

The Story of Real Roads Told by T map

T map Trend Map 2020

Hello from T map

Since 2002, when launching Nate Drive, the first routing and navigation service reflecting realtime transportation information T map has been constantly writing Korea's mobile navigation history for the past 18 years. In 2010, the number of users increased at a fast pace in line with the sudden growth of the domestic smartphone market. When the free service was provided to customers of all mobile carriers in July of 2016, T map was able to be acknowledged as the nation's representative navigation system. Since 2017, T map has been incessantly making new challenges by actively adopting a variety of advanced technologies such as AI NUGU, V2X and aeronautical chart. Moreover, T map is fulfilling social values not only for drivers but also for the safety of pedestrians based on driving habit services and children protection routes.

Thankfully, the number of subscribers of T map as of 2020 reaches 18.5 million, accounting for a third of the whole population of our country. This means that half of driver's license holders are users of T map. This shows that T map became a vital part of our daily life. In sum, up to 4.5 million people a day and 13 million people a month count on T map services. T map covers 3.8 billion km a month with users, and this distance is equivalent to that of a round trip by 5,000 times from the earth to the moon. We would like to share true stories with you, which is happening on the road found in the T map travel data.

Number of subscriber
(2020. 8.)

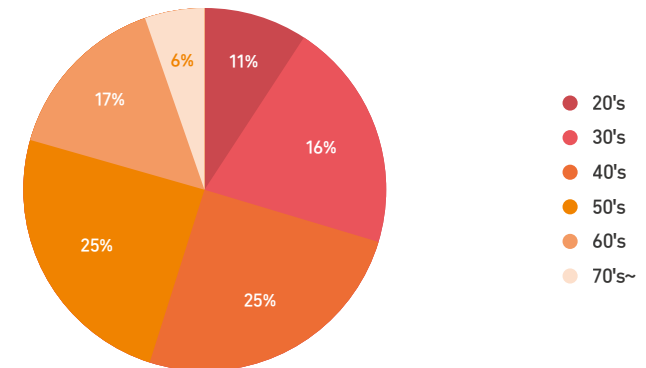
18,456,637



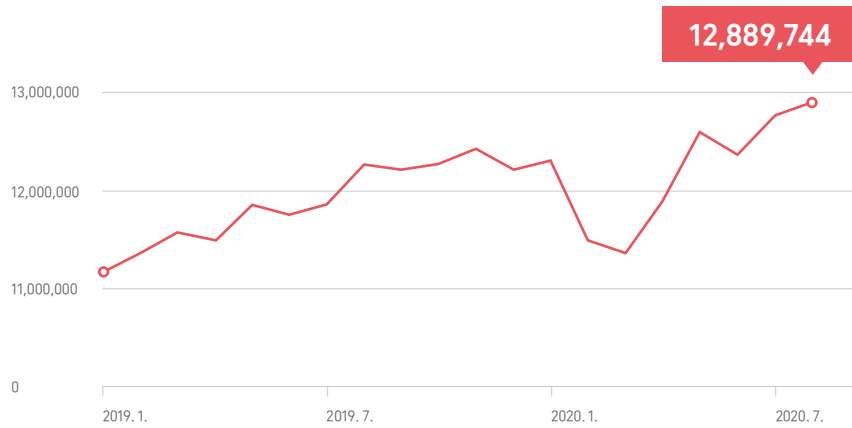
Smartphone navigation market share
(2020. 8.)



Subscriber age distribution
(2020. 8.)



Monthly Active Users (MAU)
(2019. 1. ~ 2020. 8.)



* MAU(Monthly Active Users)

Daily Active Users (DAU)
(2019. 1. ~ 2020. 8.)



* DAU(Daily Active Users)

Number of start navigation
(2020. 8.)

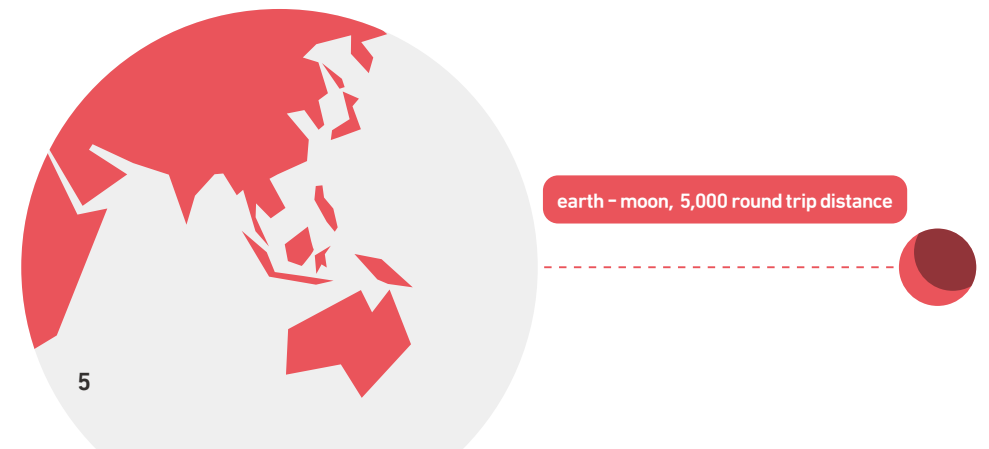
187,601,814

Number of days used in a month
(2020. 8.)

8.9

Monthly mileage
(2020. 8.)

3,831,870,144km



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01

COVID-19 and mobility

Long weekend and COVID-19 ¹⁰

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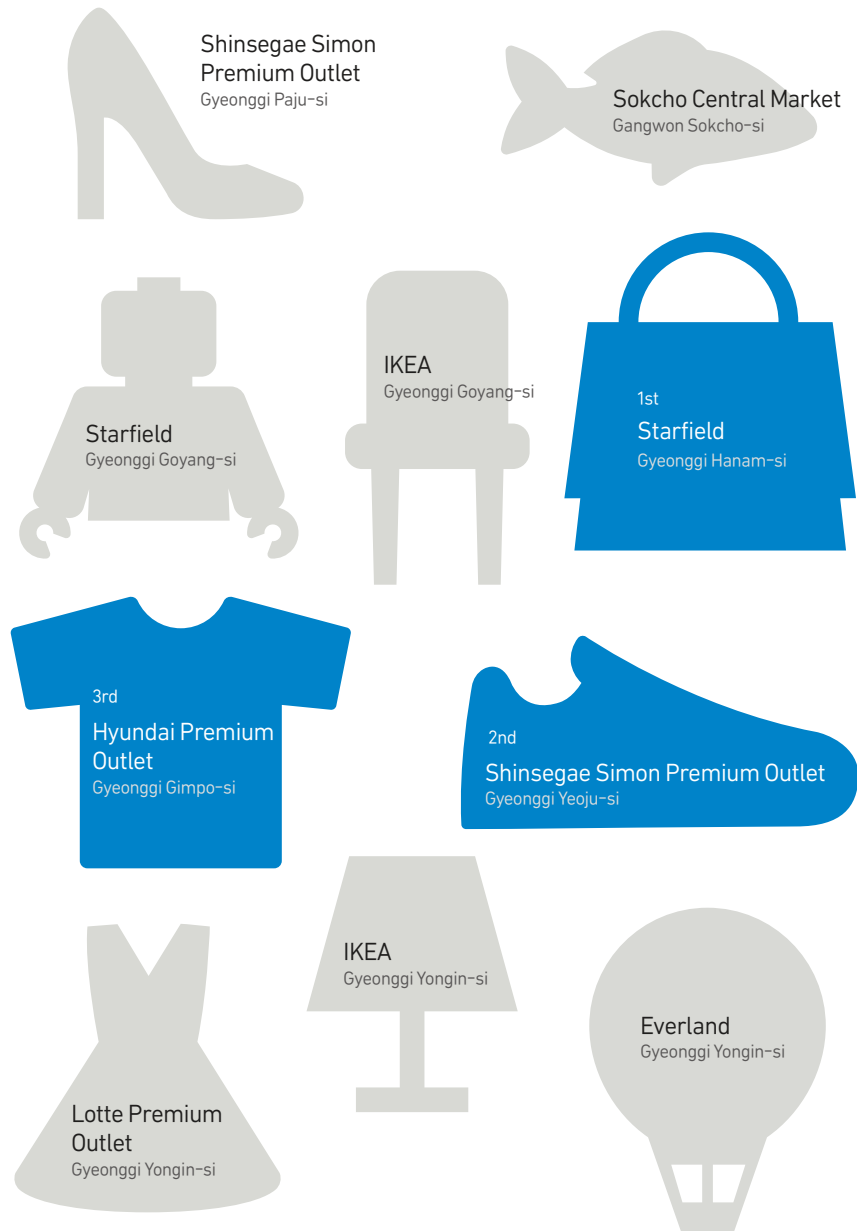


COVID-19 and mobility

Long weekend and COVID-19

The first thing we normally do when receiving a calendar of the New Year is to check the days marked in red. Wishing that the public holidays were right next to the weekend, we start to mark birthdays or personal anniversaries on the brand-new calendar, full of hope. In particular, May is likely the month we review the longest while holding a red pen. It is because we can expect long weekends in May, ranging from Labor Day to Children's Day, preparing many special days to celebrate. However, this year, an unforeseen variable called "COVID-19" showed up out of the clear blue sky and this changed our usual expectation of a long weekend. How would T map data be reflect this change then? We will review the flow of changes through the travel data of T map users registered from April 30 to May 5 of 2020.

2020 TOP10 T map destinations, Nationwide



* 2020. 4. 30. ~ 5. 5. | Number of start navigation

Replacing travel with consumption, at least

Year 2020 will be remembered as a year in which aftermath of COVID-19 reached every corner of our society. We are used to wearing a mask when going out and take it for granted that we stay at home even on the weekend. Social distancing has become part of our daily life. The long weekend of May showed some scenes quite different from those of the previous years. Unlike 2019 when Incheon International Airport was the nation's top destination of T map, this option of airport disappeared in 2020 and the outlet stores including Starfield took up top high rank instead. Despite the twice the number of holidays compared to 2019, people intending to make an overseas trip decreased in a substantial manner, while those wishing to spend the holiday in the country increased. These trends can be unmistakably shown in the T map movement data as well.

Then where did those who opted for travel inside the country instead of overseas travel go? The answer is in Everland and Sokcho Central Market (Sokcho Tourist & Fishery Market). In Everland, group visitors and foreign tourists literally "evaporated" in March when the number of confirmed cases of COVID-19 rapidly increased. However, from mid-April when the daily confirmed cases dropped to 20-29, the number of visitors started to grow gradually. During the long weekend right before the end of social distancing, the number of visitors noticeably increased, possibly because Children's Day was included. Thus, in 2020, Everland ranked No. 7 in the long weekend destination throughout the country. Sokcho Central Market was also crowded with people during the long weekend. Almost all accommodation facilities in Gangwondo with a relatively small number of confirmed cases were full. Moreover, main tourist attractions recovered liveliness after a long interval. Instead, diverse regional festivals including Taeon World Tulip Festival were cancelled, and touristic sites thronged with people such as Yedang Reservoir Suspension Bridge and Jeonju Hanok Village have automatically disappeared in the ranking.

People who did not feel at ease neither with overseas or domestic trips headed for shopping malls. In particular, since large-scale shopping malls in the metropolitan area serve not only for consumption of activities but also going out for a drive for a change, they were ideal to console the sad situation of not being able to make a trip to anywhere, either at home and abroad.

Holiday in Daegu, in company with anxiety

Since the 31st confirmed case of COVID-19 occurred on February 18 of 2020, Daegu was forced to spend the springtime amid menacing fear of proliferation of coronavirus. In March when the cumulative confirmed COVID-19 cases reached 6,000, the downtown of Daegu became suddenly empty. However, on April 30, having long weekend ahead, the number of new confirmed cases was reported to be 0 for the first time, and this brought gradual vitality again. However, unfortunately, this failed to make uneasiness of Daegu citizens vanish away completely. When comparing the travel traffic of Daegu during the long weekend of 2020 with that of 2019, we can clearly perceive greater anxiety of Daegu citizens. Daegu of May of 2019 was busy with people visiting and leaving the city. Last year, the movement traffic was concentrated on Dongdaegu Station, airport and IC, making the city full of lively hustle and bustle with people making a trip even with a short schedule and visiting the city from other regions. However, the general atmosphere of 2020 has entirely changed. The long weekend of this year had three days more compared to the previous year. Therefore, in theory, the number of people moving around across the country should be more than before, but the average daily number of direction guide in Daegu including Dongdaegu Station decreased by 17%. For example, Shinsegae Department Store had the highest traffic in Daegu for 2019 and 2020 was visited, during the long weekend of 2019, It was visited not only people living in Daegu but also by those from the nearby metropolitan area of Gyeongbuk.

2019 TOP10 T map destinations, Nationwide

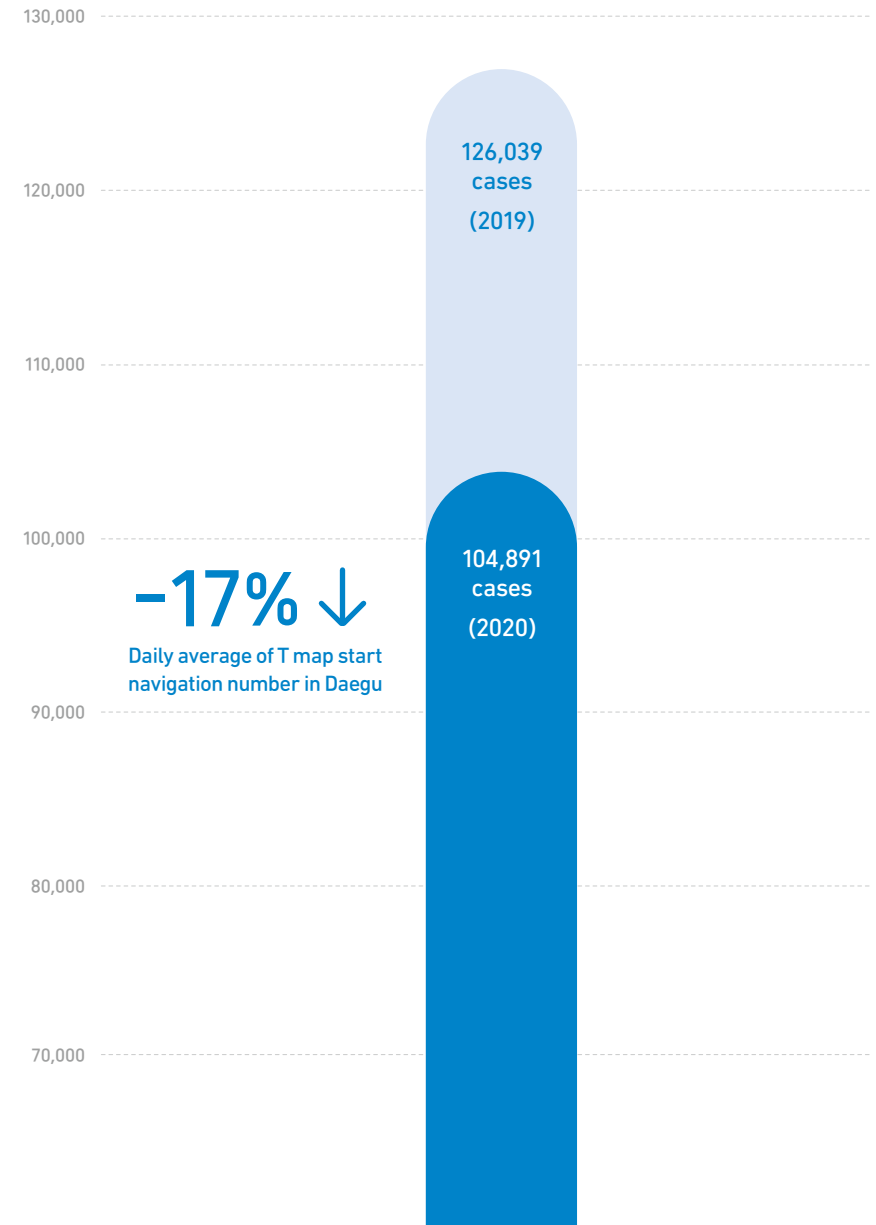
1st	Incheon International Airport	Incheon Jung-gu
2nd	Starfield	Gyeonggi Hanam-si
3rd	Starfield	Gyeonggi Goyang-si
	⋮	
84th	Shinsegae	Daegu Dong-gu

2020 TOP10 T map destinations, Nationwide

1st	Starfield	Gyeonggi Hanam-si
2nd	Shinsegae Simon Premium Outlet	Gyeonggi Yeosu-si
3rd	Hyundai Premium Outlet	Gyeonggi Gimpo-si
	⋮	
148th	Shinsegae	Daegu Dong-gu

* 2020. 4. 30. ~ 5. 5. | Number of start navigation

2019 vs 2020 T map traffic change in Daegu



* 2019. 5. 4. ~ 6. / 2020. 4. 30. ~ 5. 5. | Daily average of start navigation

What? Visiting a doctor during the long weekend?

During the long weekend in 2019, citizens of Seoul made a trip despite the short holiday. Their movement to other regions was active to such an extent that six places out of ten constituted terminals, airport and train stations. In 2020, some new places ranked high. What attracts our attention is Asan Medical Center of Seoul that ranked No. 2. The movement volume in 2020 towards Asan Medical Center doubled, but it is difficult to say that the movement volume itself increased considering that the holiday period was two times longer. However, since the movement towards other places, except hospitals during the same period, decreased due to the influence of COVID-19, it is assumed that the rank of Asan Medical Center, which maintained its movement volume, rose as a result. With the rapid growth of confirmed cases of COVID-19, most of people avoided going out, but patients and medical team were forced to go to the hospital even amid fear of COVID-19. This regrettable situation is revealed in the T map data as well.

