVID-19 pandemic, NAVER exempted SMEs from paying NAVER Pay fees for Smart Order and In-store Payment, its major contactless payment tools for offline stores, from April 6 to December 31, 2020.

* Excluding businesses that do not meet the purpose, such as franchise stores and restaurants, cafes, etc. run by large businesses

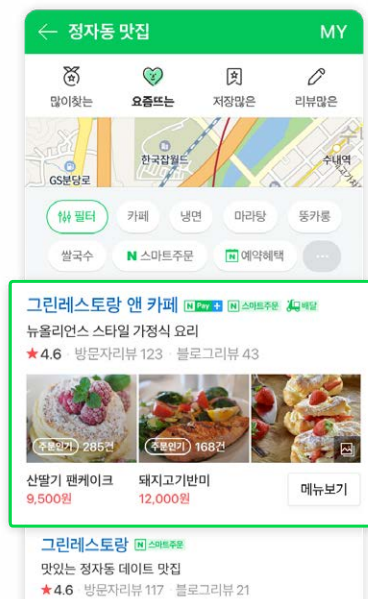
Smart Order is a contactless order & payment tool for offline food and beverage businesses, and offers "For Here" and "To Go" options. The number of Smart Order users sharply increased due to the impact of COVID-19, soaring more than 11-fold in July 2020 compared to January. The number of orders increased about 13-fold during the same period.

In-store Payment, frequently used by beauty salon and nail shop customers, allows users to make reservations through NAVER Booking, receive services, and pay with their smartphone through NAVER Pay. Between January and July 2020, the number of payments jumped 11 times and the number of affiliated stores increased 4 times. Through our contactless payment tools, users can not only place orders and make payments with hardly any significant direct contact, but can also receive NAVER Pay point benefits for their offline payments.



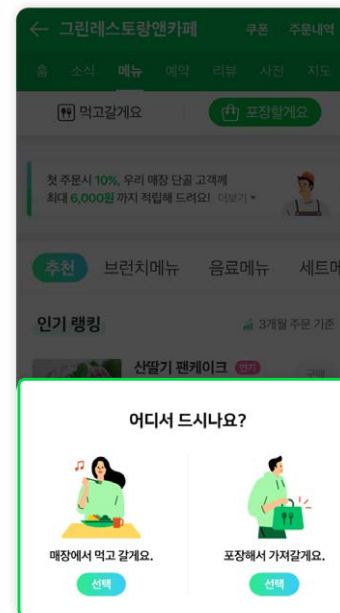
From order to payment by customers

Users can place an order easily by simply searching for the store by name



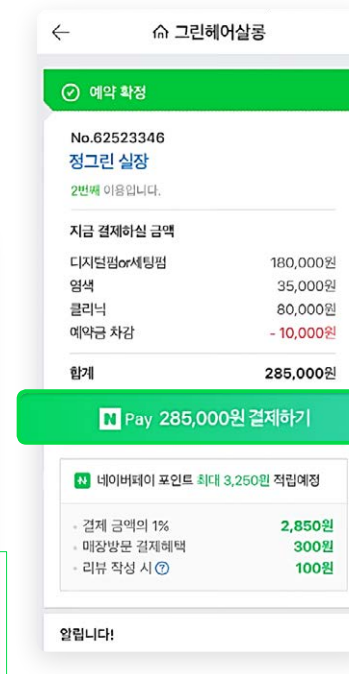
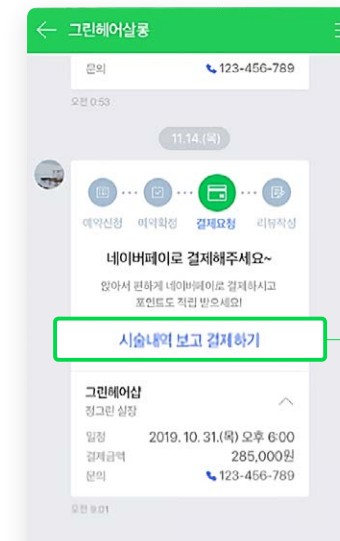
Popular menu items at a glance

Promote menus by showing them in user search results



Available both for here or to go

Convenient options for users



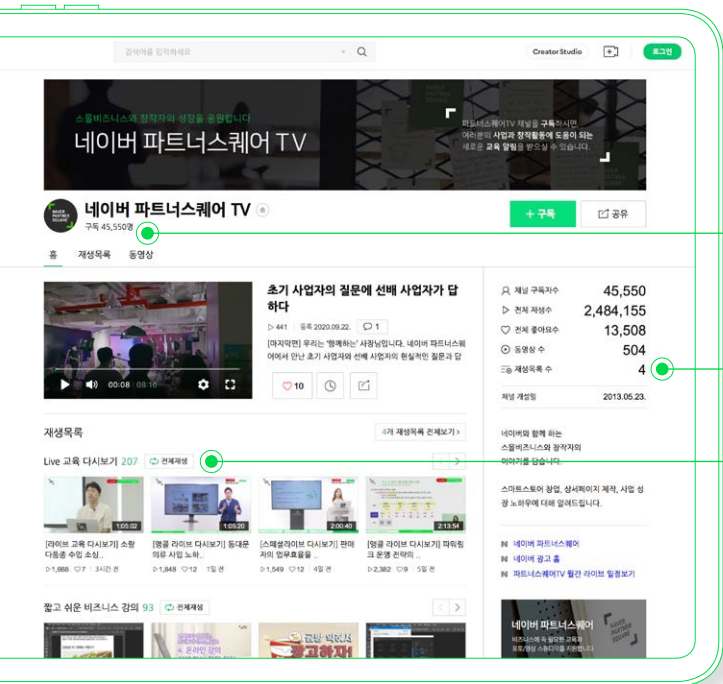
On/offline point benefits

Give NAVER Pay points for offline payments

Partner Square TV



네이버 파트너스퀘어 TV



Expanding online education programs for SMEs and creators to improve their digital competencies

NAVER Partner Square is an offline base that supports the growth of SMEs and creators through education and consulting. As of now, offline lectures at the Partner Square Training Center are suspended due to the COVID-19 pandemic. Instead, in March 2020, Partner Square launched online live education programs on "Partner Square TV" channel in NAVER TV.

As of September 15, 2020, just over six months after its launch, more than 1.5 million SMEs and creators took part in the online live programs. During the same period, Partner Square offered 185 live education programs online, with the total live views reaching 780,000, and the total number of replays almost 720,000. Currently, Partner Square TV boasts some 44,000 subscribers and 2.4 million total views.

Online live education has no physical restrictions, and can provide immediate feedback between instructors and trainees, making active participation by sellers possible. The most popular online education programs are those that can directly affect SMEs' business performance, such as "How to take good photos with a phone", "How to launch a SmartStore", and "How to create popular pages".