2019 TOP10 T map destinations, Seoul

1st	Seoul Children's Grand Park	Seoul Gwangjin-gu
2nd	Dong Seoul Bus Terminal	Seoul Gwangjin-gu
3rd	Helio City Apt.	Seoul Songpa-gu
	⋮	
13th	Asan Medical Center	Seoul Songpa-gu

2020 TOP10 T map destinations, Seoul

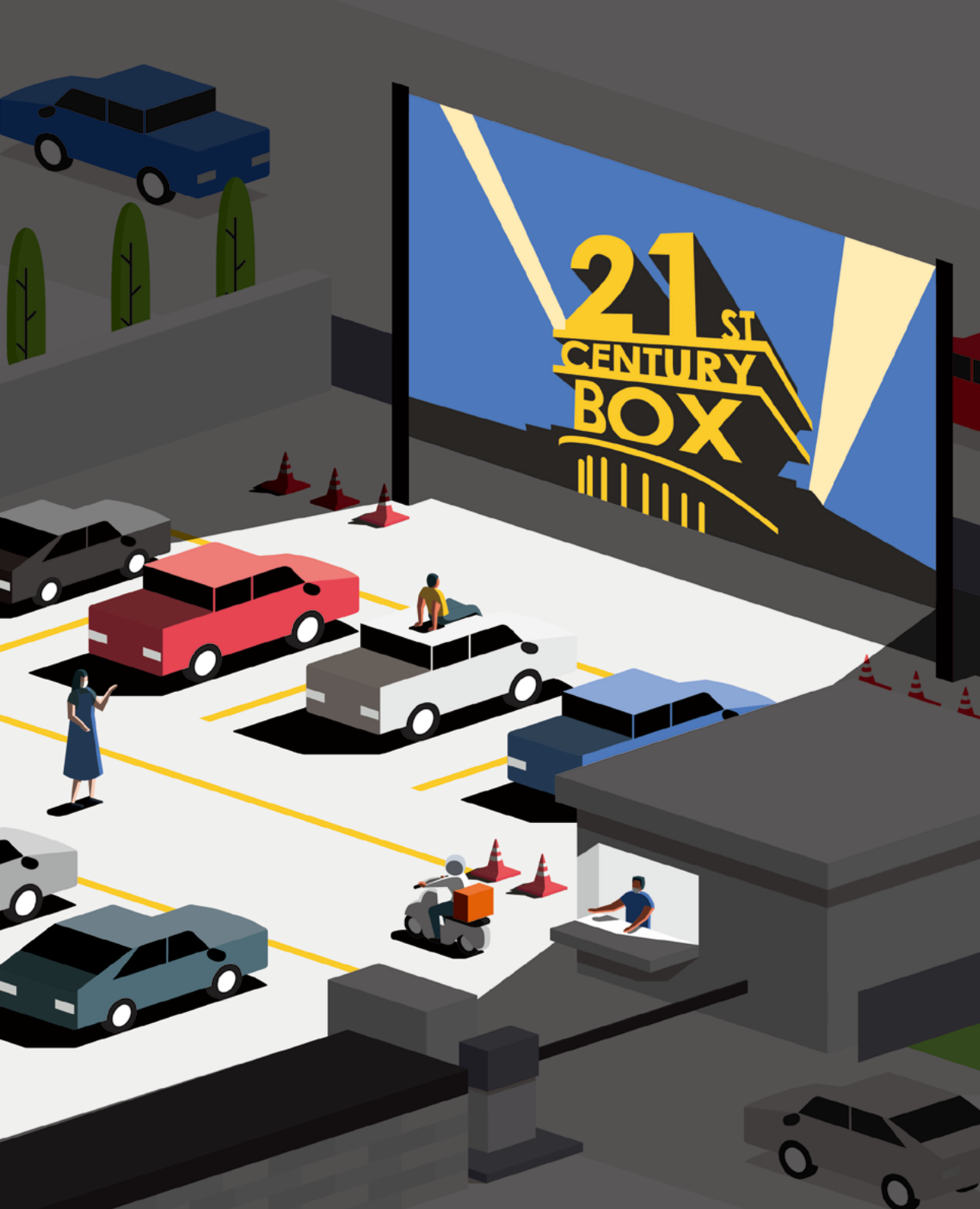
1st	Yeouido Hangang Park	Seoul Yeongdeungpo-gu
2nd	Asan Medical Center	Seoul Songpa-gu
3rd	Helio City Apt.	Seoul Songpa-gu
4th	Noryangjin Fish Market	Seoul Dongjak-gu
5th	Gimpo International Airport Domestic Terminal	Seoul Gangseo-gu

* 2020. 4. 30. ~ 5. 5. | Number of start navigation

Waiting for a usual everyday life

Spring is a season that matches the expression "the first time". However, in spring of 2020, many "first time" things have disappeared. By the time the memories of the first school day and the first day of work were getting fainter due to COVID-19, we were already in the long weekends of May. During the period, the number of confirmed cases were reducing slowly. People, who were practicing strict social distancing enjoyed, in their own manner, the long weekend arrived visited them after a long time. Many tourist attractions including Gangwondo boomed. More than 193,000 tourists visited Jeju Island. With explosive consumption to compensate quarantine efforts, shopping malls thronged with people bringing positive impact. However, unfortunately, not everyone was able to enjoy the holiday. We hope that, in spring of 2021, everyone can enjoy the springtime as part of usual daily life, and make healthy and safe long weekend plans.

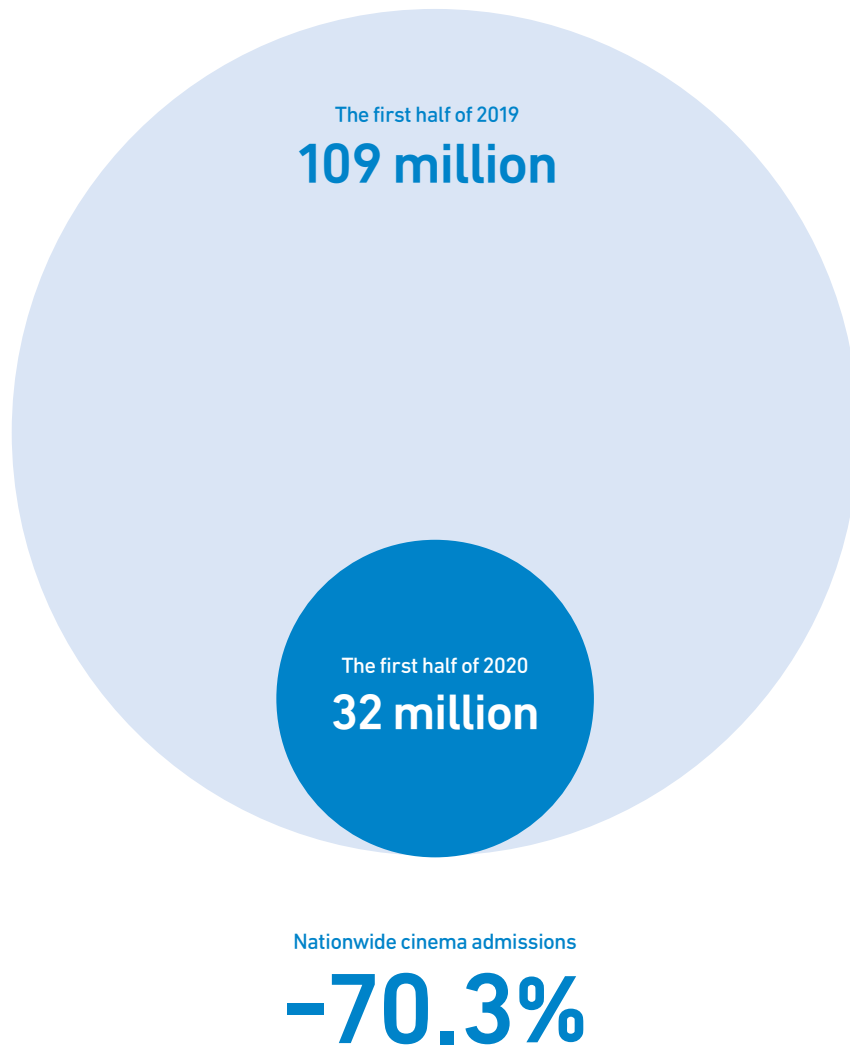




COVID-19 and mobility

A cultural life in the COVID-19 era

When the movie "Parasite" won four trophies including the award for Best Picture in the 92nd Academy Awards ceremony, the Korean film world was preparing 2020 with full of hope than of any other time. However, the unexpected outbreak of COVID-19 led to delay of highly anticipated films or change of direction to OTT (Over the Top). Thus, the audience preferred to stay home. However, the monitor watched at home fails to replace the big thrilling emotions from the theater. People who could not stand the small monitor and missed the movie theater decided to seek a Drive-in theater. We will explore how T map users enjoy their cultural life, looking for the first row in the Drive-in theater, instead of pressing buttons at home.



* Source: Statistical data of Korean movies of the first half of 2020 by Korean Film Council

One thing led to another: the future of film

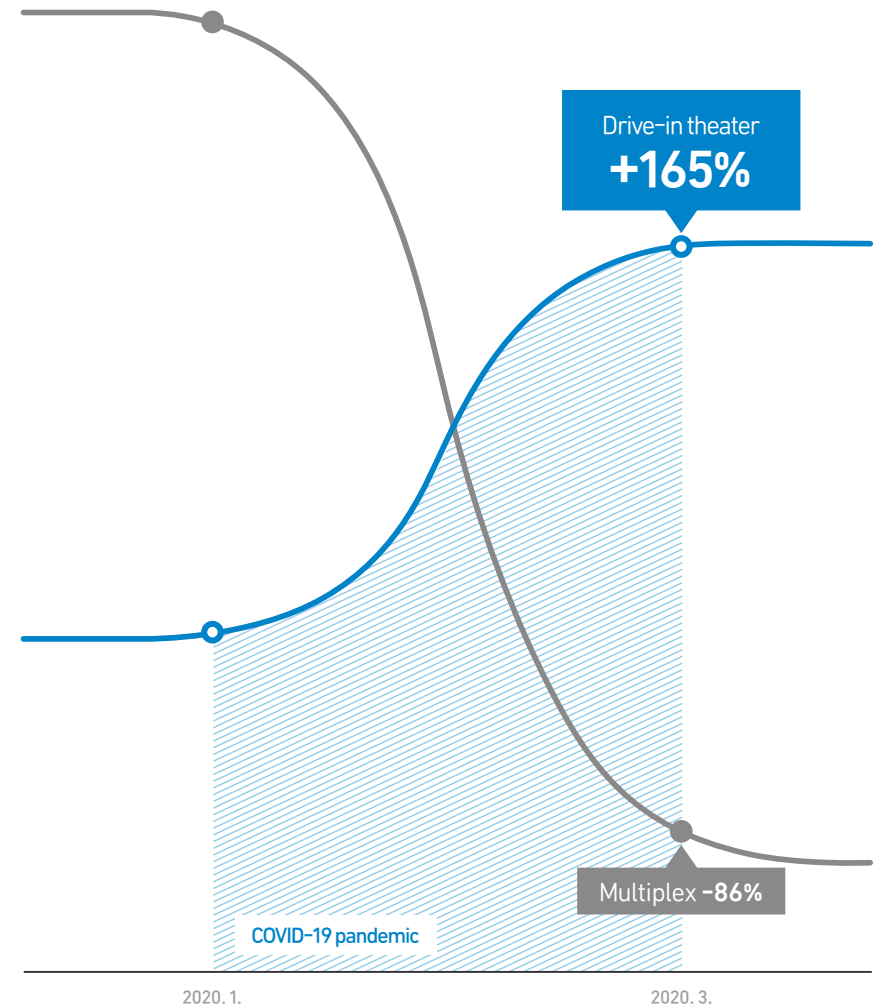
The prolonged COVID-19 cripples various industries. In particular, the film industry is one of the domains most affected along with the tourism industry, and is going through unprecedented recession. In the first half of 2020, the total number of audience took up 32.41 million reduction of 70.3% compared to the previous year, and the total turnover of movie theaters was 273.8 billion KRW with decrease of 70.6%, showing the lowest number in terms of audience and turnover since 2005. Considering that the integrated network of movie theater ticketing system was established in 2004, this year faced the toughest or record since the counting started in earnest. For this reason, the film industry is now making a actively breakthroughs in by moving, away from the passive attitude of waiting for the diminished number of confirmed cases of COVID-19 which delays movie premiere dates. Along with OTT platform, drive-in theaters came up as a representative alternative to the COVID-19 era. This was a well-timed idea in many ways, in the sense that it allowed the audience to enjoy the movie in an independent space. In accordance with the growing demand of non-face-to-face services, it is likely that drive-in theaters emerge not only as a place for watching movies but also as opportunities to enjoy various cultural activities.



Multiplex cinemas and Drive-in Theaters, a crossed destiny

Observing the data of 2020 registering the movement from multiplex to drive-in theaters, the rapid progress of drive-in theaters is noticeable. In January when confirmed cases were not many, the movement volume towards Multiplexes was overwhelmingly high thanks to New Year holiday. From February on, the number started to drop. It even failed to reach less than half the level compared to the previous year. Contrarily, popularity of drive-in theaters rapidly increased. During February and March when powerful social distancing was practiced, the visitor volume drive-in theaters increased more than 100% compared to the same period last year. According to the most crowded period of drive-in theaters in 2019, summertime turned out to be the busy season when blockbuster movies were re-released one after another. Even in wintertime which hinders people from outdoor activities, the number of people visiting the drive-in theaters was continuously growing. In spring and autumn with good weather, the popularity decreased to a certain degree. However, in 2020, things changed right from the beginning. The volume of T map users who went to drive-in theaters was breaking daily records. In particular, the drive-in theaters of Daegu and Gyeongbuk region were thronged with people, the highest level in the country. Since this region was designated as a special zone for infection control on February 25, the 11 branches of Multiplex cinemas were temporarily closed, and the health crisis alerted the citizens of the region where up to 700 confirmed cases were reported a day. This situation brought about the unexpected boom in the Drive-in theaters. In April and May when COVID-19 subsided, the ascending graph of the drive-in theaters went downward. However, in June when the confirmed cases rose again, the movement toward the Drive-in theaters grew accordingly, proving the correlation between COVID-19 and the Drive-in theaters. Audience in Multiplex cinemas began to increase from April and May when the popularity of Drive-in theaters went slow, but the number did not even reach 50% of the previous year. However, the film "#Alive" premiered on June 24, when the first half of the year was almost at the end. The daily audience number exceeded 400,000, bringing liveliness to the film industry after a long time. Since numerous blockbuster movies are to premiere in the second half of this year, we hope that they can show good results, although be able to enjoy the pleasure of sharing the movie in a theater full of people.

Demand comparison, Drive-in theater vs Multiplex



* 2020.1. ~ 2020.3. | Number of start navigation

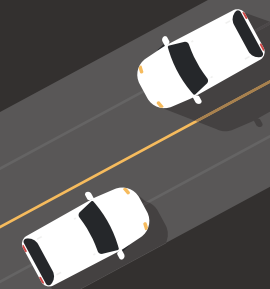
2020, the year of Drive-in theaters evolution

Since the pandemic was declared, cars started to have a value that goes far beyond a mere means of transportation. By taking advantage of the feature of cars as a private space, drive-thru screening centers were offered, and cars have always been present wherever any non-face-to-face services were available. drive-in theaters are at forefront of non-face-to-face services, and are all set to evolve as a new space for cultural experience. Gangwondo held a "Drive-in Concert" of Lee Seung-cheol and Hyundai Motors also held a Drive-in concert at KINTEX in Ilsan. Though it was an unfamiliar experience for both the singers on the stage looking at the license plates and for audience seated in their respective cars, people invented a new way of communication, for example, replacing applause with wipers, and acclamation with blinkers.

Many events are also being held abroad using drive-in theaters. Lithuania transformed the runway where cars had not been allowed to use as a drive-in theater. This event called "Aero Cinema" was held as one of the events planned by Vilnius International Film Festival. Due to reduced operation of aircrafts caused by COVID-19, the aviation industry in recession organized this special event in cooperation with people engaged in the film industry, which was going through difficulties to gather an audience. In addition, Denmark carried forward an event inviting the audience to the football games at a drive-in theater, because football fans still wished a big wish to watch a match although the players were play without a crowd. Some enthusiastic fans ardently cheered the players from inside their respective car decorated with colorful cheering items. This kind of cultural life enjoyed from inside the car, such as movies, concerts and sports, games continues to expand. Having expectation of new experiences from inside the car would be the wisest way to cope with the COVID-19 era, instead of just complaining about not knowing when the pandemic will ever end.

A new pattern of a cultural life in the post-COVID-19 era

Roads crowded with cars and parking lots without any empty spaces used to symbolize how much the urban people are tired without relaxation. However, since COVID-19 appeared, people began looking at the cars and parking lots from a different perspective. Cars now became a symbol of not only a safe means of transportation but also useful way to shop and experience cultural life. A variety of cultural events are being held in parking lots. It is estimated that where the cars move ahead and stay will show connections to a new era. If we analyze the movement route of T map users, who ran towards drive-in theaters, we can soon understand how the cultural life pattern will change in the post-COVID-era.





COVID-19 and mobility

How to shop in the post-COVID-19 era

Since the WHO declared COVID-19 a pandemic, the whole world paid attention to Korea quarantine methods based on quick screening speed and systematic operation. The system served as an undeniable benchmarking case in numerous countries.

The screening centers implementing the drive-thru method attracted the greatest attention. Worldwide press praised it because of its ability to minimize the infection route during the examination process and to considerably shorten the examination time.

In the past, the method was used in coffee shops or fast food restaurants. It started to spread to every corner of the society bringing changes to the quarantine system in the COVID-19 era.

Many areas are actively adopting drive-thru systems, and diverse products emerged as drive-thru items in the first half of 2020.

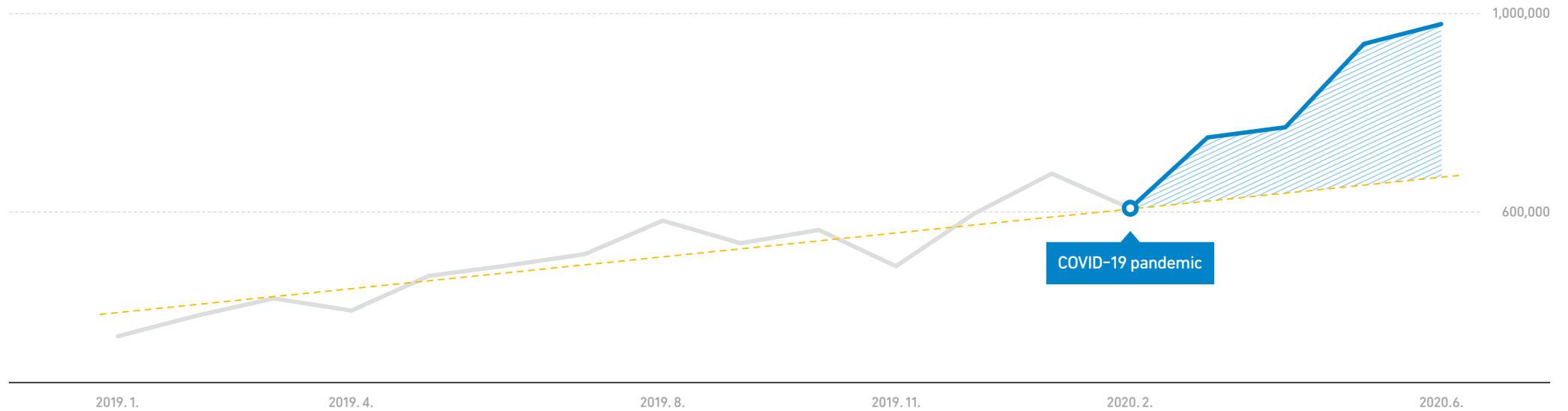
Growth of the drive-thru market

Since the drive-thru system was adopted in McDonald's of Busan in 1992 for the first time in our country, the drive-thru market came into being mainly in fast food restaurants and coffee shops. In the initial stage, the stores formed in the downtown or outskirts, winning popularity from full-time workers or people going for an outing. Later, the simple order system using a Smartphone was added and the number of stores increased, displaying the uptrend in the T map data as well.

The movement volume visiting the drive-thru stores during 2019 grew by about 1.5 times and it steadily escalated until January of 2020. However, in February when the confirmed cases of COVID-19 had an explosive increase, the drive-thru stores were not able to avoid the reduction in usage trend. Nevertheless, from March when strict social distancing was implemented, the movement volume rose again, starting to outdistance the highest record of 2019. The drive-thru system, which manifested its advantages of a non-face-to-face method when the movement was restricted, contributed to reviving stagnant industries that were going through difficulties with diminished sales. The drive-thru system was adopted by some brands to provide consumers' convenience, but it expanded to many other businesses with the appearance of COVID-19 and is expected to become solid, new consumer trends.

Using Major Brand Drive Thru

- Before COVID-19 pandemic
- After COVID-19 pandemic
- - - Natural increase



* 2019. 1. ~ 2020. 6. | Number of start navigation

Appearance of unusual drive-thru services

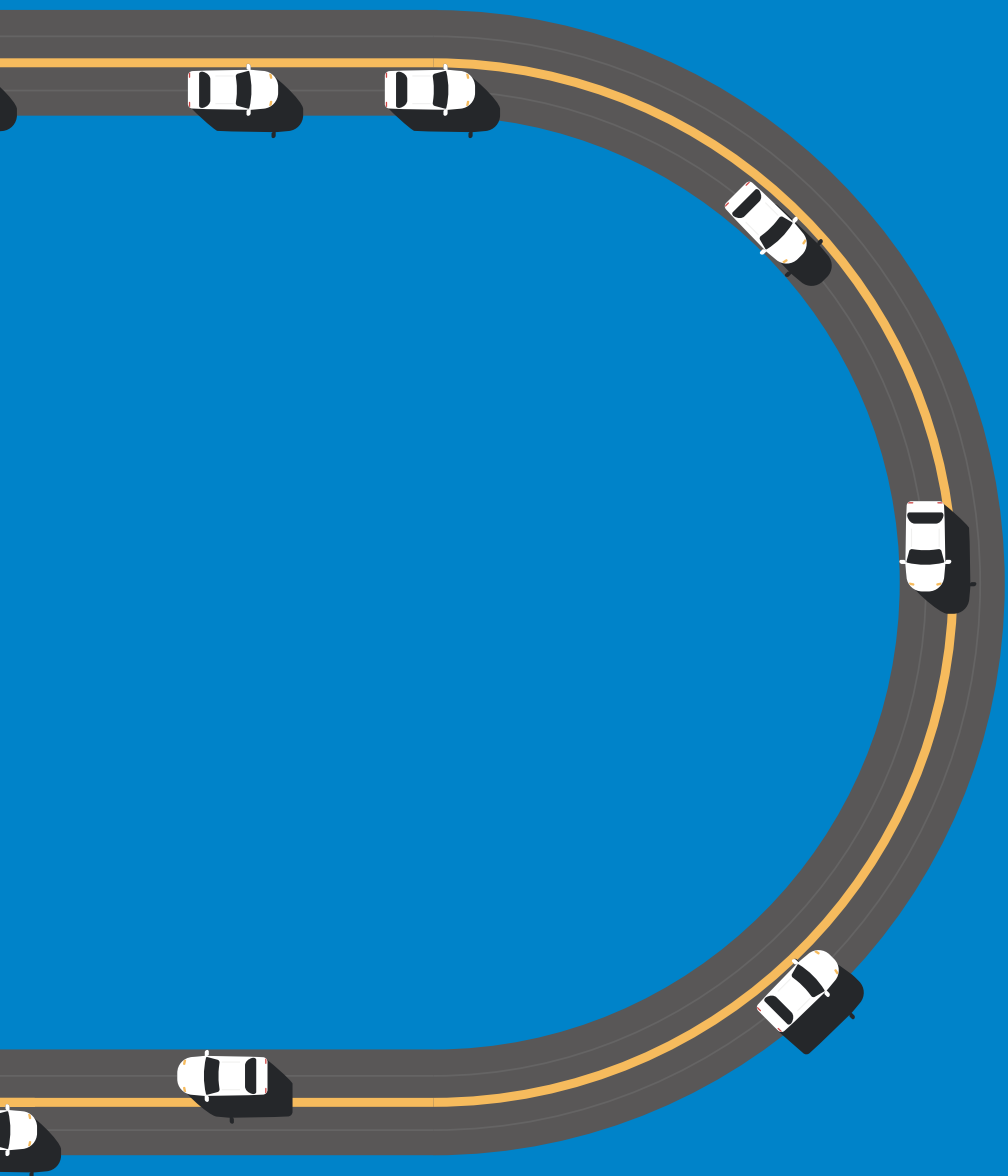
According to the directives of social distancing, in March and April of 2020, people began to avoid going out as much as possible. This weakened consumption as a result, leading to difficult moments for many people. Even though the distribution industry was no exception, online delivery and non-face-to-face consumption started to slowly increase, bringing recovery and liveliness. Drive-thru services played an important role in non-face-to-face consumption and spread to various areas. They started to adopt the drive-thru system in not only coffee and fast food but also agro and livestock products. Even there were changes in the way of borrowing toys and books. Some banks made an effort to accept the changing trends of the era by offering the currency exchange service in the drive-thru system. The local governments were no different. They were deeply concerned about ways in relieving hardship the local residents so they created successful cases of trying to seek solutions for the community.

Route direction data of T map stirred a booming move up from Pohang City. To help the fishing villages in recession by due of COVID-19, Pohang City organized a sales event of sliced raw fish from March 14 to 15 and installed temporary stalls at Guryongpo Beach. Despite operating for a short period, they ran short of all prepared items. Encouraged by fervent support of citizens, they held the same event on March 21 and 22 again. This time, they expanded the event stage covering Guryongpo Beach and Chilpo Beach, selling not only sliced raw fish but also Maeuntang (spicy fish stew) sets. It brought about great success. Only in a couple of hours, they recorded "sold out." Inspired by this success, many other local governments began to hold the drive-thru sales events one by one. Following the good example of Pohang City, Noryangjin Fisheries Wholesale Market sold all assorted sliced raw fish (Modumhoe) using the drive-thru method, from March 26 to April 12. They recorded sales equivalent to 123.69 million KRW for 18 days, and 2,619 cars gathered to buy the products. Thus, the event earned a huge response from the people. The event was held in the form of an on-site sale from 11 am to 5 pm, and they sold about 26.9 million KRW on the first weekend after the event started, March 28 and 29. Noryangjin Fisheries Wholesale Market separately installed a drive-thru pick-up place during April and considered a way to facilitate pick-up for customers after receiving their order by smartphone application.

Comparison to Pohang's drive thru seafood sales before event

74% ↑

* Drive thru sales period: 2020. 3. 14. ~ 15. | Number of start navigation



What will happen to the drive-thru system in the post-COVID-19 era?

The simple consumer behavior of buying things has gone through evolved over time. The methods of payment have diversified. Buying daily necessities without boundary between offline stores and online stores has become a common scene of our daily life. To this, a new consumption activity was added, in the COVID-19 era. The drive-thru culture has deeply penetrated into our everyday life in line with the prolonged COVID-19. Some churches distributed Easter eggs using the drive-thru method, and hotels and department stores, which used to emphasize attentive face-to-face services as distinct advantages, adopt the drive-thru system in part to seen. Considering that people become accustomed to new patterns allowing diverse services without having to get out of the car, it is likely that the popularity of this drive-thru system will not easily disappear even after COVID-19 fades away.

02

T map Favorites

From cherry blossoms to snowscape ³⁸

Iconic dinner tables of local people ⁴⁶

Our nights, more beautiful than our days ⁵⁴



T map Favorites

From cherry blossoms to snowscape

Whenever we look at the landscapes changing from season to season, in the diverse ways between spring, summer, fall and winter, we feel happy enveloped in thrill of setting out on a trip. If you want to make a travel plan a bit differently from what others do, but you are not sure where to go, what about following some tips from T map showing nice destinations? For each season with its unique charm, shall we have a journey together looking for some destinations worthy of lifetime memories?



* 2019.3. ~ 2019.5. | Number of start navigation

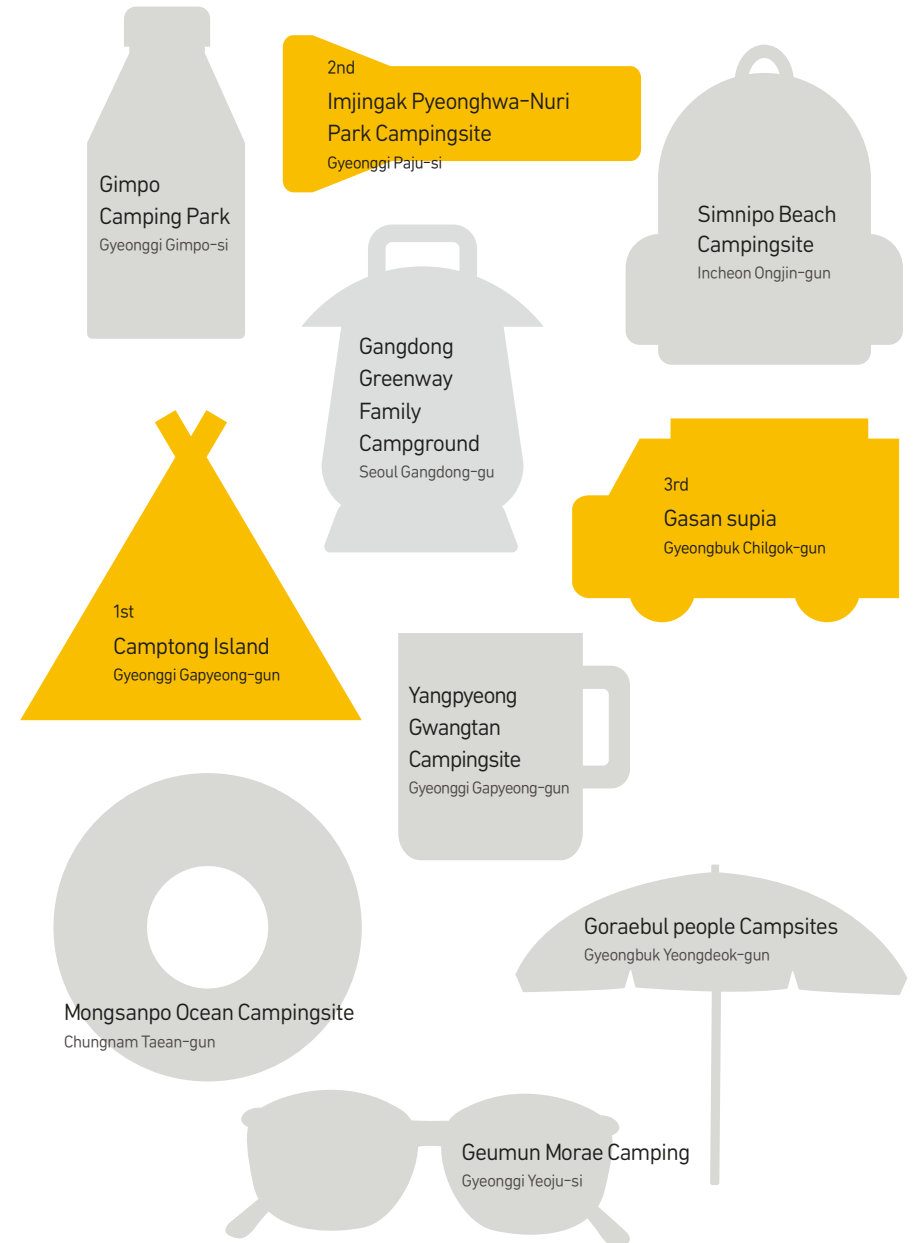
The ABC of spring picnic

When spring is around the corner, we start to feel excited about seeing cherry blossoms. If you have been out to appreciate beauty of flowers by looking for sites famous for cherry blossoms such as Jinhae Gunhangje Festival and Cherry Blossom Street of Yeouido Park, and have felt tired of an avalanche of crowds, you will naturally try to find other places to enjoy cherry blossoms in a more relaxed or leisurely manner. According to the analysis of T map big data, we can find some hidden places where the movement volume sharply rose with an unusual rhythm during the blooming time of cherry blossoms. Amgok Village of Gyeongju and Segyo Village of Wonju are well-known for streets of beautiful cherry blossoms. Amgok Village is adjacent to the way to Mt. Mujang and Bomun Lake Resort. By the two-lane road, cherry blossom trees are planted on both sides, forming a tunnel of cherry blossoms in springtime. Segyo Village has temperate charm by the cherry blossom trees planted along the stream. If you expect some splendid cherry blossoms, you will be a bit disappointed. However, without any tall buildings or signboards hiding the flowery view, your temporary disappointment will be over. Jungwon Sports Park of Chungju is frequently visited by residents for it is equipped with many sports facilities including a football field by the esplanade of Tangeum Lake. However, when spring comes, many people flock to see cherry blossoms embellishing the environs of the lake. There is a wealth of visual enjoyment for there is a historic site of Central Pagoda nearby. This must be the reason for which many visit this Jungwon Sports Park every spring. Wanggunri Ruins of Iksan is a representative historic site of Baekje Period and people usually visit the place for research and archeological investigation. However, many visit the place to enjoy cherry blossoms in springtime. We can see the cherry blossoms in full bloom at different corners of the ruins, in particular, the stone pagoda seen between the boughs of cherry blossom trees look amazing. Taepyeongro Street in front of Sports Science Town of Konkuk University of Icheon is one of the gem-like attractions. Just passing by the street, cherry blossom views are more than enough. In the springtime when you find more people around you than flowers as a photographic background, and if this situation leaves a lot to be desired, try new places where cherry blossoms with different scenery await you.

Camper's choice of the summer campsites

Spending a night in nature... campers who are fascinated by this are constantly on the rise. The taste of campers varies from backpacking, the light travelers carrying camping tools in the backpack, to glamping, those who enjoy a comfortable full-equipped camping. For which destinations did campers leave to avoid heat and tropical nights? Places such as rivers and lakes, which would wash away heat all at once, were overwhelmingly popular, while the campsites with diverse experience facilities for family campers were loved throughout the summer. Towards Camp Tong Island located in Gapyeong of Gyeonggido, the movement volume greatly increased from June when the temperature starts to slowly escalate. Since it has the lake on one side, people can play and swim in water while enjoying camping. Thus, the place was deeply loved. Campsites close to the sea such as Mongsanpo Ocean campsite and Simnipo Beach Campsite gained popularity throughout the summer. Family campers were fond of Imjingak Pyeonghwa Nuri Park Campsite and Gasan Supia, that combined various experience-based facilities such as a park and an art gallery. As the number of campers increases, campsites strengthen facilities and take a strong interest in attracting visitors. Not to mention electricity and water supply, there are many campsites that provide the WiFi service. If you have long dreamed of camping but have been hesitant thinking it would be uncomfortable, why don't you pluck up courage this coming summer?

Summer Campsites T map TOP10



* 2019. 6. ~ 2019. 8. | Number of start navigation

Camper's choice of the summer campsites

Yellow ginkgo leaves, red maple leaves and blue sky. These are the colors and landscape representing autumn. We do not remember exactly since when, but the pink reed has been added to this autumnal emblem. This mysterious pink reed is called pink muhly. Since it was first introduced in Jeju Island in 2014, people immediately colored their social media in pink.

Based on huge popularity, colonies of pink muhlies began to develop over the last few years across the country. People who used to make a trip in search of typical autumnal foliage are now looking for pink muhlies to take the best memory picture of their life.

Then where are the best places for pink muhlies? We will check the beautiful destinations of pink muhlies, one by one, which emerged as today's indisputable trend of an autumn trip. In Jeju Island, where pink muhlies first boasted the lovely figure, several colonies of pink muhlies had formed. In particular, Huerree Natural Living Park and Cafe Manor Blanc are considered the greatest attractions even in Jeju Island. At Cafe Manor Blanc, pink muhlies are planted in the area covering over 6,600m² providing a peerless and breathtaking landscape ever. Haneul Park and The Suncheonman National Garden holds the grass festival and reed festival every autumn, and now joins the "fever" of pink muhlies as well. Arboretums representing each region such as Cheongsan Arboretum of Taeon and Jeonju Arboretum also follow the trend. Nari Park of Yangju, relatively close to the metropolitan area, usually holds the festival of globe amaranths, but now it is more famous as an attraction site of pink muhlies.

Anseong Farmland created a cosmos hill and a pink muhly hill, so visitors have a hard time leaving the place even after having taken a lifetime of memorable pictures there. The same happens to Cheomseongdae. When the elegant astronomical observatory and pink muhlies are placed side by side in the same camera frame, the melancholic autumnal landscape suddenly transforms into a scene from a mysterious fairy tale. The wild flower garden next to both figures also captures the heart of autumn travelers, keeping them from leaving the place for a long while.