Number of subscribers

44,000

Cumulative number of live education sessions

1,500,000

Number of live education sessions

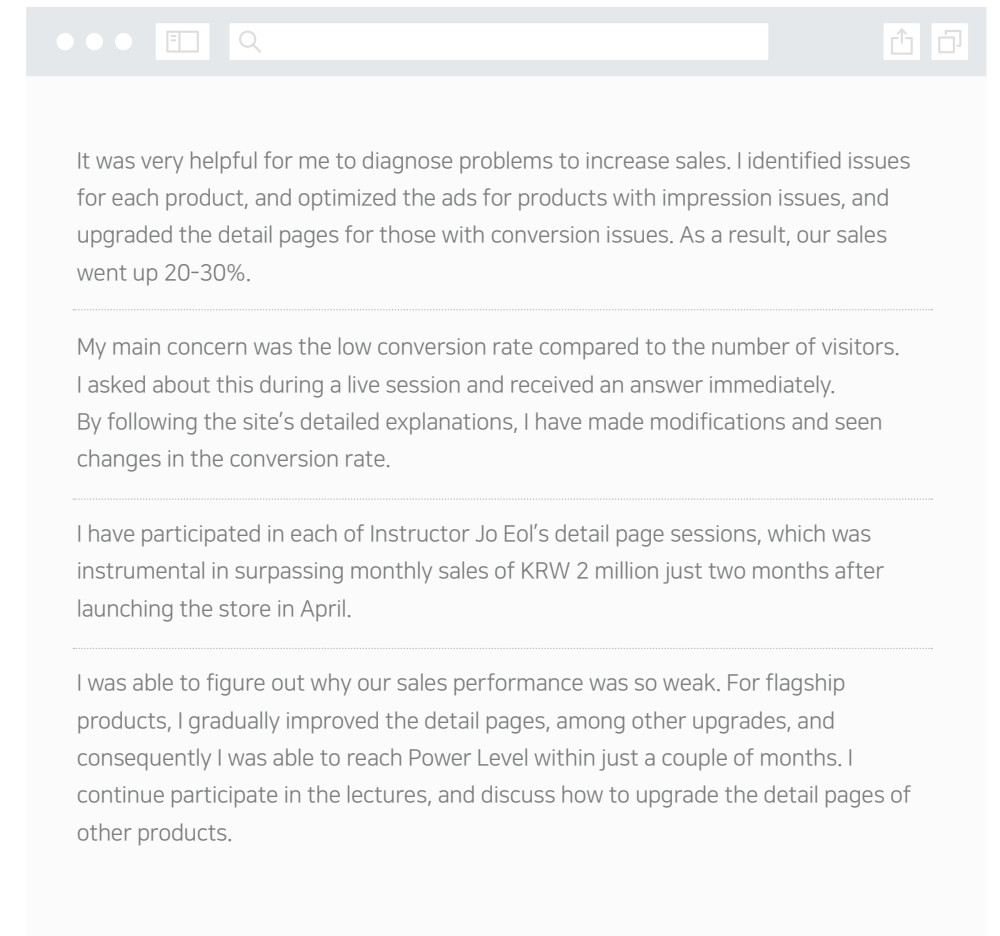
185

* As of September 15, 2020

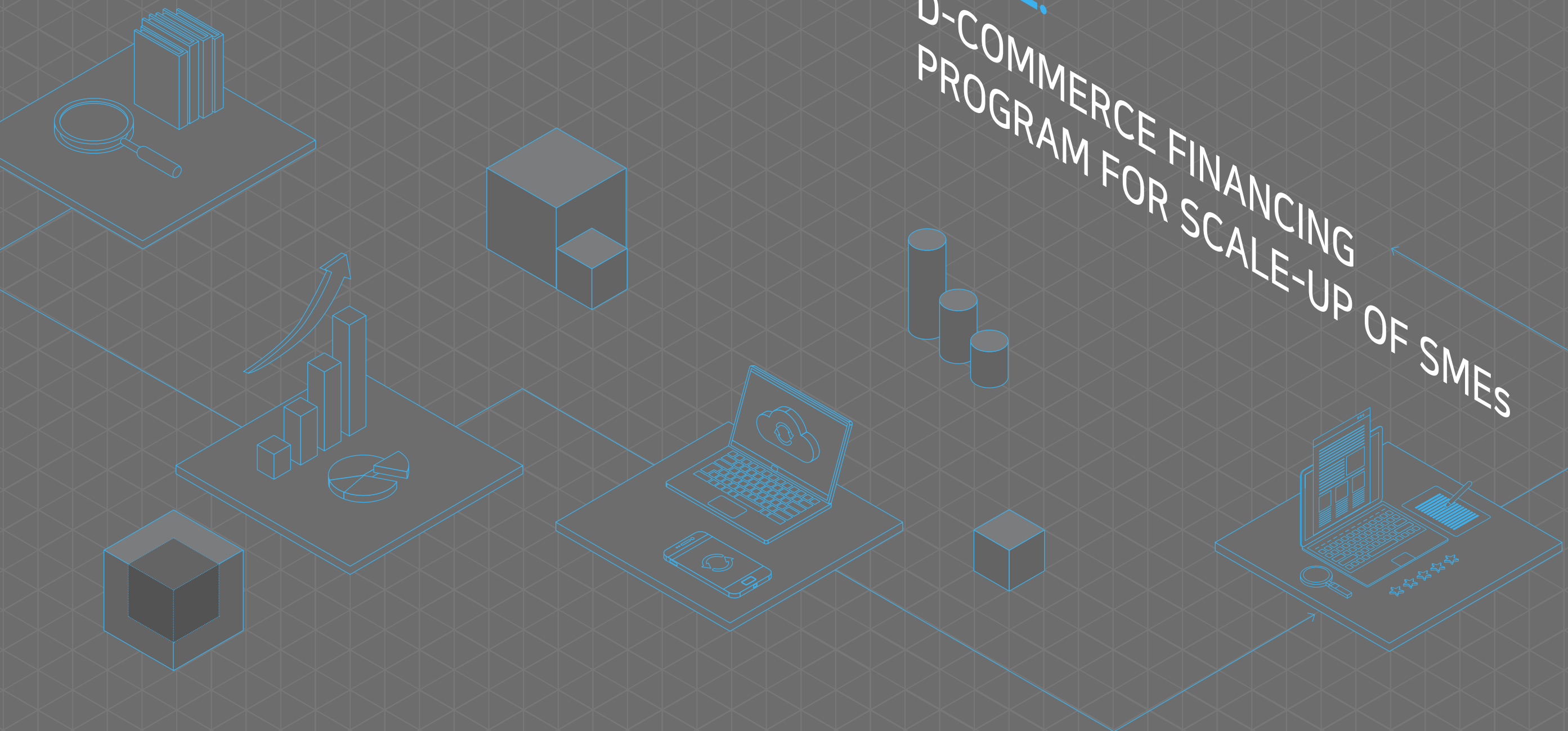
Current status of Partner Square TV and user reviews

In July 2020, we conducted a survey of Partner Square TV live education with 417 SmartStore sellers. 47% had taken part in the training, with an average of 3 to 5 sessions per respondent. Among the most popular topics were "SmartStore education", "NAVER advertising education", and "Successful sellers' know-how". Reflecting their feedback, we have expanded the 'Successful sellers' know-how' session.

USER REVIEWS



PART 2. D-COMMERCE FINANCING PROGRAM FOR SCALE-UP OF SMEs



Executive Summary

Analyzing the positive impact of D-Commerce Financing program on scale-up of SMEs

NAVER provides an easy and convenient e-commerce retail platform to SMEs. In order to provide them with better opportunities to scale up at each of their growth stages, NAVER operates the D-commerce financing program which comprises Start Zero, Growth Points, and Quick Escrow.

As of September 2020, NAVER provided approximately KRW 18 billion to almost 86,000 sellers through the Start Zero program and KRW 20 billion to almost 80,000 sellers in Growth Points, which can be used as marketing expenses. A total of 1,802 sellers used the Quick Escrow program for KRW 452 billion during the same period.

A research team¹⁾ led by professor Kang Hyoung-goo of Hanyang University Business School conducted an empirical analysis, using SmartStore seller data, to see how the D-Commerce financing program actually affected SMEs' sales and sales growth rate²⁾.

D-Commerce Financing program selects its recipients from a pool of applicants, so in order to control the sample selection bias, the study analyzed the effectiveness of the program through simulation analysis to see how the performance of sellers that benefited from the program would change if they hadn't been selected, and how the performance of sellers that did not benefit from the program would change if they had been selected.

D-commerce Program

Expert support for new business growth



Education

Provide on/offline trainings by Partner Square experts for online businesses



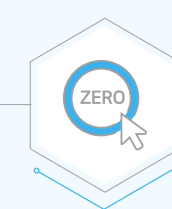
Consulting

Provide expert consultation on individual cases to businesses that have received Growth Point

Financial support at each stage of business development

Start Zero

Zero payment gateway fee for early stage businesses for up to sales of KRW 5 million per month



Growth Point

Customized marketing expense support for businesses with monthly sales of more than KRW 2 million



Quick Escrow

Next-day payment settlement for shipped products for businesses with monthly sales of more than KRW 3 million



D-Commerce program

¹⁾ Professor Kang Hyoung-goo, Hanyang University Business School
Lee Jin-ah, Hanyang University Graduate School of Business
Administration (postdoctoral researcher)

²⁾ Analysis data: Panel data on 407,906 sellers generating revenue during 51 months between January 2016 and March 2020

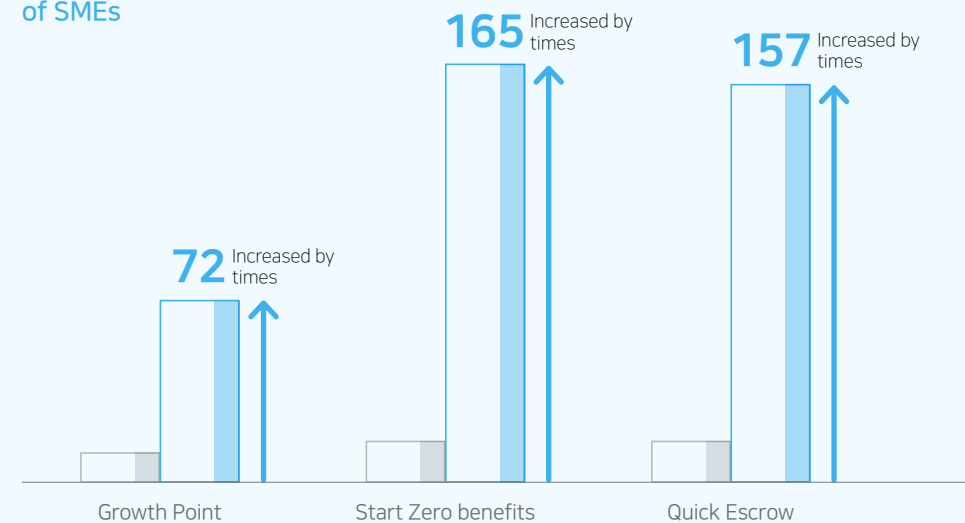
The analysis revealed the following points: ① Sellers who received Growth Points saw a 72-fold increase in their sales growth rate compared to their sales growth rate when assuming they had not received it. ② Sellers who received Start Zero benefits saw the greatest increase in sales growth rate, growing by 165 times measured against their sales growth when assuming they had not received it. The effect is dramatic because Start Zero targets early-stage merchants that have just started their business. ③ Quick Escrow increased sales growth rate by 157 times, possibly because the program solved sellers' short-term liquidity problems and drove their sales growth significantly. ④ If sellers who did not receive the above three financing benefits had received them, their sales growth rate would have declined, implying that the financing programs have a reliable screening capability and that a careful approach is needed to expand benefit recipients.

In conclusion, through empirical data analysis, this study confirmed that D-Commerce financing programs, such as Growth Point, Start Zero, and Quick Escrow, have positive impacts on the sales growth of SMEs.

It is also confirmed that NAVER's SME financing programs serve as a catalyst for the growth of SMEs suffering from lack of initial liquidity. As such, this study holds great implications for the online SME ecosystem. If online SMEs with no offline stores or sales history for more than one year can secure additional financial resources, it would spur their explosive growth, as was seen with the D-commerce financing programs.