Best Pink Muhly Spots in Autumn

Haneul Park	Seoul Mapo-gu	Jeonju Arboretum	Jeonbuk Jeonju-si
Nari Park	Gyeonggi Yangju-si	Cheomseongdae	Gyeongbuk Gyeongju-si
Anseong Farmland	Gyeonggi Anseong-gun	Gasansupia	Gyeongbuk Chilgok-gun
Cheongsan Arboretum	Chungnam Taeon-gun	Manorblanc	Jeju Seogwipo-si
Suncheonman Bay National Garden	Jeonam Suncheon-si	Huerree Natural Park	Jeju Seogwipo-si

Travelling in search of snowscape

In the wintertime, the temperature drops below freezing, making people feel lazy and dull. However, a real master of travel is busier moving in winter than any other seasons. Right before snowscape melt and vanish away, real experts in travel who hate to miss the fleeting scenes of beauty did not hesitate to make a trip to remote places. Based on the analyzed movement data during the wintertime, we found some snowscape attraction sites that were rarely travelled. There were a few things in common among the places showing changes of movement data, especially during the wintertime. These places maintain ancient and friendly landscape, allowing us to appreciate the snow thoroughly with a sort of close-up effect. Oeam Folk Village, the colony of family name "Lee" from Yeon still keep thatched houses and tile-roofed houses. Here, Gochangupseong Fortress, which was built during the Joseon Dynasty, is conserved almost in an intact manner. When it snows, the historic construction creates some unique ambiance of charm in harmony with the snowscape. Mt. Hwangmae of Gyeongnam attracts visitors with its quaint snowy landscape. Here, we can catch sight of rice terraces, the so-called "Daraknon" piled up on one another along the slope of the valley. When snow falls onto the Daraknon, you can appreciate scenery that is never available in the city. When it comes to "snowscapes," Bogyongs Temple of Pohang and Mt. Midong of Cheongju must not be left out. If you want to enjoy beauty of snow closer, then try these places. You will feel like you are stepping into the snow land along a campsite and arboretum.

Beautiful Winter Escapes

Midongsan Arboretum	Chungbuk Cheongju-si
Oeam Folk Village	Chungnam Asan-si
Gochangupseong Fortress	Jeonbuk Gochang-gun
Bokyoung Temple	Gyeongbuk Pohang-si
Hwangmaesan	Gyeongnam Sancheong-gun

Discover diverse seasonal charms of destinations

The data analysis of movement towards destinations by season shows an unexpected result. It was possible to discover some places full of individuality where travelers could appreciate beauty of cherry blossoms and snowscape, by avoiding the hustle and bustle of the crowd. Moreover, it is interesting to observe that the trends of camping and pink muhlies suddenly led to their emergence as popular travel destinations for summer and winter. If you feel like making a trip, then plan for some seasonal destinations recommended by T map. You will not only discover some novel and new destinations, which can't a lifetime worth, but also make precious memories in the places where you used to feel reluctant to go because they are just too popular or where everyone went.



T map Favorites

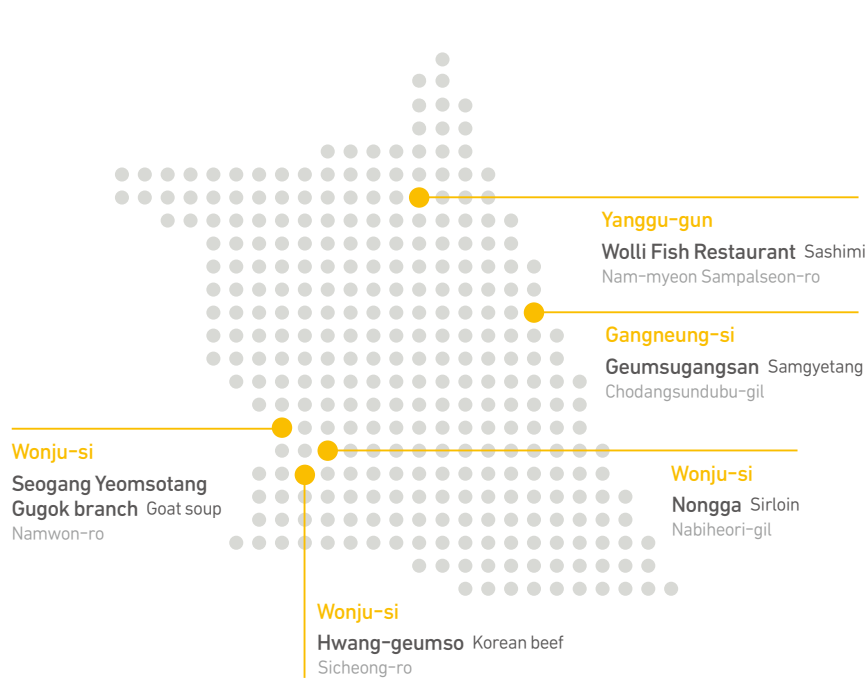
Iconic dinner tables of local people

Searching for must-eat places has become our habitual task not only when preparing for a trip but also in our daily life. When we enter the key word "must-eat places for gastroventure" in the search box, we can see dozens of pages on the list, but we all know that most of them are nothing but advertising. When you are curious of real tasty restaurants, the smartest way must be to ask some local friends. However, the reality is difficult to have a friend at each region, so you will need another solution. For the past five years, we have been analyzing 1.8 billion data created by 18 million T map users, to make a list of "must-eat restaurants" where you can enjoy tasty and reliable food. Finally, we could draw up a list of "must-eat restaurants" by local people, which is never available by star rating or reviews on internet.

Iconic dinner table of Gangwon-do

The restaurants most visited by local people of Gangwon-do included many specialized in Samgyetang (chicken stew with ginseng). At first, we expected that beef restaurants were going to be the most popular ones since the region is well known for Korean native cattle. Considering that the restaurants offering Samgyetang or goat stew with a clear health and nourishment benefit are ranked high on the list, it is judged that local people of Gangwon-do choose the menu balanced between flavor and nutrition. If you are making a trip aiming to heal and recharge your mind and body, pay a visit to Gangwon-do and enjoy "nutritious solid" food. This will revitalize your energy enough to return to your normal life.

TOP5 Local restaurants in Gangwon-do

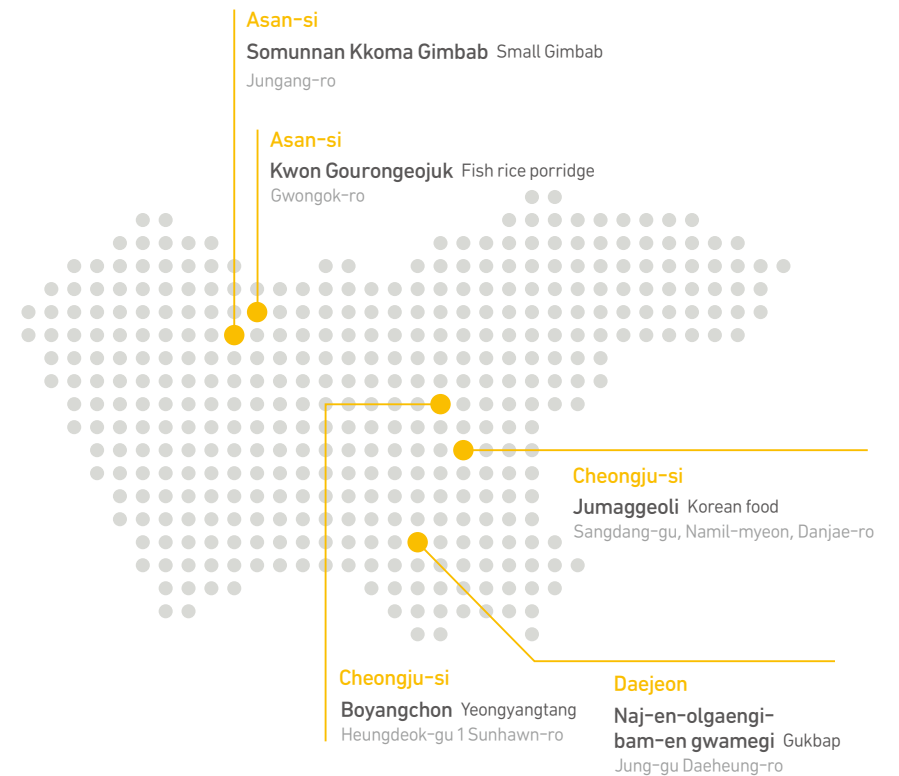


* 2019

Iconic dinner table of Chungcheong-do

The data detected many tasty restaurants in Chungcheong-do which use some unusual ingredients compared to other regions. The menus reflecting the intrinsic taste of local people such as snail rice soup (Olgaengi gukbap) or fish rice porridge (eojuk) are quite popular and some relatively common menus such as stew (jjogae) and Gimbap are also loved. The region is characterized by absence of abundant preparation based on meat or sashimi (sliced raw fish). Therefore, if you want to feel simple yet caring homemade food, it will be a good idea to plan a trip to Chungcheong-do.

TOP5 Local restaurants in Chungcheong-do

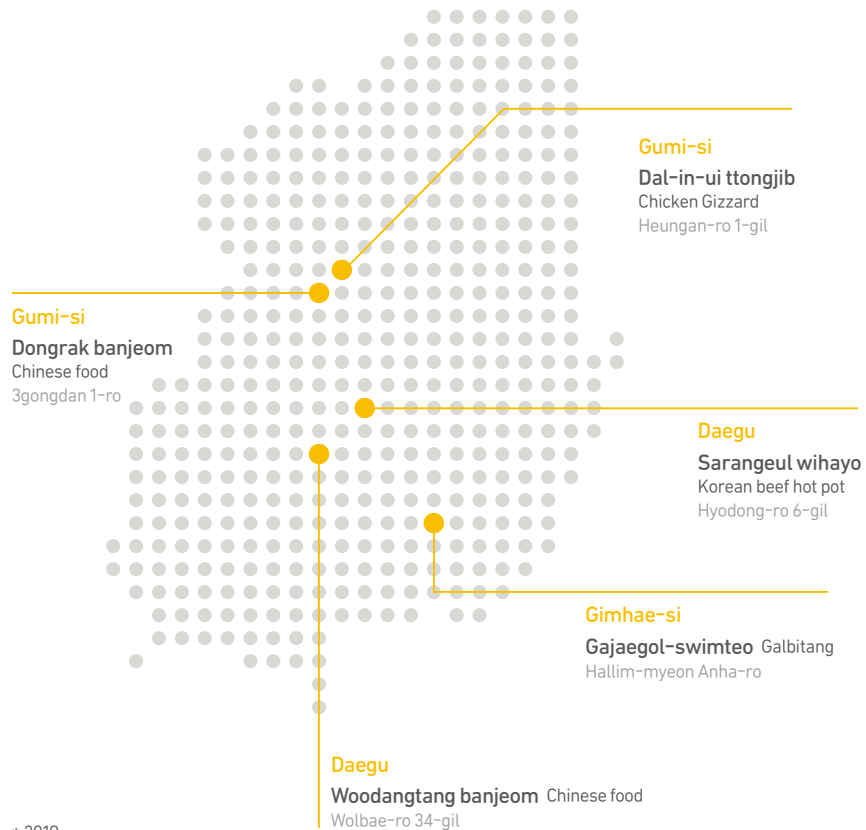


* 2019

Iconic dinner table of Gyeongsang-do

Being asked to pick a favorite food, regardless of age and sex, the first answer would be jajangmyeon with one voice. Since it is popular, there are Chinese restaurants selling the food everywhere, but it is not easy to find a right place enough to call "the real tasty restaurant." However, when it comes to Gyeongsang-do, things are different in this aspect. The restaurants most loved by residents of Gyeongsang-do turned out to be Chinese restaurants. Moreover, they showed unwavering support for jajangmyeon and jjamppong to such an extent that two out of top 5 restaurants in the region were Chinese restaurants. If you have a chance to visit Gyeongsang-do, try a Chinese restaurant nearby.

TOP5 Local restaurants in Gyeongsang-do

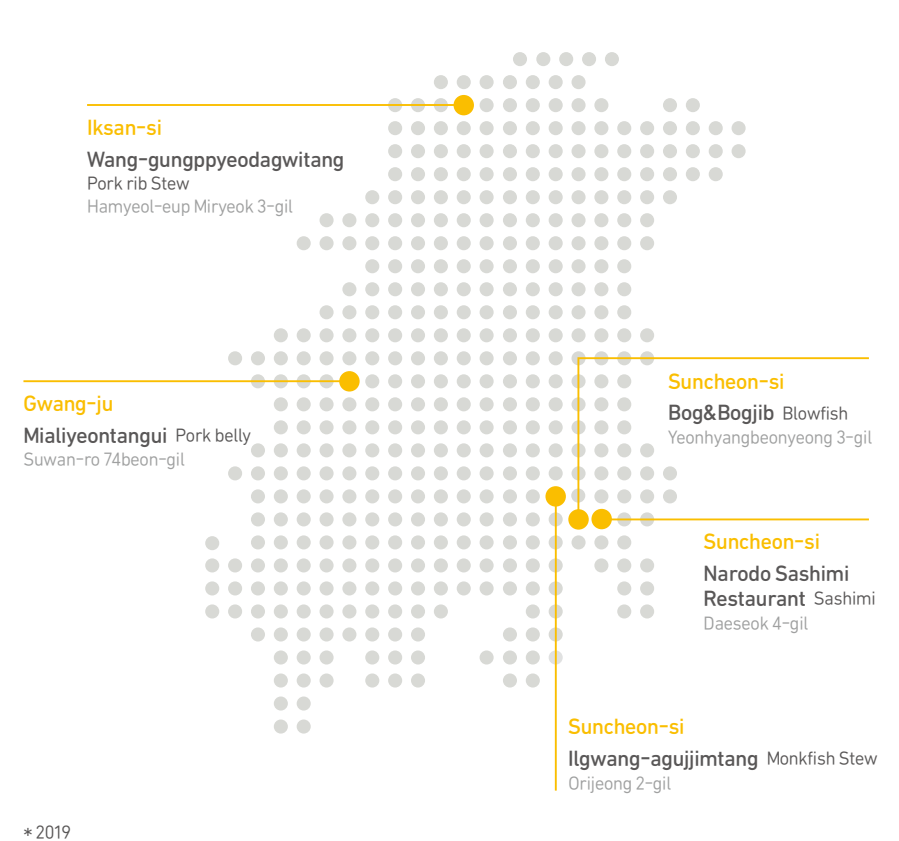


* 2019

Iconic dinner table of Jeolla-do

Jeolla-do is famous for its matchless gastronomic wealth, in particular, with Bibimbap or Korean table d'hote. To our great surprise, Pyedaguitang (spicy pork rib stew) was ranked high in the list. Apparently, this seems to be a dish that would not be easily chosen by people making a trip to this region. Moreover, it was interesting to see that some premium dishes such as puffer fish or Modumhoe (assorted sliced raw fish) were ranked high. When visiting Jeolla-do, it will be a nice idea to try some uncommon menu items and not always the typical dish like Korean table d'hote. When it comes to flavor, this will be surely guaranteed because local people of Jeolla-do have a highly sophisticated palate and selected the menu items.

TOP5 Local restaurants in Jeolla-do

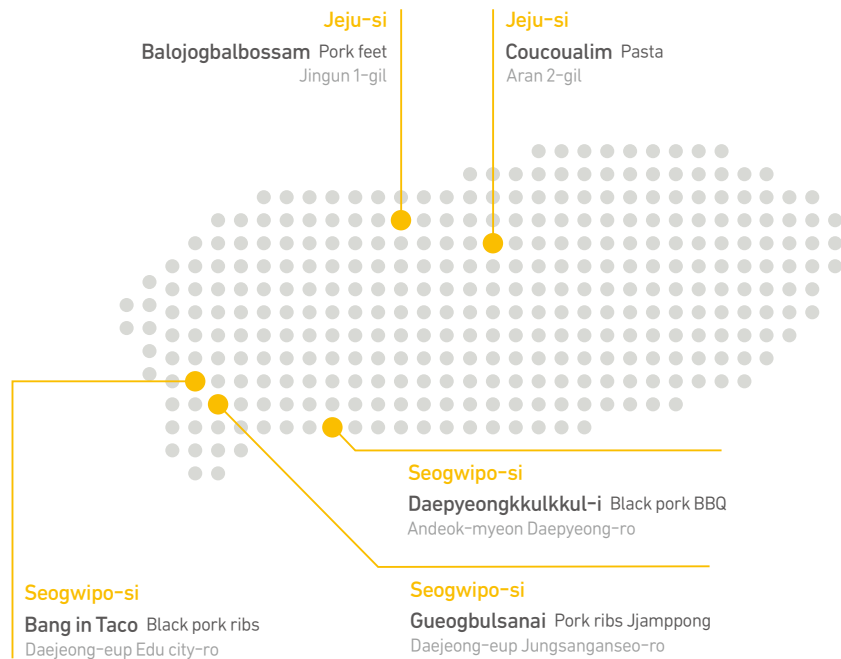


* 2019

Iconic dinner table of Jeju-do

In Jeju-do frequently visited by tourists, it is difficult to find some restaurants where only local people go. Fortunately, some restaurants successfully satisfy not only the palates of tourists but also preference of local people. They have something in common. They lead in the megatrend of fusion food combined between specialty of Jeju Island and the Western style food such as pasta, pork rib and pork cutlet. If you expand your options of just trying gogi guksu(pork noodle), grilled black pork and omegi tteok you will be able to enjoy a wider range of dishes in Jeju-do.

TOP5 Local restaurants in Jeju-do



* 2019

Gastroventure assured by data

The GPS navigator system make a perfect team with paper maps to help drivers travel with convenience. The new system contributed to saving ill-spent time on the road, and provides a variety of enhanced functions by big data analysis while taking the responsibility for each driver's safety. One of the functions includes the task of recommending "tasty restaurants," which is closely related to everyday life of drivers.





T map Favorites

Our nights, more beautiful than our days

Chicken and beer enjoying the river breeze, fireworks in the night sky and light exercise for a sound sleep. There are still many things to do at night even after a busy and long day.