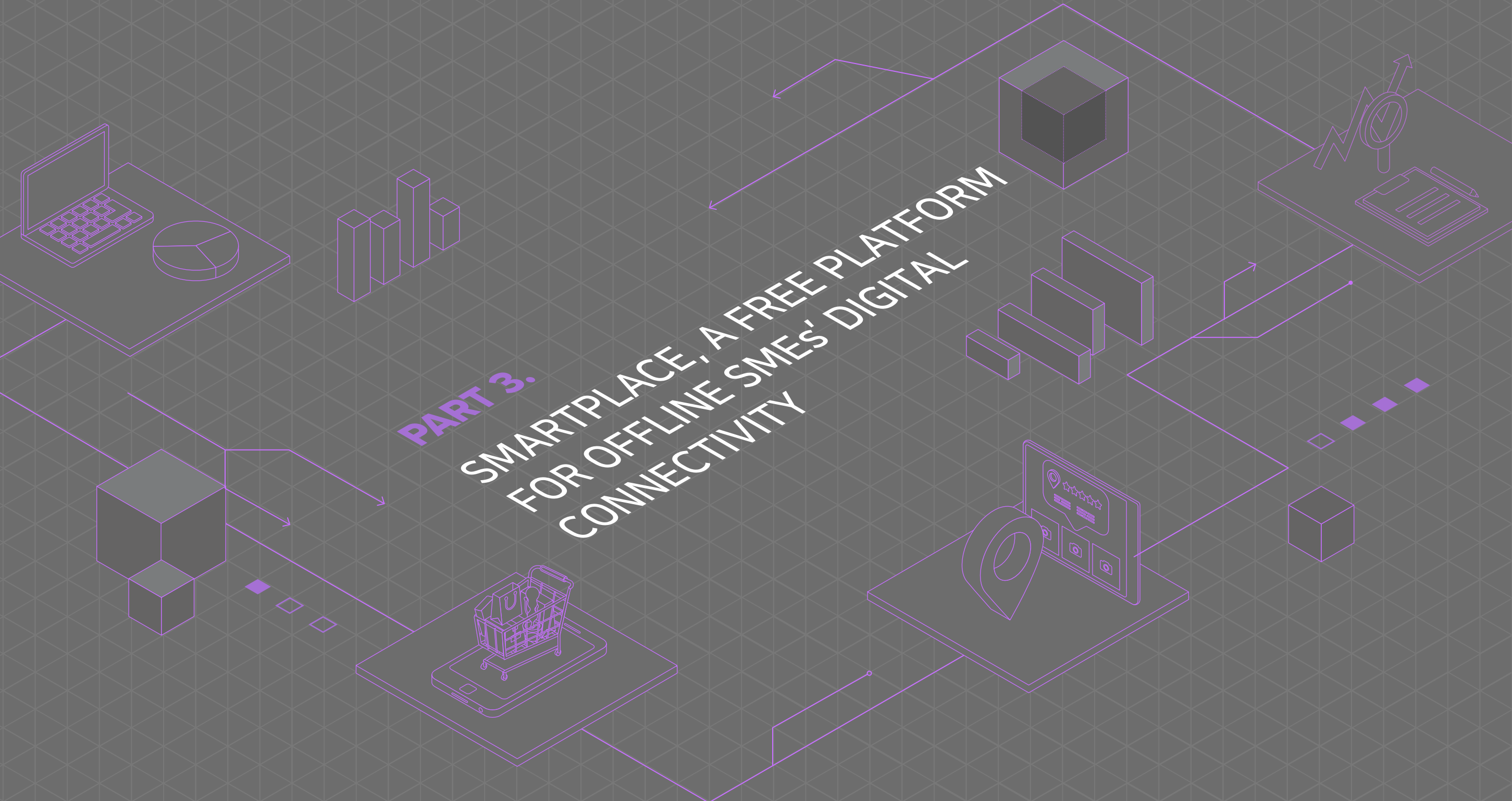
Effectiveness of D-commerce financing programs

Sales growth rate increase
of SMEs



NAVER financial services to support SMEs





PART 3.
SMARTPLACE, A FREE PLATFORM
FOR OFFLINE SMEs' DIGITAL
CONNECTIVITY

Executive Summary

In addition to providing local search & discovery service that allows users to easily search for offline SMEs such as restaurants and beauty salons, NAVER offers "SmartPlace," which is a free admin tool that allows SMEs to directly manage the business information displayed on the local search & discovery platform. As of November 2020, the number of offline businesses displayed on NAVER's local search & discovery platform totaled about 3.1 million, of which 58% or 1.8 million businesses are using SmartPlace, a free platform offered by NAVER. Offline SMEs do not have to build their own websites rather, they can provide NAVER users with information about their businesses through SmartPlace, while also enjoying free exposure and advertising through various NAVER local search & discovery services such as integrated search, SmartAround(AI based recommender system), maps, and navigation.

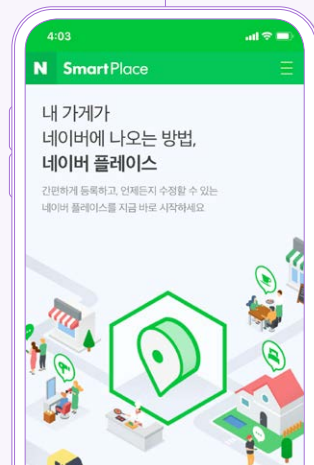
In addition, SMEs can strengthen their digital connectivity with users by actively providing detailed information such as updates, menus, photos, and addresses through SmartPlace. They can also access a variety of free features (tools) that can improve their operating efficiency, such as Smart Call (AI call answering feature to be launched soon), NAVER Talktalk (live chat with customers), Reservation, and Smart Order.

A research team¹⁾ led by Professor Kim Ji-Young of Sungkyunkwan University School of Business analyzed NAVER SmartPlace data to conduct an empirical study of how offline SMEs' use of SmartPlace affects their business performance²⁾.

NAVER SmartPlace

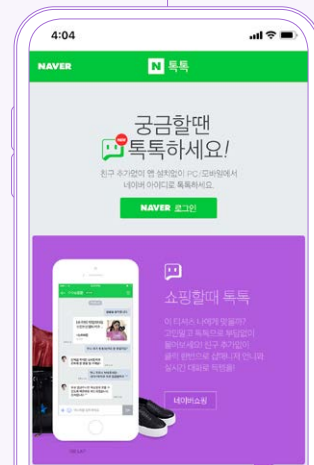
SMEs can manage their store information exposed on NAVER themselves

A total of 1.8 million businesses, out of total of 3.1 million local businesses displayed on NAVER, are using the service



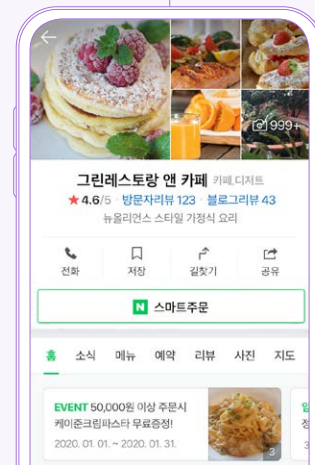
NAVER Talktalk

Chat with customers without having to add them as friends or install apps



NAVER Smart Order

Upload menu to offer contactless order placement and payment option



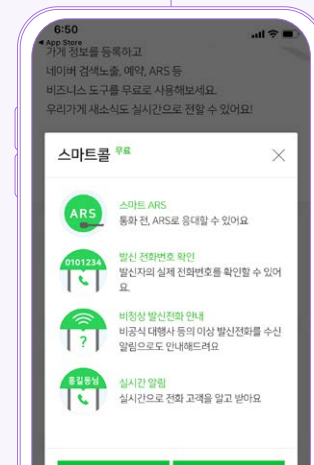
NAVER Reservation

Receive reservation and payment through mobile devices



NAVER Smart Call

Manage customer relations with a virtual phone number (050)



¹⁾ Bae Gyeong-han, Hwang Jeong-hyun

²⁾ Analysis data: Data on 10,589 restaurants located in Gangnam-gu exposed on local search for a total of 6 months from July to December 2019

The results of the analysis show: ① Offline SMEs that utilized SmartPlace tend to attract more interest among potential customers and perform better online. Specifically, compared to those that did not, businesses that actively utilized SmartPlace received 2.4 times more phone calls, the number of users searching for directions to the store was 3.1 times higher, the number of users who saved the store in their interest list was 10.8 times higher, and the number of users

who shared the store with others was 4.2 times higher. ② Businesses with a lower level of popularity(i.e., less known businesses) gain greater benefits from utilizing SmartPlace than those with a higher level of popularity. Businesses with lower popularity performed significantly better in receiving 'phone call'(1.68 times), 'get directions' (2.4 times) and 'share' (2.84 times).