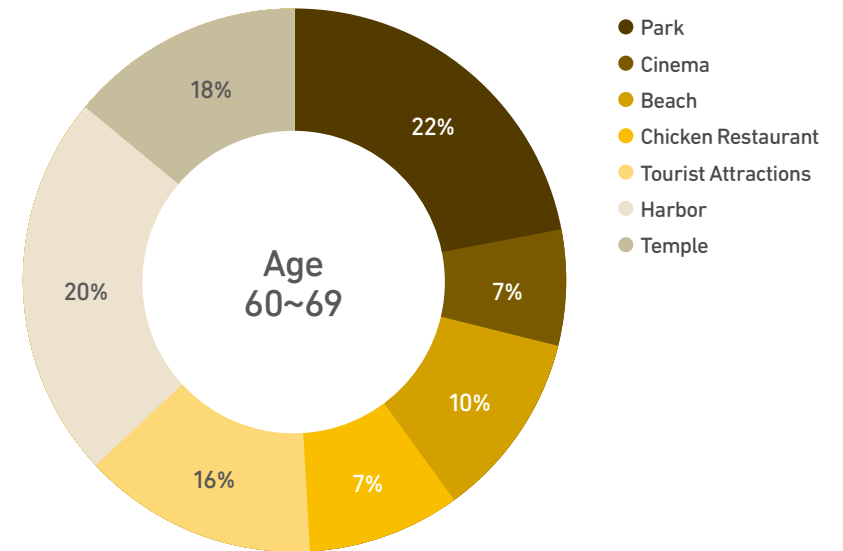
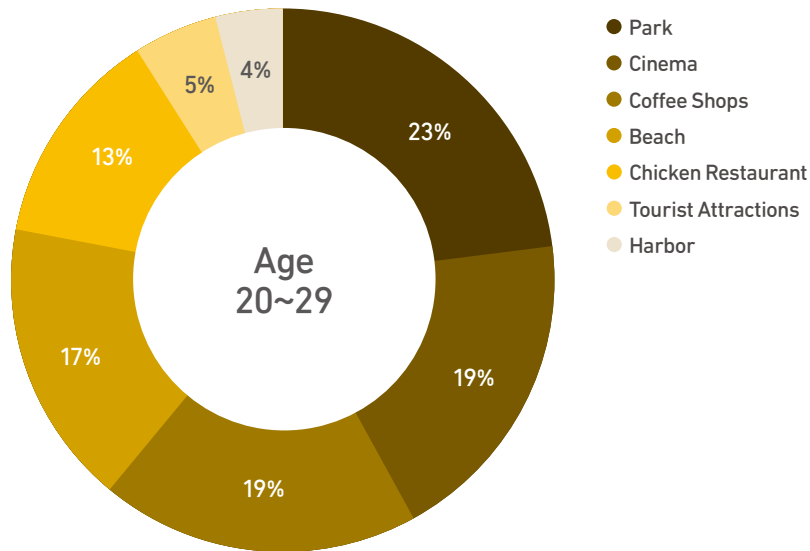
Those who know the little happiness that can be enjoyed at night go out at night, despite the tiredness they must face the next morning. When the sun starts to set and the night draws closer, where do people usually head for? We will approach their nights that as more beautiful than day time, by making an analysis of popular places by hour from 8 pm to 2 am, as well as night destinations that vary by age.

Nightscape preferences differ by age

According to the analysis of T map big data, all generations are enjoying a variety of night views. Moreover, we could obtain a few interesting results. While the nightscape for the youth means looking at neon signs in the city, it was closer to starlight viewed from the mountain and the sea. Those in their 20s and 30s mainly head for the city focused on movie theaters, cafes and chicken restaurants. Those who are aged over 40 prefer to leave the city and bound for outskirts. They later scatter looking for different famous sites. What attracts our attention is that Buddhist temples are included in the list of night view sites. In particular, strong support is made by those in their 50s and 60s in, and the most preferred temples are located in Gangwon-do.

Parks are loved by all generations as nightscape sites. Among many other parks across the country, Yeouido Hangang Park is considered an attractive site not only for the youth but also for middle-aged people and the older generation because of its location in the city. In addition, parks close to rivers or lakes are frequently visited for lovely night view. It is interesting to find that the older generation shows a higher demand for parks equipped with sports facilities. Preferences for the sea and tourist attractions also differ by age. To be specific, people in their 20s and 30s spend the night chiefly by the sea of Gyeonggi-do and Busan. On the other hand, people aged over 40 expand their movement range even towards Chungcheong-do, Jeolla-do and Gangwon-do. They are enjoying night view culture in a more expensive manner by visiting places such as Yedang Reservoir Suspension Bridge, Yeosu Cable Car and Seorak Cable Car.

Nightlife preferences by age group



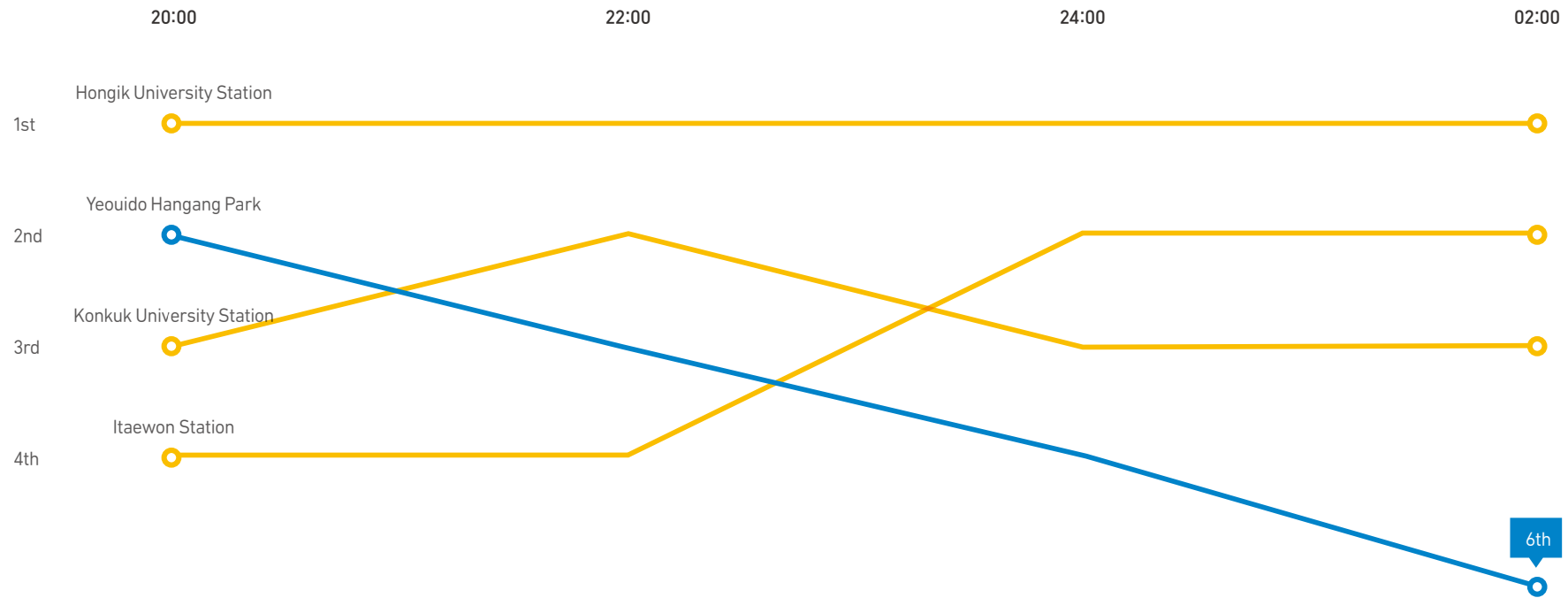
* 2019. 9. ~ 2019. 10. | Number of start navigation

The cities that never sleep at night

Seoul and Busan are crowded with people busy moving around. They are the most and second most populated cities in the country. Being major cities, a large amount of movement is detected even during the nighttime, showing slight differences in the nocturnal scenes according to time. To begin with, Seoul is awake all through the night. **The business districts representing Seoul such as Hongik University area, Itaewon and Konkuk University zone are sleepless from 8 pm to 2 am.** Hangang Park is full of vivacity, without much difference from the daytime. For those who have been locked indoors during the day, Han River is perfect to do light exercise before going to bed or enjoy the so-called "chicken-beer time." The nightscape reflected onto the river also attracts people.

Namsan Tower and Bukak Skyway have nice scenery to enjoy while driving. However, from midnight on, they slowly disappear from the rank along with Hangang Park. Instead, the so-called "Mukjagolmok" food district close to the residential areas appear in high in the ranks. Each one has his/her different reason for not sleeping. Some go out for a drink enjoying a special night mood, while others do exercise preparing for the next day. Putting all reasons together, they make Seoul sleepless at night.

Hourly traffic flow during the nighttime, Seoul



* 2019. 9. ~ 2019. 10. | Number of start navigation

When it comes to nights of Busan, many beaches including Haeundae Beach take up the higher rank in an overwhelming manner. In addition, the tourist attractions such as Jagalchi Market and Kangtong Market representing Busan are also loved. The Bay 101 and Hwangnyeongsan observatory, opened in 2014 and 2016, respectively emerged as new famous sites of Busan. The Bay 101 with the sea and yacht fascinated tourists. Hwangnyeongsan Lookout commanding the panoramic view of Busan is visited by citizens of Busan and tourists until late at night. However, from midnight on, the main character of the city changes. Beaches slowly disappear from the ranked list and night views of the residential areas or downtown such as Seomyeon and Hwamyeong-dong start to be included in the list of nightscape. The same way the Mukjagolmok (food district) close to residential areas appear in the higher rank from midnight on in Seoul, the places often visited by the local people gain popularity in Busan as the night advances.



Full of vivacity, even at night

When analyzing some famous nightscape sites by time and age, we were able to find some distinct features. In both Seoul and Busan, people gather towards the downtown as the night advances. When the night falls, people in their 20s and 30s spend time staying at downtown cafes and restaurants. When they go out to outskirts, they just get closer to the sea not far from the city. Meanwhile, middle-aged people and the older generation leave the indoors to enjoy the night outing in various other places. This trend was detected by T map data. If your day has been long and you are tired of repeated routine, why not finish your day to enjoying a little happiness that only nighttime can offer?

Our attitude towards School Zones

In the first half of 2020, there was heated online debate regarding School Zones. It was because the revised law, the so-called "the Min-sik Law" passed the National Assembly and took effect in consequence of the death caused by a traffic accident of a nine-year-old boy called "Min-sik" who was crossing the crosswalk in front of his school located in Asan, Chungnam in September of 2019. While many citizens agreed on the purpose of this law, there was a public opinion via petition to Blue House against the law arguing that the law applies excessive punishment to drivers. This debate naturally encouraged people to talk about many related topics, including the car navigation system. In the middle of this situation, T map recognized that many drivers were confused about clear standards of School Zones. We were deeply concerned about the best way to protect both drivers and children, so we added a new function to our system.

Q. What was the greatest concern of T map regarding enforcement of the Min-sik Law?

We have been focusing on provision of conveniences for drivers. How can we inform drivers of the best route? How can we help them operate the GPS navigation in the easiest way? How can we provide benefits for drivers as much as possible? These have been our main concerns. However, in front of this social issue, we thought it was necessary to consider even safety of pedestrians beyond our driver-oriented attention. It is to develop further and enhance our system. GPS navigation that is also considerate about safety of pedestrians will make the entire society safe, by upgrading one step further beyond giving a mere route guide. Above all, we wanted to contribute to preventing accidents in School Zones.

Q. How do school zones fulfill T map's social values?

Setting social values as corporate management philosophy, SK Group is applying this to all management activities. As a member of SK Group, we were convinced that keeping safety of people meant fulfilling social values. We realized that it was important to keep safety for not only drivers but also pedestrians, considering that many unexpected events take place at School Zones. We believed that social values could be fulfilled by adding the function of accident prevention in School Zones to our system. The functions added for safety at School Zones may be a bit difficult to use in the beginning, but it will definitely contribute to preventing any possible accidents in many different driving situations.

Q. Please explain the notification function of School Zones.

To assure safety of pedestrians at School Zones, we considered many different methods. What matters most is the awareness of drivers that they are approaching the School Zones "here and now." To strengthen the notification effect, we decided to include a child's real voice. We used a child's voice because we thought that the driver could recognize the presence of a School Zone and importance of regulated speed with a higher probability if the notification is given in a child's voice.

Q. Is the notification function of School Zones added in 8.1 version of T map?

Yes, we added the option of children protection routes. Drivers can opt for routes avoiding School Zones as much as possible to assure safety of both drivers and children. However, this does not mean that School Zones are always excluded from the routes. From a realist perspective, in case there is no detour route because the destination is inside the School Zone or in case the detour can take more than 10 minutes causing inconvenience to the driver, we inform the driver is guided to pass by the School Zone for his/her convenience and slow down.

Q. Are there any messages you would like to deliver to T map users?

We aim to provide GPS navigation services reducing traffic accidents and fulfilling social values while putting priority on safety for both drivers and pedestrians. We hope that you can keep supporting us and showing constant love for T map. We are deeply thankful to all our T map users.

What is a School Zone?

School Zones embrace a lot more areas than the mere neighborhood of elementary schools. They constitute a certain section out of roads around facilities for children aged under 13 such as kindergartens, private institutes, elementary schools, special education schools and daycare centers. They aim to prevent traffic accidents by installing traffic safety facilities and road accessory materials to assure a safe space of movement of children around school. At School Zones, drivers must diminish speed within 30km per hour, taking precautions not to violate this regulation speed, otherwise, Act on Aggravated Punishment of Specific Crimes can be applied.

What is the Min-sik Law?

The Min-sik Law refers to amended "Road Traffic Law" and "Act on Aggravated Punishment of Specific Crimes" aiming to prevent traffic accidents of children by expanding traffic safety facilities inside the School Zones and reinforcing punishment of drivers. According to new Laws, it is obligatory to install unmanned monitoring equipment inside the School Zones. It aims to enhance assistance in traffic safety of children by enlarging the number of traffic lights and speed limit signs at the crosswalk. If the accident led to the child's death, the driver can be sentenced to life imprisonment. The Minsik Law was approved by the National Assembly on December 10 of 2019 and came into effect on March 25 of 2020.

Law amendment proposition of "The Road Traffic Act" and "Act on the Aggravated Punishment, etc. of Specific Crimes" related to the Min-sik Law

* Clauses 4 & 5 under Article 12 of the Road Traffic Act: "Designation and management of School Zones"

Accidents will be actively prevented by strengthening safety equipment inside School Zones as follows.

Clause 4 under Article 12

Obligatory installation of unmanned traffic monitoring devices in all School Zones, & consecutive and annual installation programmed

Clause 5 under Article 12

Installation of safety facilities in School Zones, i.e. signal flags and Speed Limit signs at the crosswalk, safety signs on crosswalk safety and speed bumps

* Clause 13 under Article 5 of "Act on the Aggravated Punishment, etc. of Specific Crimes", "Aggravated punishment for manslaughter of children in School Zones"

In case a driver violates the obligation of driving with safety precaution for children in School Zones, aggravated punishment shall be inflicted as follows :

1. In case a person led to the child's death, he/she can be sentenced to more than three years and up to life in prison.
2. A person convicted of causing injury to a child can be fined up to 30 million won and at least 5 million won or imprisoned up to 15 years and at least one year.

How effective is the Min-sik Law?

Since March 25 of 2020, which changes would have brought to drivers? To compare before and after implementation of the Min-sik Law, we selected ten places with the greatest number of speeding, sudden deceleration and sudden acceleration that occurred in School Zones, and made comparison with the data of June. According to the analysis result, the traffic volume of ten places with the greatest amount of acceleration increased by 16.6% from about 330,000 cases of March to about 390,000 cases of June. On the other hand, the number of speeding reduced by about 4,500 cases, showing diminishment of speeding rate by 5.0%p compared to traffic volume. The biggest drop of rate was observed in the neighborhood of Gyesu Elementary School of Siheung, Gyeonggi-do, while the smallest drop of rate happened near Eungbong Elementary School of Seoul. It is estimated that the speeding rate by Eungbong Elementary school did not significantly decrease because the speed limit was set to 60km per hour and had high traffic volume.

Comparison of school zone speed changes before and after the enforcement of the Min-sik Law

School	Speed limit	Speeding rate (2020. 3.)	→	Speeding rate (2020. 6.)	Reduction
Gyesu Elementary School Gyeonggi, Siheung-si	30km/h	43.4%	→	32.1%	11.3%p
Eungbong Elementary School Seoul, Seongdong-gu	60km/h	8.6%	→	7.5%	1.1%p

* 1 week before implementation : 2020. 3. 16. ~ 22.

* 1 week after implementation : 2020. 6. 8. ~ 14.

* Speeding rate = (The number of speeding/ traffic) x 100

Moreover, speed limit in ten places with the greatest amount of rapid deceleration and acceleration in School Zones all exceeded 50km per hour. The traffic volume of March was approximately 560,000 cases, and that of June was 620,000 cases, showing increase by 11%. However, 343 cases of rapid deceleration and acceleration were registered, presenting decrease by 6%. No increase was registered compared to the traffic volume, and this phenomenon demonstrates that T map users were driving with more precaution in School Zones. Taking a close look at it, we can discover that reduction rate near Samsung Elementary School of Anyang, with the highest number of rapid deceleration and acceleration in March turned out to be 0.3%p, displaying the biggest figure. Since the neighborhood of Somang Kindergarten of Seoul is accessible to Olympic-daero and Nodeul-ro, the traffic volume was twice as high as other regions. However, the area showed the lowest rate of rapid deceleration and acceleration with only 0.6%. It is interpreted that people have relatively high awareness of the character of this area as a School Zone for there are Heukseok Elementary School and large-scale apartment complexes nearby.

Comparison of school zone rapid deceleration/acceleration before and after the enforcement of the Min-sik Law

School	Speed limit	Rapid deceleration/acceleration rate (2020. 3.)	→	Rapid deceleration/acceleration rate (2020. 6.)	Reduction
Samsung Elementary School Gyeonggi, Anyang-si	60km/h	1.4%	→	1.1%	0.3%p
Somang preschool Seoul, Dongjak-gu	50km/h	0.6%	→	0.5%	0.1%p

* 1 week before implementation : 2020. 3. 16. ~ 22.

* 1 week after implementation : 2020. 6. 8. ~ 14.

* Speeding rate = (The number of Rapid deceleration·acceleration/traffic) x 100

Mission of creating safe School Zones

According to the report of the Korean National Police Agency, as of July of 2019, no less than 501 places out of 16,789 School Zones have the speed limit of over 50km per hour. Many people thought that the speed limit in School Zones corresponded to 30 km per hour. However, in reality, it differed from 20km to 60km per hour. From 2020 on, the speed limit in School Zones will be adjusted under 30km per hour. Nonetheless, realistically speaking, it is difficult to keep 30km per hour near the intersections with high traffic volume, and the old facilities in the School Zones are being replaced in stages. Considering this, we will have to give more time to see if the Min-sik Law bears desired fruit in the future. The controversy about effectiveness of the Min-sik Law will possibly go on for a while, but there is little room for doubt about safety of children as top priority. Along with changes in social awareness and systems, T map will take part in the mission of pursuing social values for both drivers and pedestrians. With this initiative of adding notification functions of School Zones and children protection routes, we hope that we can anticipate an ideal environment where children and drivers can feel truly safe.

Is your driving safe enough?

T map Driving Habits Service is proud to be one of services representing safety of users and fulfillment of social values of T map. Not to mention small driving habits of each user, it not only records driving history but also considers the environment of the earth by providing information in numerical value regarding the amount of greenhouse gas reduced and fuel saved. In addition, provision of discount benefits in connection with insurance encouraged active participation of users to decrease traffic accidents and social costs at the same time.