Improvement in online performance after using SmartPlace
(use versus non-use)



2.42
times ↑



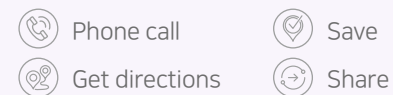
3.07
times ↑



10.75
times ↑



4.16
times ↑



Comparison of SmartPlace online performance by popularity
(use versus non-use of SmartPlace)



High
popularity

0.89
times



1.18
times



5.90
times



1.79
times

Low
popularity

1.68
times

2.39
times

3.22
times

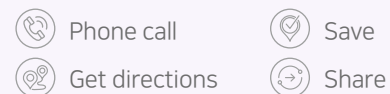
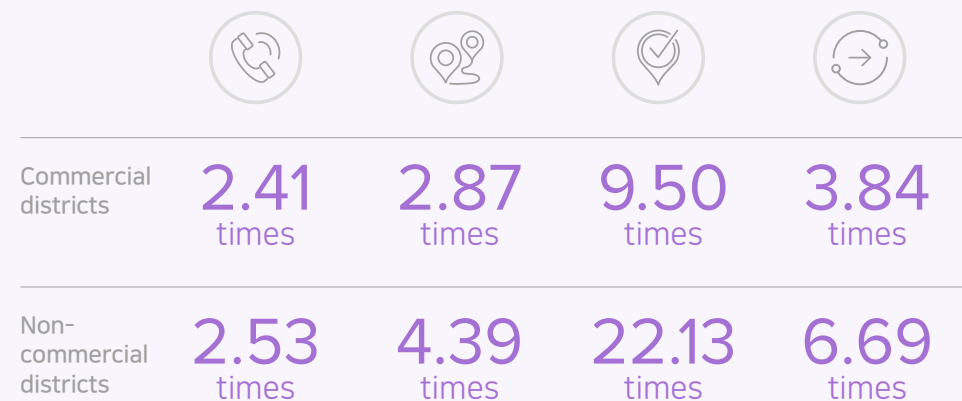
2.84
times

③ The study shows that businesses that are poorly located can enjoy greater benefits from utilizing SmartPlace compared to those with good location conditions. For example, businesses located in non-commercial districts showed improvements in 'phone call' (2.53 times), 'get directions' (4.39 times), 'save' (22.13 times) and 'share' (6.69 times), by utilizing SmartPlace, thus deriving greater benefits from their SmartPlace participation than those located in commercial districts.

Similar effects were found when the location conditions were analyzed based on store density. For most performance indicators, the benefits of utilizing SmartPlace were greater for businesses located in districts with less traffic than for those located in dense shopping areas.

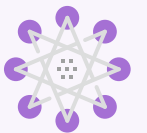


Comparison of online performance by business location
(use versus non-use of SmartPlace)

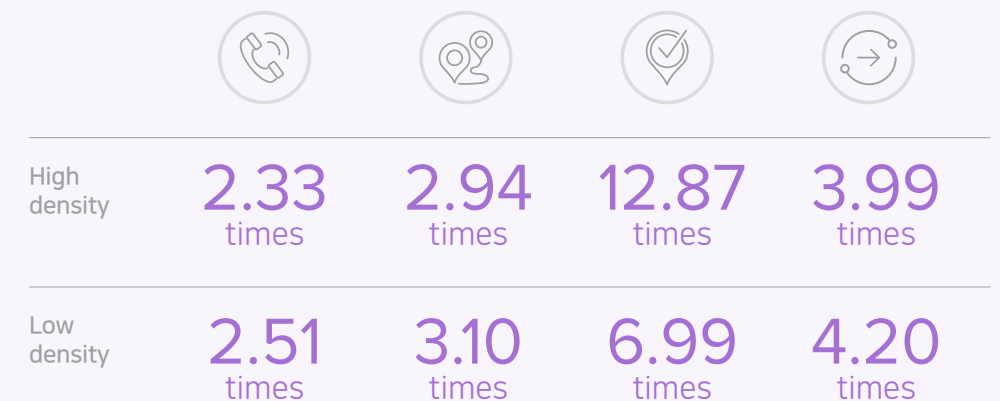


Businesses which actively utilized NAVER SmartPlace in districts with less customer traffic enjoyed an increase in 'phone calls' by 2.51 times, 'get directions' by 3.1 times, and 'share' by 4.2 times, which were greater than those located in densely populated commercial districts.

This study shows that the use of NAVER SmartPlace by offline SMEs is helpful not only for improving their online business performance but also for overcoming disadvantages associated with unfavorable store locations and low popularity. Given that most offline operators are small businesses with low popularity, the use of SmartPlace could have a positive effect on their online business performance. As consumers are increasingly using online search tools more than ever due to COVID-19, offline SMEs could actively utilize the free features of SmartPlace to overcome the COVID-19 crisis.

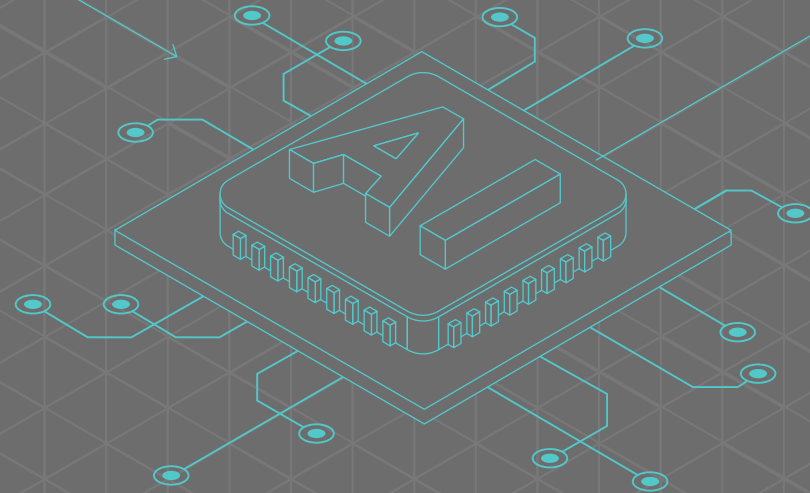
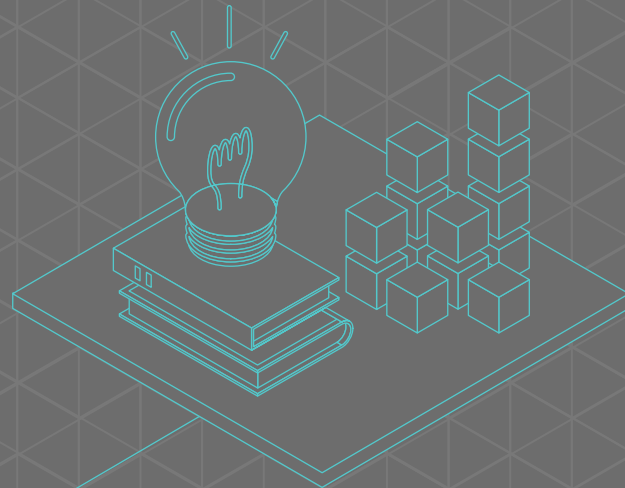


Comparison of online performance by population density
(use versus non-use of SmartPlace)





PART 4.
**AITEMS, AI TECHNOLOGY FOR
DISCOVERING NEW VALUE OF
SMEs**



Executive Summary

AiTEMS, AI Technology for Discovering New Value of SMEs

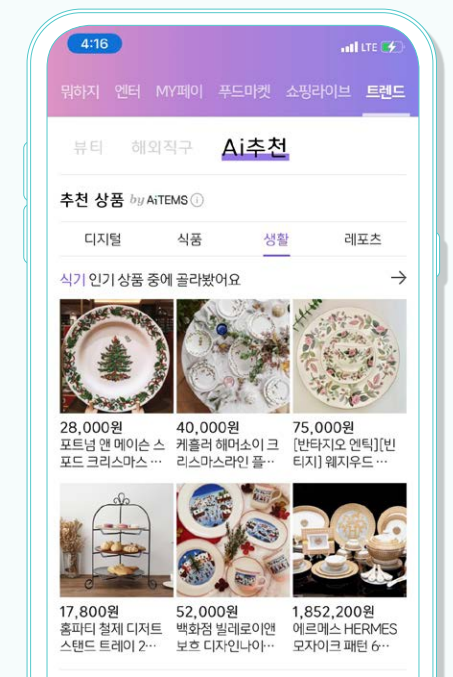
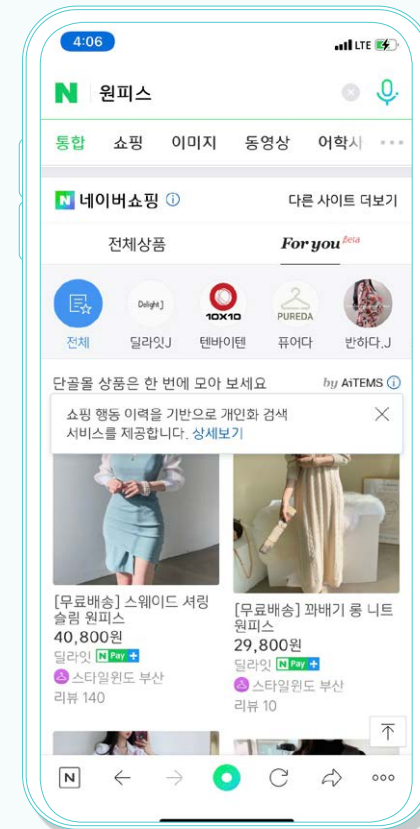
AiTEMS, AI technology as a daily tool that enables SMEs to better connect with users

NAVER transforms cutting-edge technologies into everyday tools that anyone can use and makes efforts to ensure that more SMEs can better connect with users and consumers using NAVER services. A representative example is AiTEMS, a deep learning-based shopping recommender system. After analyzing users' data, such as personal tastes and preferences, and product characteristics, AI-powered AiTEMS delivers a product recommendation aimed at helping users find the products they want more easily. AiTEMS provides technological support for lesser known SME products to be more easily discovered by potential consumers that show a high likelihood of purchase. AiTEMS provides SMEs with new opportunities for discovery and growth through its state-of-the-art technology, while enabling consumers to use it as a convenient everyday tool for discovering products that suit their preference.

As a result of efforts to develop AI technology, the use of recommendation service in NAVER Shopping has steadily increased since the introduction of AiTEMS in 2017. As of November 2020, 25% of NAVER Shopping users were using the recommendation service, while 11% of product clicks were made on the basis of recommendations. In addition, as a result of continuous efforts to improve the quality of recommendations to meet the increased demand for online shopping due to COVID-19, the number of AiTEMS recommended service users increased 40%, the number of product clicks via AiTEMS rose by 70.5%, and the gross merchandise volume surged by 83.6% as of November 2020 compared to the figures in January.

Effectiveness of AiTEMS

A research team¹⁾ led by Professor Lee Gun-woong of Korea University Business School examined the positive impact of AiTEMS on SME performance and user satisfaction by conducting an empirical analysis of NAVER Shopping data. To this end, the study develops hypotheses based on AiTEMS' effectiveness in the following four areas: ① providing SMEs with opportunities, ② reflecting market demand, ③ improving product selection by alleviating product uncertainty, and ④ improving product selection based on personalized recommendations.



Introduction material for AiTEMS

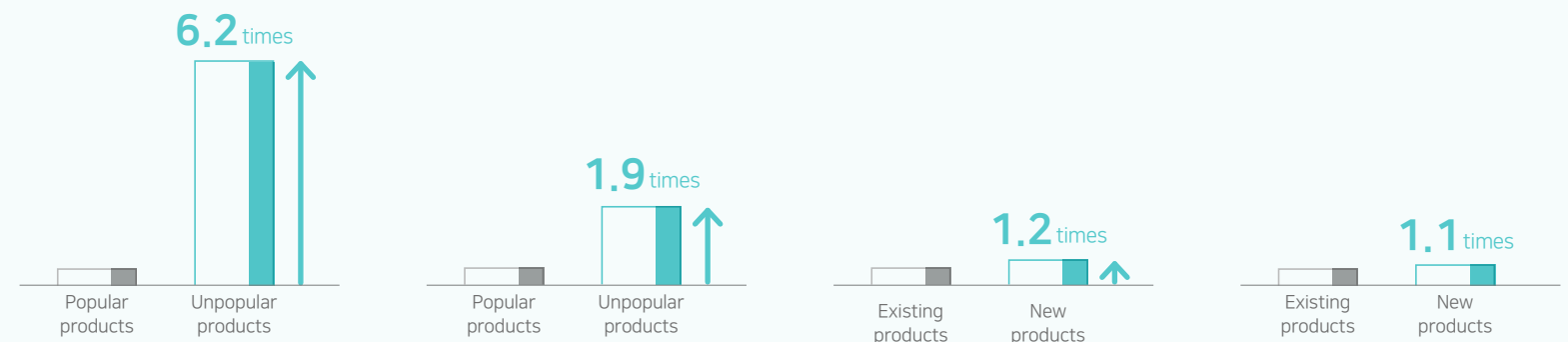
¹⁾ Professor Lee Gun-woong (Korea University Business School),
Researcher Seo Hee-jin (Korea University Business School),
Researcher Joo Hee-jin (Korea University Business School)

AiTEMS' effectiveness in providing opportunities to new and less popular SMEs

One of the most important expected effects of AI technology applied to search and recommendation services is effectively connecting various individuals, products, and contents through personalized recommendations, rather than general popularity based results, which in turn leads to new discoveries and growth. Focusing on the potential effects of providing opportunities to SMEs with low popularity, the study finds that AiTEMS raises the possibility of user selection more significantly for products and stores that do not have a high popularity rating due to lower number of reviews or shorter operation period compared to those enjoying a high degree of popularity.