Q. How did driving habits service begin?

We have 18,5 million members of T map and 13 million monthly users count on our services every month. As the number of users were on the rise, we carefully pondered over safety of drivers. Based on big data of T map, we finally created a safe driving guide with success. This is the fruit of our commitment. Driving habits service saw the light of day through this process. By making an analysis of driving patterns of our users, we provide the information in the form of grade or score. Based on reliability of driving habits service and its concomitant score, we can even offer economic benefits in alliance with insurance companies.

Q. How can driving habits service contribute to fulfilling social values?

Driving habits service came into being during our process development of how we apply T map big data to maximize benefits for our users. We are certain that this system will expand as a socially essential service, if risks of accidents diminish through improved driving habits of T map users.

Q. What results have driving habits service obtained then?

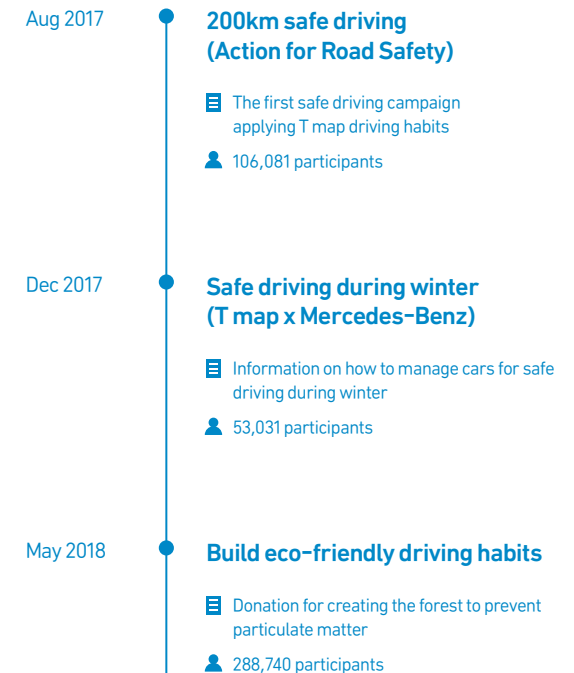
Currently, the number of subscribers to driving habits service reached over 12 million. As of 2019, more than one million users are reported to be beneficiaries of premiums discount of insurance. In particular, drivers using driving habits service improved accident rate by 19.5% compared to drivers without the service. Traffic accidents prevented by driving habits service in terms of social values, saved approximately 147.5 billion KRW. Besides, the same service contributed to our environment. Why? It is because this service is effective in reducing greenhouse gas of cars, if drivers observe the regulated speed for safety driving and follow the optimal route guided by T map.

Q. What are your plans?

We plan to create a safe driving guide, which is more detailed and concrete. For this, we will apply technology convergence based on V2X (Vehicle to Everything) of T map combined with sound AI technology of NUGU. Moreover, we will carry out active collaborative works with multifaceted partners to provide as many economic benefits as possible for users who put safe driving into practice. We will evolve into a "car life service" by expanding the range of services such as checking status of secondhand car price, driver's license, tax and negligence penalty.

Safe driving campaign for T map driving habits

The campaign in the form of mission accomplishment encourages safe driving of users of driving habits, and contribute to fulfillment of social values.



Jul 2018

● **50km good driving to protect children**

- ☰ Support for installation of traffic safety facilities for elementary schools
- 👤 106,081 participants

Sep 2018

● **Promise of safe driving**

- ☰ Scholarship support for children with traffic accident damages
- 👤 1,015,854 participants

Nov 2018

● **Observe safety speed 5030**

- ☰ Guide to "Safety speed 5030" policy for speed limit in the city
- 👤 361,434 participants

Aug 2019

● **Seat belt OK, speeding ZERO (T map X Volvo Korea)**

- ☰ Encourage use of seat belts in all seats & observance of regulated speed
- 👤 1,121,792 participants

Oct 2019

● **Observe safety speed 5030 heroes**

- ☰ City traffic speed limit 'safe speed 5030' policy guide
- 👤 187,162 participants

Jun 2020

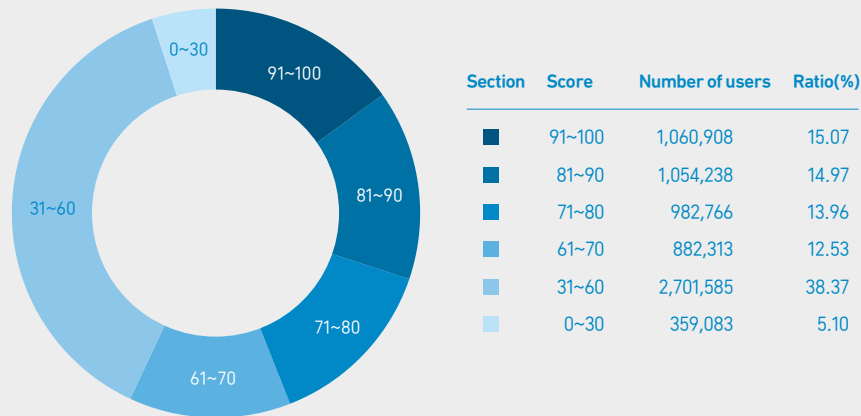
● **Safe driving OK (T map X Volvo Korea)**

- ☰ Promise 'Safe driving OK' for everyone's safety on the road
- 👤 495,533 participants

What is the score of driving habits of T map users?

We create the score of driving habits based on the data of T map users. We obtain this score by checking history of speeding, sudden acceleration and sudden deceleration. Finally, we consider general information regarding the type of roads and driving time to calculate the score out of 100 points. Each insurance company has its own standards. For example, if you have driven more than 500km within the past six months and you obtained the driving habits score of over 61-71 points, you will benefit from premiums discount up to 11%. Looking into the distribution of living habits score, 57% of driving habits service obtained more than 61 points, meeting the conditions of premiums discount, and no less than 15% of users gained high scores close to 100 points. We will continue to encourage drivers to reflect on their driving habits and improve safe driving based on the reference score of their driving habits.

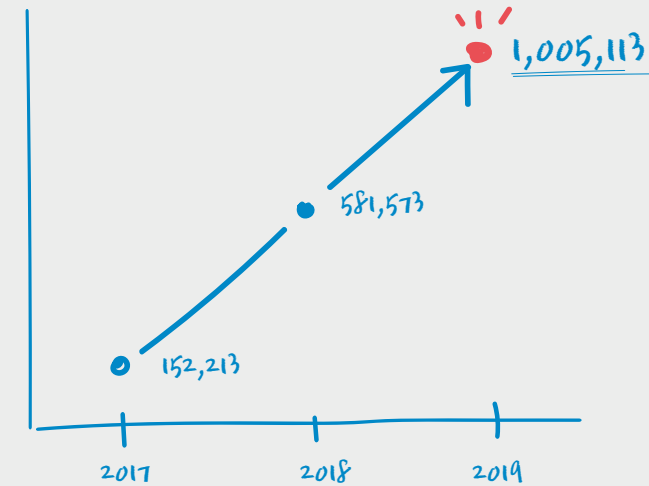
T map driving habits score distribution



* 2019. 12.

* Number of users 7,040,893 | Cumulative mileage 500km or more

Annual trend of insurance discount service subscribers



Insurance discounts and loan benefits information

(Date 2020. 7. 22.)

Car insurance UBI(Usage-based insurance) discount

Samsung Fire & Marine Insurance	Driving over 500km within the last 6 months (Accumulated driving over 3,000km)	71 points or higher	5% discount
KB Insurance	Driving over 500km within the last 6 months (Accumulated driving over 1,000km)	65 points or higher	10% discount
Dongbu Insurance	Driving over 1,000km within the last 6 months	61 points or higher	61~70 points 5% discount 71 points 11% discount

Car loan(Auto loan) discount

KEB Hana Bank	500km or more driving	61 points or higher	0.1% discount per year + 50,000 Hana money
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Technology-assisted accident prevention

In the past, when a sudden accident or congestion occurs ahead, it was common that drivers turn on the hazard lights to deliver a message of alarm to the car behind. However, this kind of "warm gesture" is hard to find today, and it is sad to see that many accidents happen due to lack of attention of drivers without keeping their eyes on the road ahead. To replace this "warm gesture" of the past days when drivers used to notify some dangerous and emergency situations on the road by turning on the hazard lights, we are doing our best to find the best way to deliver the information of occurrence of accidents or unexpected events, in the most precise and rapid manner.



* T map's V2X realtime notification message on traffic safety from the initial stage

Q. How did V2X * service start?

In 2017, starting with notification service to deliver to cars within 1km behind by recognizing sudden stop of a car ahead, we began to commercialize "T map's V2X realtime notification message on traffic safety." Afterwards, we commercialized message notification to help cars within 2km ahead yield for the ambulance or emergency vehicle struggling to save lives. Currently, 13 types of T map V2X notification are available. Our commercialization has gone through months of thorough verification after resolving the possible problems such as a message delivered to wrong cars, or delayed or repeated messages, because excessive messages can distract attention or interrupt driving.

* V2X(Vehicle-to-Everything): Technology that passes information among various entities, e.g. from a vehicle to another vehicle or from a vehicle to pedestrians

Q. On which technology does V2X service count?

To make V2X service available, it is necessary to identify the car behind or ahead located in the same direction as the car that made sudden stop among hundreds of thousands of cars running on the road. For the purpose of this, T map developed technology based on realtime management by creating millions of geographical groups according to the driving direction and location of cars. Regarding notification of sudden stop, we developed technology capable of delivering a message by selecting cars which receive the message in a tremendously short time, with less than 80ms on average for an inter-vehicle message, an less than 10ms except external delay. It is indispensable to cooperate with institutions expert in road situations, because precision decreases when if the information of situations occurred on the road is collected with restriction only from T map users. The institutions also agreed that the method of immediate message delivery to cars by App would be a lot more effective than by radio or electronic display board. Thus, T map was able to receive information on dangerous situations and emergency vehicles from several institutions. We developed technology of delivering information received from Korea Expressway Corporation, National Emergency Management Agency and Seoul Metropolitan Government to T map users. We are proud to say that this technology made it possible to notify drivers 1km prior to tunnel access when some accident takes place inside the tunnel of expressway.

Q. In which specific situations has T map V2X been used?

In May of 2020, on Jungbu Naeryuk Expressway, two people were killed by a chain collision involving six vehicles. How do you think T map users reacted with emergency stops when the accident happened? According to the internal data analysis, 72 cases of significant emergency stops were registered during 30 minutes from the moment of accident. For 5 minutes immediately after the accident, 23 cases of significant speed reduction were observed within 500 m from the accident spot, with mean speed of 14.06km/s, and emergency stops of 47km/s. 10 minutes after the accident, 22 cases of emergency stops happened within 1km from the accident spot, with mean deceleration of 9.78km/s. 15 minutes after the accident, 11 cases of emergency stops occurred within 2km from the accident stop, with mean deceleration of 8.16km/s. This means that consecutive deceleration is made within a specific period in the same section. We can see that drivers recognized the accident situation thanks to T map V2X.

Distribution of emergency stop log related to collision accident inside Chujeom Tunnel occurred in May of 2020
(bound for Changwon, data record of 15 minutes posterior to the accident)



Q. How will V2X influence our society?

T map's V2X realtime notification message on traffic safety sends a notification message to users once any danger of accident is detected. Even though they are designed for assuring safety, the overloaded messages can interrupt driving instead of preventing the dangerous events. For this reason, we constantly analyze and manage data to sort only significant messages. The operation of T map's V2X realtime notification message on traffic safety based on statistical data contributed to improving social safety. Furthermore, it was recognized as technology representing social values of SK Group.

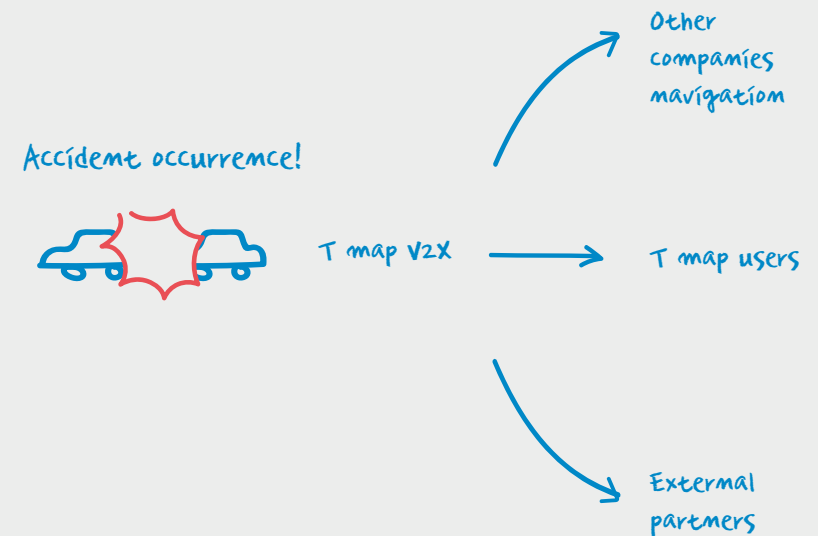
Number of messages of dangerous events for the past three months and amount of messages delivered to T map users

	Emergency stop notification	Ambulance notification	Road hazard notification (*Accident, falling objects, stopped car ect)
Number of detections by T map	4,310,605	10,164	386
Number of message delivered to T map users	17,199,748	91,413	55,342

* Target period : 2020. 5. 1. ~ 7. 31.

Q. How will V2X technology change our future?

When T map V2X technology is not applied and an accident arises, it takes about 20 minutes to deliver the situation to drivers. Based on data analysis of accidents, T map is carrying out active research of advanced service technology to prevent accidents and save lives by making a quick analysis of important situations such as traffic accidents and black ice (clear ice) for accurate and prompt delivery of the relevant information. In addition, we will make an effort to provide an optimal environment where as many people as possible can drive safely, counting on our open API allowing not only navigations of other companies but also external partners to use in an unrestricted manner.



Provide open API
so more people can drive safely!

03

Generation-customized, fitting their taste 100%

How a newcomer and a manager enjoy hobbies ⁸⁶

Changes in parenting and life style ⁹²

Travel over Flowers ¹⁰⁰



Generation-customized, fitting their taste 100%

How a newcomer and a manager enjoy hobbies

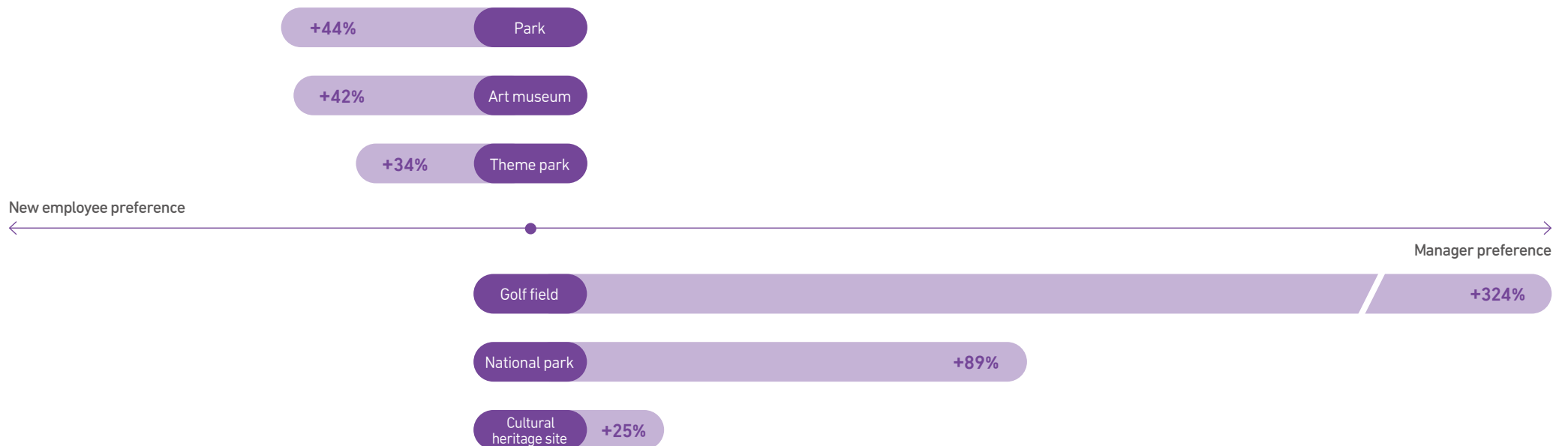
New employees insist work-life balance while their manager have a strong sense of responsibility for the company. This typical intergenerational conflict is present in any organization. Two generations of today seem to have remarkable differences. Two generations differ in taste, but they do not want to hide an interest in each other. Where do two groups often visit for their leisure time then? We will find some clues help mutually understanding each other, while trying to guess their life style, inclination, orientation and views.

New employees feeling more comfortable being alone

The generation to which the newcomers belong is usually called an "MZ generation." Born between the early 1980s and the early 2000s, they are more familiar with digital materials and videos than written texts. This is mainly what makes this generation different. However, such features can explain their external aspects but fail to describe their inner inclinations. Instead, we can find some clues to their life style and views they pursue, through the places where the new employees often visit. They prefer to spend their leisure time at the parks, theme parks and art museums. In sum, their favorite places have a few things in common in that the sites are closer to the city than nature. Their ideal is to share time with a small number of close people such as family members, friends and boyfriends/girlfriends instead of doing a big group activity.

It is estimated that new employees frequent parks because they can have a leisure time of taking a walk or spending some time with their pets. Art museums or galleries are a space representing individualism-oriented inclinations of the MZ generation in that they can enjoy this cultural activity by themselves. The progress of social media brought changes to the trends of exhibitions in the art galleries and museums, that is, adoption of photo zones. There must be many new employees who visit art museums to take pictures in front of artworks and post them on the social media. As we can see, the views and lifestyle of the MZ generation are somewhat contradictory in the sense that they enjoy individual activities but still want to be connected to others in the digital world.

Comparison between new employee and manager's destination preference



* 2019. 1. ~ 2019. 12.