- ▶ The selection rate for less popular products with few reviews was about 6.2 times higher than that for popular products
- ▶ The selection rate for less popular stores with few reviews was about 1.9 times higher than that for popular stores
- ▶ The selection rate for new products was about 1.2 times higher than that for existing products
- ▶ The selection rate for new stores was about 1.1 times higher than that for existing stores

Comparison of user selection rate
(clicks/impressions)



AiTEMS' effectiveness in reflecting market demand

When it comes to selling products, it is important to reflect market demand appropriately. AiTEMS reflects the market demand and matches the needs of users and products appropriately when making its recommendations, which means that SMEs do not have to make extra efforts for product promotion and marketing by analyzing market trends individually. This AI-based recommendation system increases a new SME's chances of attracting potential customers from the outset. The study has confirmed that AiTEMS recommends products to buyers by appropriately reflecting the market demand for each product.

- ▶ AiTEMS' product recommendations are approximately 86% consistent with the shopping search index (market trend).

AiTEMS' effectiveness in promoting choice by mitigating product uncertainty

Online shopping has become far more popular recently due to the acceleration of digital transformation and the emergence of contactless economy. However, in case of experience goods, such as fashion, sports, and leisure equipment, there is still a limit to online shopping because it is difficult to properly assess a product's real value until the user has purchased and experienced it.

However, one of the main functions of the AI recommendation system is to recommend the product that most closely matches a user's needs and to mitigate uncertainty about the quality of a given product before purchase. These characteristics of the AI recommendation feature were expected to alleviate the uncertainty surrounding experience goods like fashion, which faces limitations in terms of online shopping experience, and raise the buyers' selection rate significantly.

After analysis, experience goods such as fashion, characterized by high uncertainty and requiring hands-on experience, showed a higher buyer selection rate than search goods, such as electronic products, when recommended by AiTEMS.

- ▶ **The likelihood of purchase for experience goods recommended by AiTEMS improved by 5.5 times compared to search goods**

These results suggest that when users are presented with a product recommendation by AiTEMS, their preferences and characteristics are better reflected, thereby lowering uncertainty and increasing the likelihood of purchase.

AiTEMS' effectiveness in promoting product selection by reflecting users' preferences

Aside from reflecting trends in public preferences, a recommender system needs to consider the hidden tastes of individual users and provide them with unique recommendations. The researchers measured the inconsistency between the keyword search index by product group reflecting the market trend and the recommendation index by product group through AiTEMS.

The results of the analysis confirmed that the greater the discrepancy between the recommendation and the search indexes, which means that the more personal preferences are reflected in the recommendation, the greater the likelihood that users will select related products.

- ▶ **The higher the inconsistency between the recommendation index and the search index (the degree to which personal preferences are reflected by AiTEMS recommendations), the higher the selection rate**

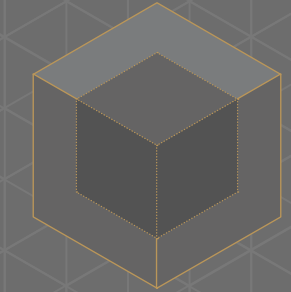
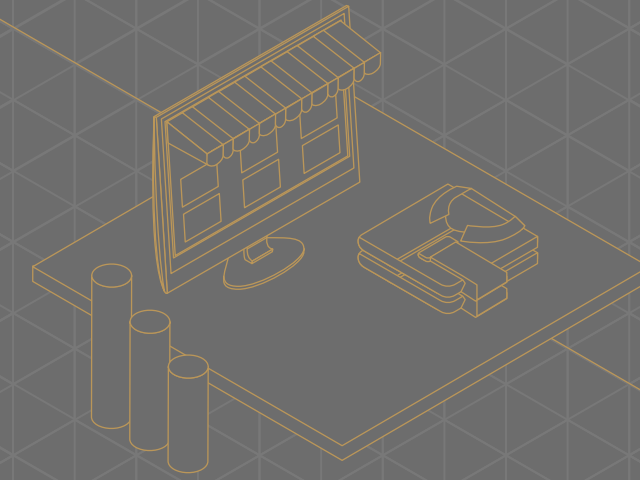
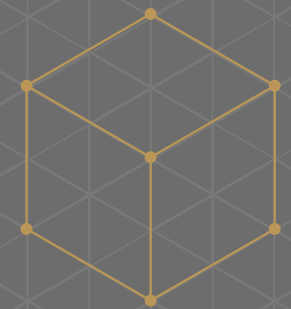
In addition, a higher selection rate was found for experience goods, for which users' preferences are more reflected in AiTEMS recommendations due to the high inconsistency between the recommendation index and the search index, than for search goods.

▶ **In AiTEMS recommendations, experience goods reflected the individuality of users to a greater degree than search goods, with a 5.5 times higher selection rate than search goods**

These research results confirm that AiTEMS improves the probability of a product being selected by users because it accurately reflects not only the public's product preferences but also personal preferences or tastes in its product recommendations.

This study quantified the benefits AiTEMS provide directly to SMEs (such as improving product visibility and selection rate), highlighting the benefits that AI technology provides to users and SMEs in an objective and convincing manner. Most notably, it was shown AI technology helps that various products and stores with low awareness to be better discovered and selected by users by reducing the importance of awareness, which was previously considered an important element in shopping search.

This study raises important socio-economic implications for balanced growth through AI at a time of Digital New Deal and emerging importance of economic growth through AI, by using empirical data to show that AI recommendation technology that reflects user characteristics mitigates the "superstar" focus, alleviates the polarization between products and stores, and gives SMEs opportunities for new discovery and growth.



PART 5.
**BIZ ADVISOR, A FREE SOLUTION THAT
PROVIDES SMES WITH DATA INSIGHTS**



Executive Summary

Biz Advisor, a Free Solution that Provides SMEs with Data Insights

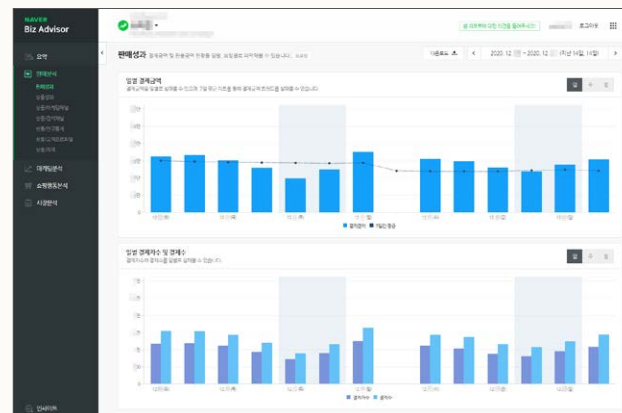
NAVER helps SMEs in their initial growth stage achieve sustainable growth by utilizing its unique service technologies and capabilities. One such service is Biz Advisor, a free analytics tool that helps SmartStore sellers review their sales data and derive insights. It provides not only detailed data on daily and weekly sales for each product, but also specific data such as inflow by channel and keyword, conversion rate, and contribution amount. It also makes sure that the effectiveness of the marketing tools adopted by each store can be seen with the relevant data. Through Biz Advisor, sellers can manage their inventories and advertising plans or provide customized products according to the characteristics of major customer groups.

NAVER strives to enhance the tools (functions) of Biz Advisor so that new sellers in particular can take advantage of it more easily and in more diverse ways, as well as increase the types of data available on Biz Advisor for analysis. As a result, Biz Advisor is widely used by new sellers on SmartStore who joined due to COVID-19. As of December 2020, the daily average number of users increased by 89% compared to the previous year, with the number of visits surging by 151%. Usage of Biz Advisor also increased, with the number of page views per visit (PV) increasing by 60% compared to the previous year.

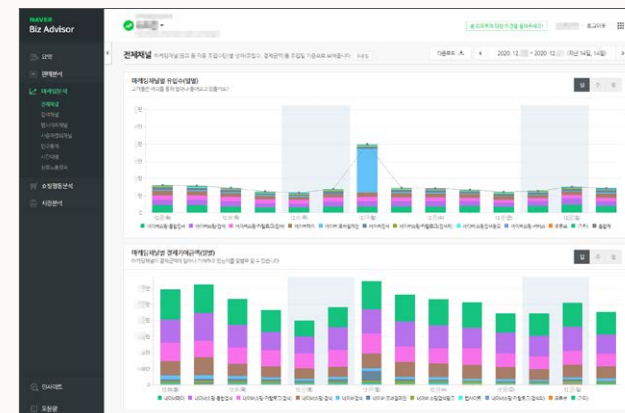
A research team¹⁾ led by Professor Yoo Byungjoon of Seoul National University Business School conducted an empirical analysis to determine whether the use of Biz Advisor actually affected SMEs positively based on SmartStore seller data. To find out the relative effect of using Biz Advisor, they used propensity score matching (PSM) and difference in differences (DD) methodology in their analysis.

 Biz Advisor education videos on PartnerSquare TV

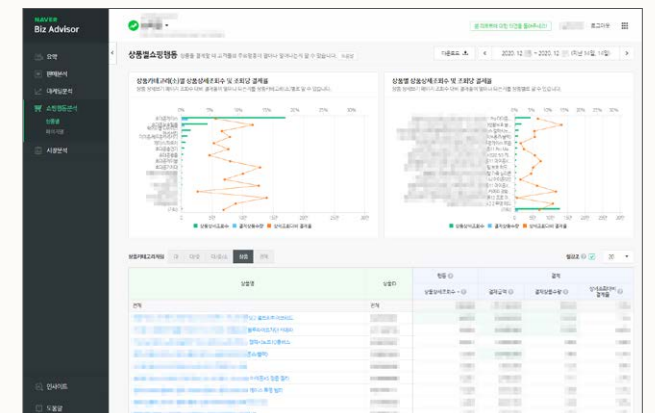
 1:1 consulting request for BizAdvisor



Sales analytics



Marketing analytics



Behavior analytics

¹⁾ Yeom Gyeong-min (SNU Business School),
Park Jae-sang (SNU Business School)

① Using Biz Advisor increased sales by up to 54%

The research analyzed sales data of SmartStore to find out how the use of Biz Advisor had impacted SMEs' sales and discovered that, among the four categories analyzed, three categories of agricultural products, household appliances, and women's clothing (excluding the category of men's clothing), saw an increase in their sales of 34%, 54%, and 43%, respectively, after utilizing Biz Advisor. In order to strictly measure the effect of Biz Advisor, the research separated the sellers who used Biz Advisor from those who did not and chose cases with similar observable characteristics from each group. The effect of Biz Advisor was then estimated by comparing the two groups' increases in sales over time.

② Additional profits of KRW 1.4 trillion can be expected when extrapolating the effects of Biz Advisor to the entire Korean e-commerce market.

Based on the above research results, the research team estimated how much additional profits could be provided to sellers if Biz Advisor were applied to the entire online shopping market (based on online product sales in 2019). The outcome shows that Biz Advisor could potentially generate an additional profit of about KRW 1.4 trillion per year when applied to the entire Korean e-commerce market.

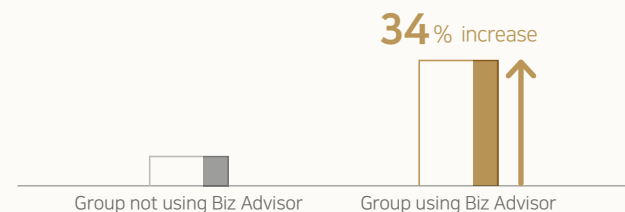
③ Biz Advisor improves efficiency of customer relations, product management, and quick decision making for online SMEs

In order to determine the impact of Biz Advisor on support for sellers, the research reviewed previous studies and theories, and conducted a qualitative analysis that included interviews with sellers who use Biz Advisor. As a result, we found out that Biz Advisor relieves sellers' burden of customer management in terms of real-time customer classification and customer profiling; helps sellers promptly identify and resolve the problems in terms of product management; and assists them with quick decision-making process.

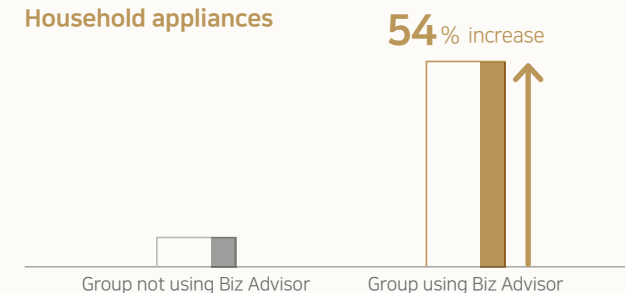
This study is meaningful in that it has empirically confirmed, using experimental research techniques, that Biz Advisor helps SMEs to boost their sales. Due to the spread of COVID-19, consumers' purchasing activities have rapidly moved from offline to online. If SMEs use Biz Advisor more actively, they will be able to complete their digital transformation more successfully. Moving forward, through continuous upgrades combined with SME education and consulting provided through NAVER's D-Commerce Program, Biz Advisor can establish itself as a free and effective solution empowering SMEs through data and technology.

Sales increase effects

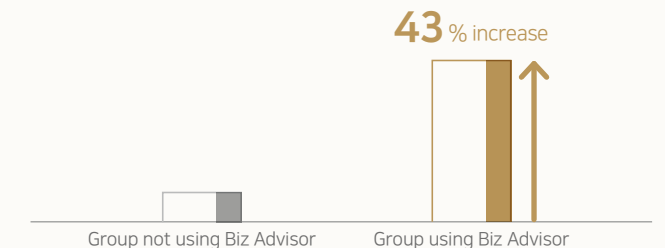
Agricultural products



Household appliances



Women's clothing



NAVER

PLANNING NAVER Agenda Research, Public Relations

DESIGN Talantone Creative Group

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