* Preference = Relative value when the preference of other groups to be compared is set as 100%

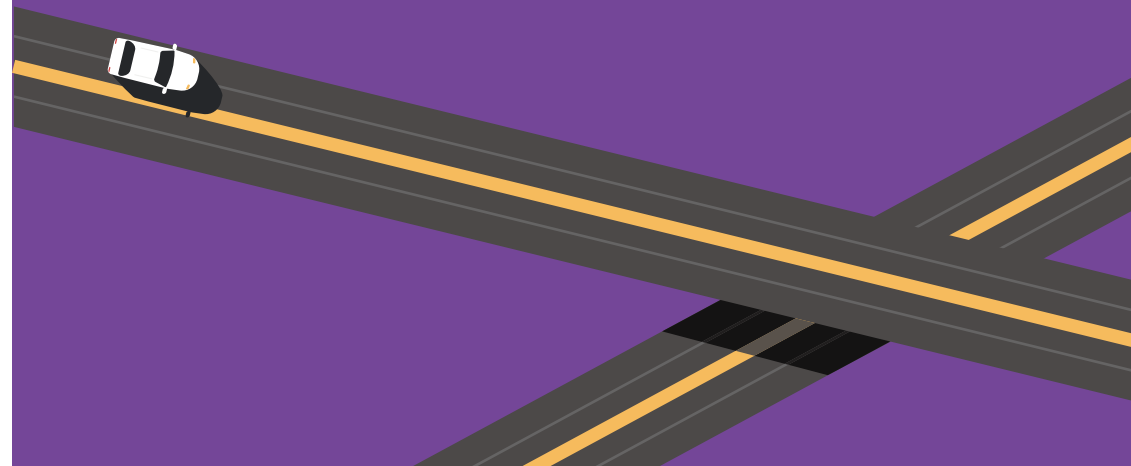
* New employee age 28~33 | Manager age 46~50

How "active" managers spend their weekend

The suit and tie go better with managers than blue jeans do. However, back in their day, manager's used to be called an "X generation" in the sense that they were just eccentric and their characteristics unidentifiable. The X generation, in general, was born in the late 1960s and the early 1970s, and spent their college life or graduated from college from the late 1980s and the early 1990s. Considering that the MZ generation was born by that time, it is quite interesting to see both generations in the same place. The sharp contrast of taste between the two generations can be found in the presence of passion for golf. This can be considered a hobby of wealthy managers, but there is a special reason for their keen affection for golf. In fact, golf is closely related to business to such an extent that they invented a term "business golf." Moreover, it is not always easy to share businesses information during a golf outing. Trekking is an activity loved by managers as much as golf. Looking at managers who enjoy trekking in some famous mountains such as Mt. Seorak and Mt. Songni, it seems that they enjoy their leisure time in a far more active manner than newcomers who just enjoy spending time at the parks or art museums. For managers, golf or trekking can be their hobbies, but the activities are carried out not only as an extension of business but also as a tool to network. Here, we can see the large difference in views between the generation of managers regarding leisure time as an extension of business or work and the generation of newcomers distinguishing work from a personal life. New employees spending time at the parks or art museums versus managers doing physical activities outdoors. The way of enjoying a leisure time for the two generations is different, but both are same full-time workers who relieve stress on the weekend and come back to the daily life.

How the two different generations coexist

To interpret recent social phenomena or operate a corporation, it is crucial to understand the MZ generation. This generation identifies the online life with the offline one and thoroughly pursues individualism. As this generation grows into their careers in the society, they are changing culture in the overall realm of the society. There is a sharp contrast of preferences between managers, the X generation enjoying trekking or golf and new employees enjoying art museums. It is obvious that managers put more value on the organization and social status, when present different in many aspects compared to the newcomers. However, discovering the difference also means discovering where to start communication. We hope that the X generation and the MZ generation can create positive synergetic effects while understanding their dissimilar tastes and preferences through active communication.





Generation-customized, fitting their taste 100%

Changes in parenting and life style

Child rearing is one of the important turning points in many moments of life. It is because the center of life transforms from "I" into "family" and the priority changes to terms such as shopping, hobbies and travel. Such changes are consistently reflected in the destinations indicated by the GPS navigation system. It is because the destinations vary when accompanied with children, and even the frequency of visit differs when going to the same places. We made an analysis of changes in life style, based on the movement traffic data of destinations visited by groups with children and those without children.

Where the group without children visit

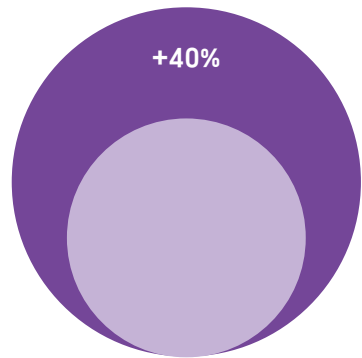
The destinations for leisure and travel differ depending on presence of children. People without the burden of child rearing often visit the places of leisure accompanied by outdoor activities such as golf courses or campsites. The frequency of visits significantly reduce when they have children. This shows that they are particularly motivated to travel to crowded outdoors.

The places to visit naturally change in because children can get lost in the crowds and act unpredictably. The same happens with shopping. The frequency of visiting men's wear and adult wear is far higher in the group without children. This suggests that, once the child is born, the priority of consumption changes from individuals to the child or family as a whole.

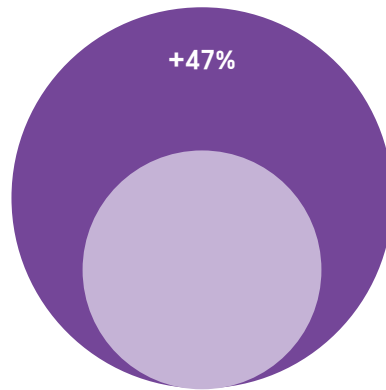
Destination preference for childless groups

The difference in preference for golf field in groups with no children compared to groups with children.

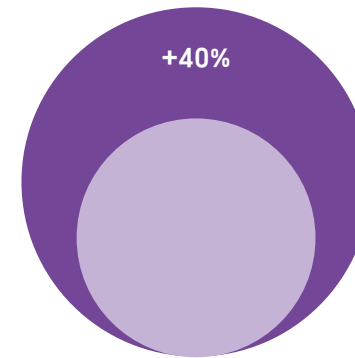
47% ↑



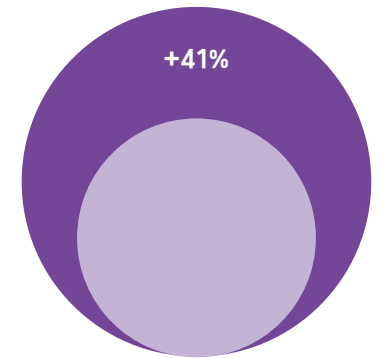
Campsites



Golf field



Tourist attraction



Clothing store

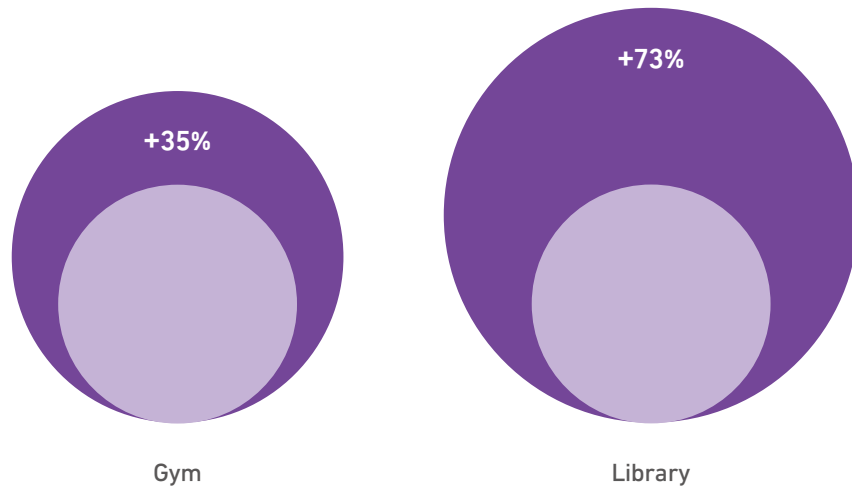
* 2019. 1. ~ 2019. 12.

* Preference = Relative value when the preference of other groups to be compared is set as 100%

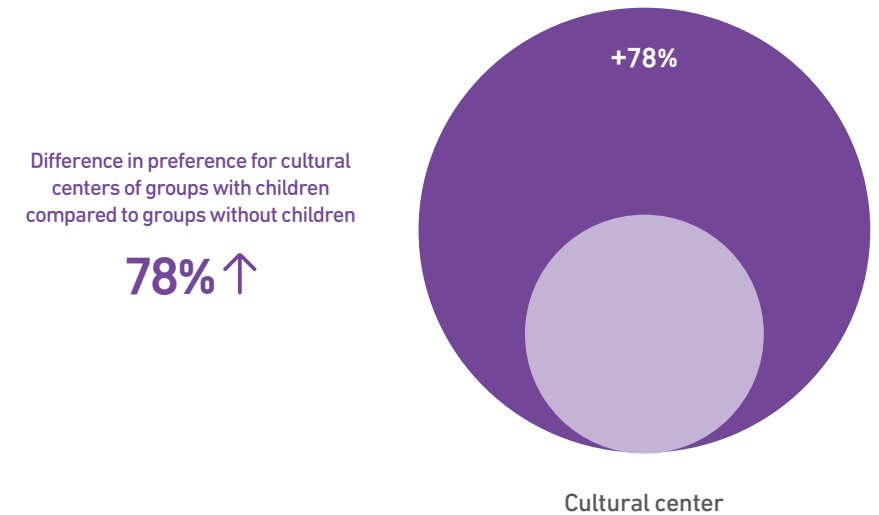
Where you can visit with your children

It turned out that the group with children visits public facilities with more frequency than the group without children. At the same public facilities, the places of preference differ between the group with and without children. For example, the group without children prefers baseball parks, while the group with children prefers playgrounds (stadiums) or sports facilities. Instead of baseball parks, the group with children visits playgrounds (stadiums) or sports facilities allowing physical movement and exercise. It is estimated that parents often visit such places because they can encourage their children to have some physical exercise, which others can accept a certain level of noise that children make.

Destination preference for groups with children



Difference was also observed in the use of libraries. The places that clearly are tourist sites, such as the Forest of Wisdom of Paju, were high in the rank for the group without children. On the other hand, the group with children preferred places equipped with libraries for children. When enjoying a cultural life with children, they preferred places where they can avoid interrupting others. Therefore, the group without children visit cultural facilities such as movie theaters and art galleries with more frequency, while the group with children opt for cultural education programs designed for children.



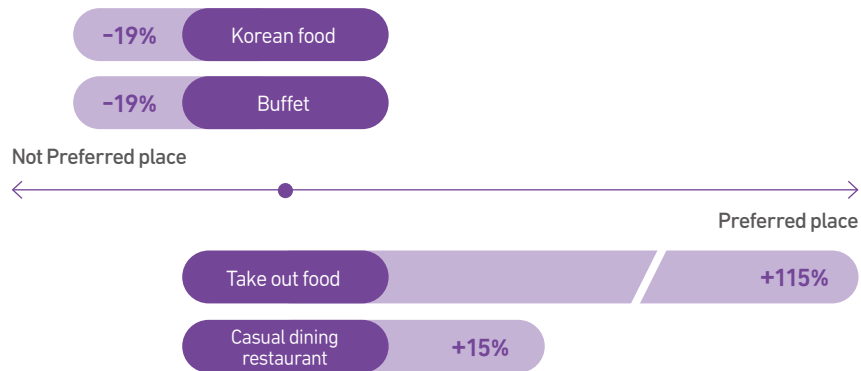
* 2019. 1. ~ 2019. 12.

* Preference = Relative value when the preference of other groups to be compared is set as 100%

Eating out? Now the culture has changed

Since the 2000s, when children are injured by accidents near restaurants and coffee shops, there used to be a fierce controversy over who is responsible for the accident. As a result, the term "No Kids Zone" first appeared in 2014. Currently, it is presumed that there are about 400 "No Kids Zones" operate throughout the country. Most of them are high-class restaurants and coffee shops. Even when they do not belong to No Kids Zones, they often separate the soft-play area for children from the main restaurant area. When we go to a restaurant with children, it is common that we hurriedly eat and leave the place as quickly as possible. Otherwise, we opt for delivery food to avoid the inconvenience. T map movement data proves that the frequency of eating out significantly decreased in the families with children. In particular, the number of people going to buffet restaurants considerably diminished because people must self-serve food in such restaurants. Moreover, diversity of choosing dining menus at the restaurants notably decreased as well. Instead, big increase in demand for box lunch was observed. This must prove that going to a restaurant with children is highly burdensome for most parents. It is natural that children act unpredictably at unfamiliar places. It is the role of parents to correctly raise these children, but the responsibility must be shared with the society. If a society is not considerate of children and their parents, No Kids Zone will expand, so that we will no longer be able to hear the laughter of children around us.

Restaurant preferences for groups with children



* 2019. 1. ~ 2019. 12.

* Preference = Relative value based on the preference of the group without children as 100%

The world where kids feel just happy

Many times, we can see signs of "No Kids Zone" in front of coffee shops or restaurants. National Human Rights Commission of Korea took corrective measures saying that No Kids Zones are discriminatory. Despite this, No Kids Zones are constantly on the rise. The fact that the spaces enjoyed with children are only limited to public facilities or some facilities targeting children must not be irrelevant in the presence of No Kids Zones. According to the analysis data, the group with children tends to avoid crowded tourist attractions when making a trip. This situation is worrisome in the sense that the width of experience children's can narrow in the process learning as much as possible. We hope that more spaces making both children and adults happy can be created, allowing children to learn how to live together with a variety of people.





Generation-customized, fitting their taste 100%

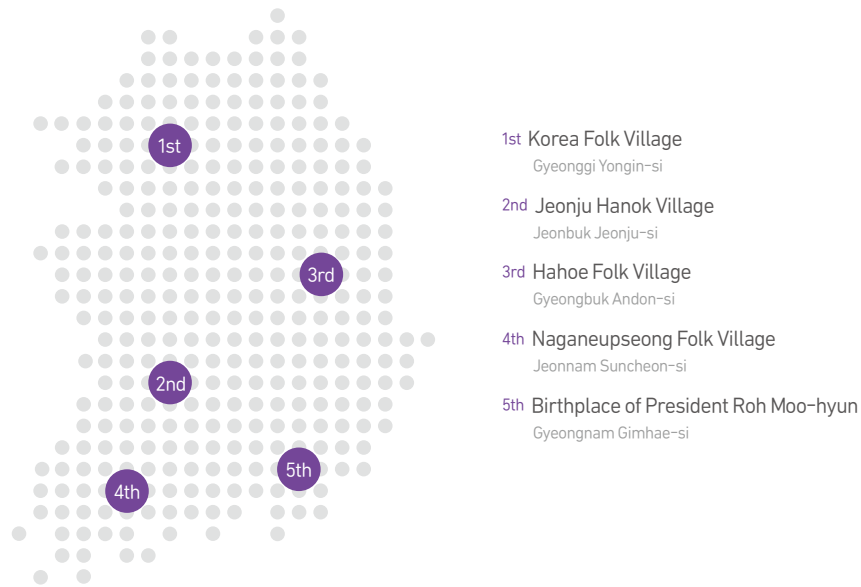
Travel over Flowers

The typical image of a successful aging is in leisurely enjoyment of tending a small vegetable garden in a quiet rural village. However, today's elderly are spending an active time investing in new experiences with enthusiasm. This image was shown in actors from the reality show "Grandpas over Flowers." They were enthusiastic for exploration of Europe. When the program ended, many seniors started travelling across the country saying, "Travel over Flowers." Through T map data, we will look into the travel trends of the elderly who believe that travel is a must for a happy life.

A travel in company with history and culture

According to a questionnaire survey conducted by Korea Tourism Association, seniors prefer to make a trip to places embracing historic and cultural meaning. The T map data shows that seniors rarely visit places mostly designed for amusement such as beaches or campsites. On the contrary, the places with historic background such as Korean Folk Village and old Buddhist temples are flooded with seniors. In particular, folk villages perfectly fit travel preferences of seniors in that the places not only stimulate their nostalgia of "good old days" but also serve as historic sites.

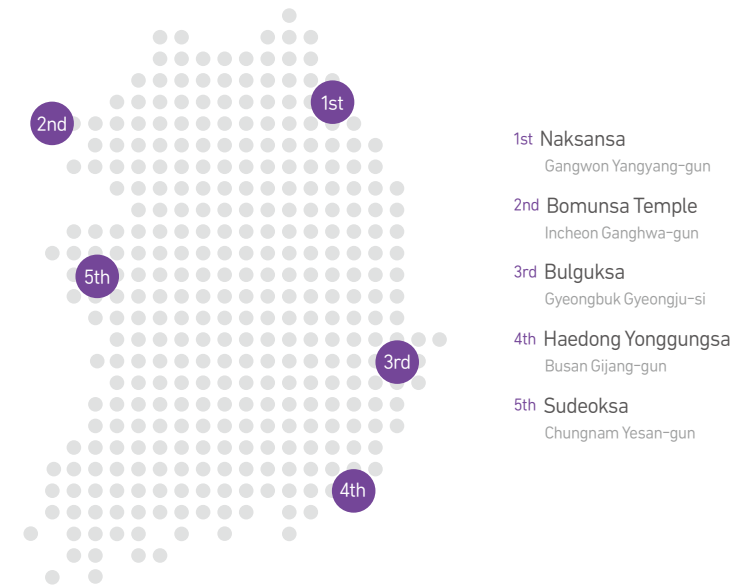
Historical sites/ Birthplace/ Folk village



* 2019. 1. ~ 2019. 12. | Number of start navigation
* Age range: Age 60~69

Regarding travel of the elderly, we first think of seniors as a big group who go trekking in nice outdoor clothing along the trail of famous mountains across the country. They love trekking mainly because of the presence of Buddhist temples that have historic meaning, in the mountains. Naksansa Temple has an impressive view close to the sea, and it has deep historic meaning for it was built during the King Munmu of Silla Dynasty. Bomunsa Temple and Bulguksa Temple were renowned from Silla Dynasty, and Sudeoksa Temple and Haedong Yonggungsa Temple have been there for hundreds of years tending to prayers of people wishing for peace. Many seniors head for mountains in search of Buddhist temples, taking an express bus every weekend to pray for peace for their family members and acquaintances.

Temple



* 2019. 1. ~ 2019. 12. | Number of start navigation
* Age range: Age 60~69

Yedang Suspension Bridge, Number of start navigation

6,609 cases



Seniors keep walking every moment

According to announcement of a ticket booking website, there is a growing demand in young people for activities enjoyed in nature such as a zipline. On the other hand, seniors prefer destinations where they can appreciate beauty of nature while walking slowly. Yedang Reservoir Suspension Bridge and Badabuche Searoad of Jeongdongjin frequently visited by the elderly have a trails that are nicely built. The Sky Walk of Deunggisan, designed with glass floor for amazing view, like a hidden gem. German Village (Deutsches Dorf) and Cheongnamdae constantly attract seniors since they can take a walk leisurely while browsing the village with calm. Even though there are no dynamic activities, they take pictures for souvenir and memories while walking at a slow pace. This is the travel style of the senior generation. Unlike the young generation prioritizing a variety of experiences, this style shows that seniors tend to cherish every moment through their steps.

Senior's preferred tourist attraction/ leisure

1st	Yedang Suspension Bridge	Chungnam Yesan-gun	6th	Jeongdong-Simgok Badabuchae-gil	Gangwon Gangneung-si
2nd	Majang lake Suspension Bridge	Gyeonggi Paju-si	7th	Cheongpung Lake Monorail	Chungbuk Jecheon-si
3rd	Sogeumsan Suspension Bridge	Gangwon Wonju-si	8th	Deunggisan Sky Walk	Gyeongbuk Ulsin-gun
4th	German Village	Gyeongnam Namhae-gun	9th	Gangchon Rail Park	Gangwon Chuncheon-si
5th	Cheongnamdae	Chungbuk Cheongju-si	10th	Daebu Haesolgil	Gyeonggi Ansan-si

* 2019. 1. ~ 2019. 12. | Number of start navigation

* Age range : Age 60~69

Enjoy forest therapy and lodging at the same time

Lodging takes up a great amount of budget and determines the characteristics of travel. Young people look for lodging that costs the least within the tight budget or enjoy the so-called "Hotel staycation" and leaves some pictures for social media. However, seniors are different. According to a questionnaire lodging near conducted by Korea Tourism Association, a majority of seniors opted for recreational forest. Seniors were not fond of facilities located in the city such as hotels and pensions or facilities focusing on interior design. The recreational forest is considered perfect lodging for seniors in the sense that it is near the forest and has cooking facilities. The recreational forests across the country prepare experience-based programs oriented to seniors to actively attract them. They offer an inexpensive price. Considering such advantages, it seems that recreational forest lodging will gain steady popularity.

Senior's preferred nature attractions

1st	Hwadamsup	Gyeonggi Gwangju-si	6th	Daegu Arboretum	Daegu Dalseo-gu
2nd	Juknokwon	Jeonnam Damyang-gun	7th	Anmyeondo Recreational Forest	Chungnam Taean-gun
3rd	Wondae-ri Birch Forest	Gangwon Inje-gun	8th	Jangtaesan Recreational Forest	Daejeon Seo-gu
4th	Garden of Morning Calm	Gyeonggi Gapyeong-gun	9th	Yumyeongsan Recreational Forest	Gyeonggi Gapyeong-gun
5th	Korea National Arboretum	Gyeonggi Pocheon-si	10th	Bijarim Forest	Jeju-si Gujwa-eup

* 2019. 1. ~ 2019. 12. | Number of start navigation
* Age range : Age 60~69

You travel and you stay young

The senior generation is highly proud of themselves because they have contributed to society through energetic economic activities. Some of the elderly complain about a sense of loss and depression, and feel overwhelmed by the idea of exhausting their social contribution after retirement, which has become a social issue. However, seniors today look for joy of life in an active manner through travel. Travel is no longer an exclusive activity of the youth. If traveling with others offers a stable foundation philosophy one's own life, seniors will be able to lead life in retirement and enjoy rejuvenation in full bloom.

What was the place called back then?

Local Contents Team is in charge of updating information on locations and improving accuracy of the relevant information. The Team aims to handle many things with perfection in a variety of aspects; developing systems to precisely identify ever-changing location information, filtering uncertain information through machine learning, creating a system based on an automatic modification function without manual operation. We will explore the expertise of more than 4.5 million POI data built and secured by the Local Contents Team during the process of establishing efficient and accurate location information systems.

What is POI?

When the coordinate is given to a specific point on earth, it is possible to register an address in a simple manner only with two-dimensional number data. When interpretable data is added to the defined coordinate, location information is created. The map service of today is like a data mass of which location information is drawn and some marks are placed on top of it allowing its use according to need. Previous generation used to keep a map at the back seat. Now we are living in the digital age. The same map is now available in the data form, in other words, digital information allowing us to check the information from Web or App. If the destination changes on the way, drivers can quickly modify the route and move forward without any complicated tasks. Let's suppose a situation. Some new locations arise and some businesses are closed. However, T map is smart enough to collect coordinates and the related information with efficiency and speedily apply them to App, not to cause any inconveniences to users.

Point Of Interest

place, location, spot,
landmark, there

How is POI collected then?

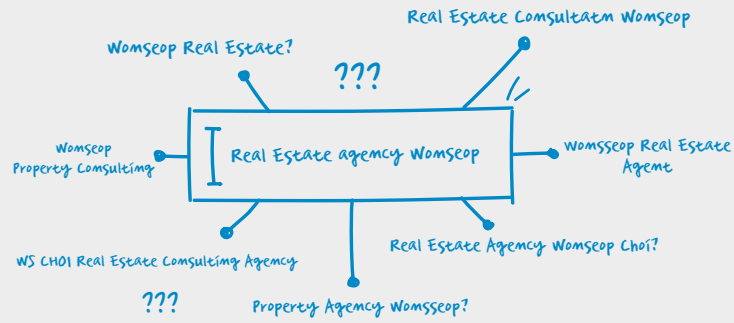
How does Local Contents Team collect location information? The method is largely divided into three. Firstly, the method consists in collecting images and information by dispatching inspection vehicles across the country. This makes it possible to check the road situation and newly formed changes. If new places came into being, update tasks are conducted. Secondly, the method is focused on thorough examination of information received from partner agencies or public institutions. Immediate data modification is made on detecting some information of business establishments (stores) that have been closed, moved or modified. Lastly, it is made by receiving information directly from users. To sum up, the location information is assembled by making direct or indirect collection of data and paying attention to information received from users. The data given by corporations or public institutions can never be superior to the vivid information given by "the person who is right on the spot at the very moment" when it comes to changing situation of the road. The information on the completion date of building, date of business opening and date of transfer is just one of various clues.

The information from users is the latest one among all. Many collected clues and information reported from users play an important role in creating the most reliable location information. T map treats more than 1,000 pieces of information a day on average. The collected content goes through a verification process by Internet or phone calls and its exact coordinate information is identified through the satellite map before being officially registered. Though it takes time to check every detail of content one by one, T map never fails to register valuable information provided by users.

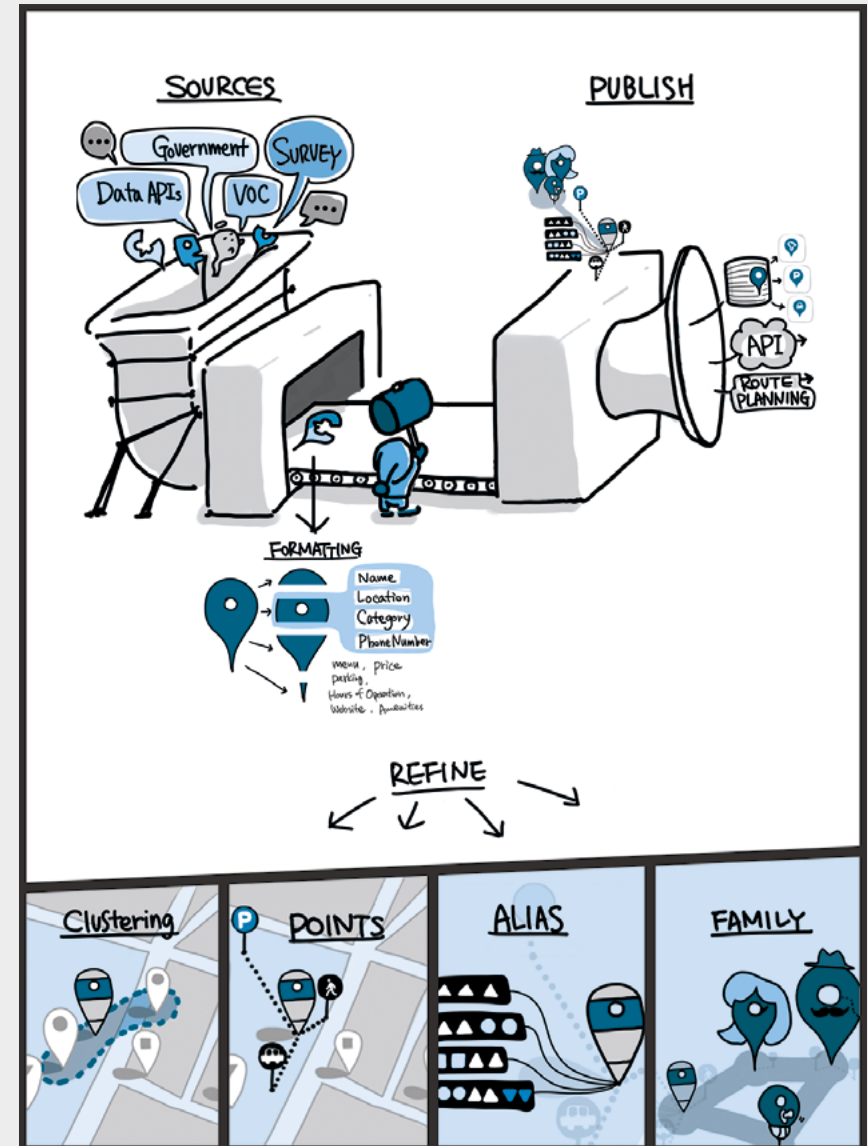
Case of POI modification

We often realize that there are thousands of ways to call the same place. It seems to depend on how each one feels like naming the place. It is because there are copious pieces of information regarding the same place. It is not surprising that the name of a store used by the business owner has nothing to do with the name written on the signboard. Many must have noticed that the name of establishment printed in the credit card bill was different from the one written on the signboard. It is inevitable that the information on places goes through changes of at least a couple of times during the process ranging from the moment in which the information is created to the moment of its final consumption (completion). For examples, using a shortened form of address, mixing the name of road with a lot number, using an old address that has disappeared or has combined, telephone number error, error of Romanization from foreign languages, and spelling error that is a common factor of all mentioned above. This way, data becomes "polluted" and altered, but Local Contents Team is quite used to this phenomenon. We will give you an example.

1. Direct collection using T map inspection vehicles
2. Information collection from partner agencies and public institutions
3. Information from users



As we can see in the case above described, being the same place, it can have diverse names since they are collected by way of varied routes. Which name are we supposed to choose then? There is no correct answer to this question though. If you want to get closer to a correct answer, you will have to look for "the name that is called there and now." If one place used to be called "Real Estate Agency Womseop" is now known as "Womseop, the Licensed Real Estate Agent," the information of the place must change accordingly. If the place is still written as "Real Estate Agency Womseop," it is necessary to register the name as a synonym. One thing to remember. It is vital to clarify that multifarious pieces of information, in fact, indicate the same place. Only when we are equipped with a system that groups text information and distance between coordinates through machine learning and determines the grouped data mass as a piece of information, it will be possible to process the variables derived from data. The process may look simple at a glance, but it is challenging to apply this data to all business types present across the country. Our original expertise and technology based on years of study and compilation of data stand out in this system of T map.



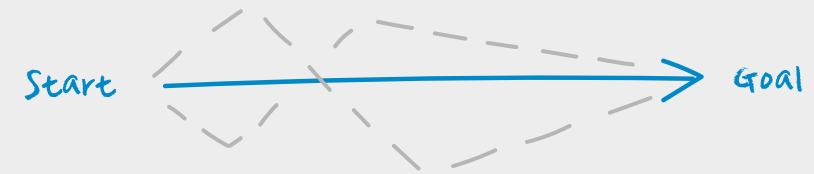
* Drawing: Local Contents Team Kewjin Paik

Secret to T map's travel route recommendations

T map is composed of diverse rating functions such as T map recommendations, the minimum time, toll-free roads, the shortest distance, priority of expressway and route allowed for two-wheeled vehicles. To these functions, one more function of School Zone route is added. Out of eight functions, users can choose any options according to their convenience. Each route is based on an algorithm by logic in accordance with the purpose. We call the act of creating a route according to this algorithm "RP (Route Planning)." Then why does each navigation guide different routes even when the real-time traffic information of road is just the same? It is because each navigation uses the algorithm applying different value of distance and time. The method of setting an algorithm directly influences quality of navigation. Let's inquire into expertise of T map, representing the effort of creating optimal RP in pursuit of constant quality improvement.

What is RP?

RP refers to service providing the optimal travel route in consideration of all path possibilities from the starting point to destination.



What are the types of routes that T map RP provides?

A quick route : It guides a quick and accurate route to the desired destination by avoiding congested roads, based on realtime traffic prediction information.

A comfortable route : It guides a route making your driving more comfortable in consideration of type of road, number of road lanes, distance, traffic lights, and number of turns.

A safe route : It guides a safer route in consideration of width of road, speed limit, road pavement state, information of accidents or events.

Factors to consider when finding the optimal route

Diverse factors are considered when finding the optimal route. They constitute travel time, driving distance, toll, fuel consumption amount, number of road lanes. For route planning, basically, all factors are considered. If you put priority on travel time, the information of route "the minimum time" will be given. If you prioritize driving distance, the information of the route "the shortest distance" will be offered. Without doubt, the route "T map recommendations" that is most used by our customers is the optimal route obtained as a result of general consideration of all factors, instead of focusing on one or two factors.

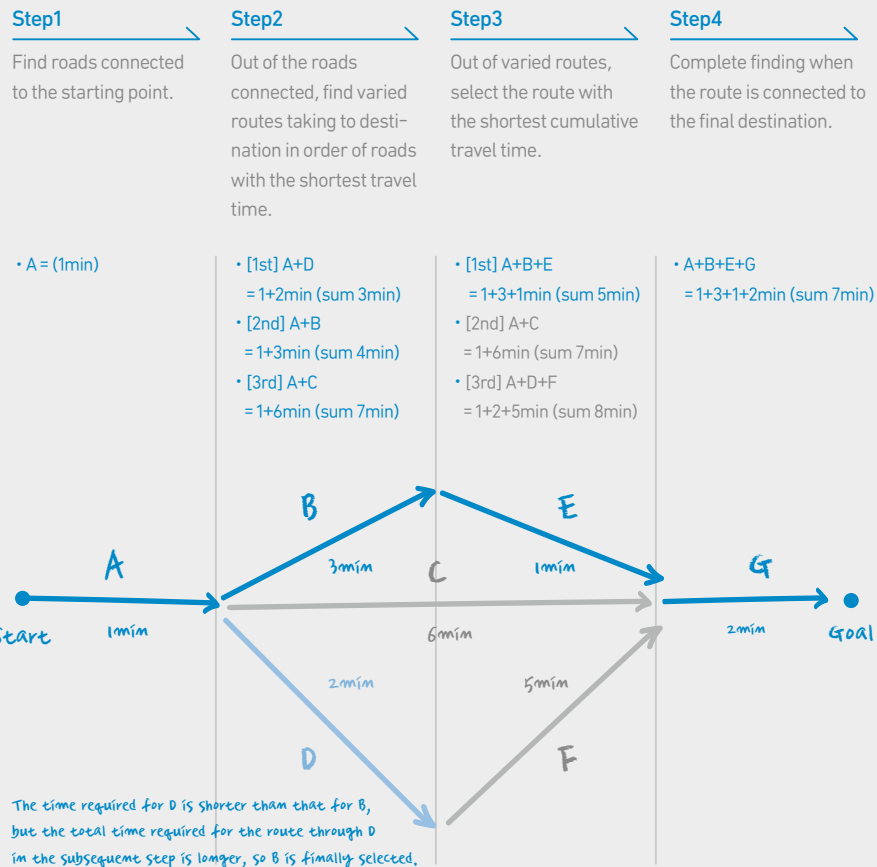
Two major factors determining quality of RP

Which route should I take?

The process of finding the optimal route

RP searches for all road possibilities from the starting point to the destination and calculates scores considering various factors such as travel time at each section, driving distance and toll. Out of all possibilities, it provides combination of roads with the highest scores as the optimal route.

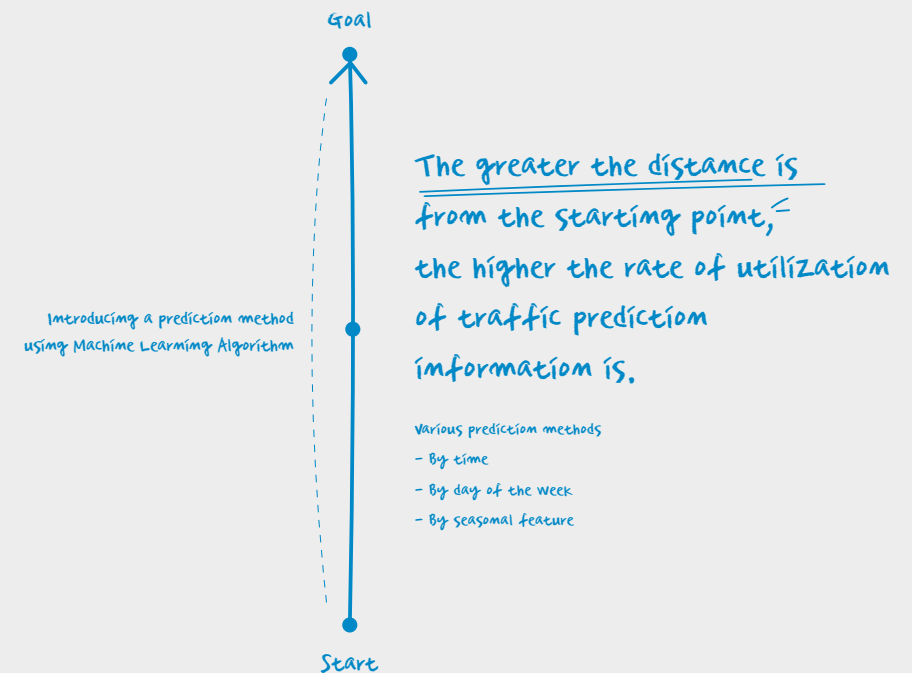
How to find the quickest way



When will I arrive?

How to predict the time of arrival

RP applies both realtime traffic information and traffic prediction information. The greater the distance is from the starting point, the higher the rate of utilization of traffic prediction information is. In other words, for the destination close to the starting point, the current realtime traffic information is more used. On the other hand, for the destination far from the starting point, RP foretells the time of arrival based on traffic prediction information.



T map RP strategy

Q

No matter how little time it takes, T map seems to make me turn too much. It is only one minute faster, but I am not convinced that it makes me turn no less than 10km. Wouldn't it be easier if I just took a direct way?



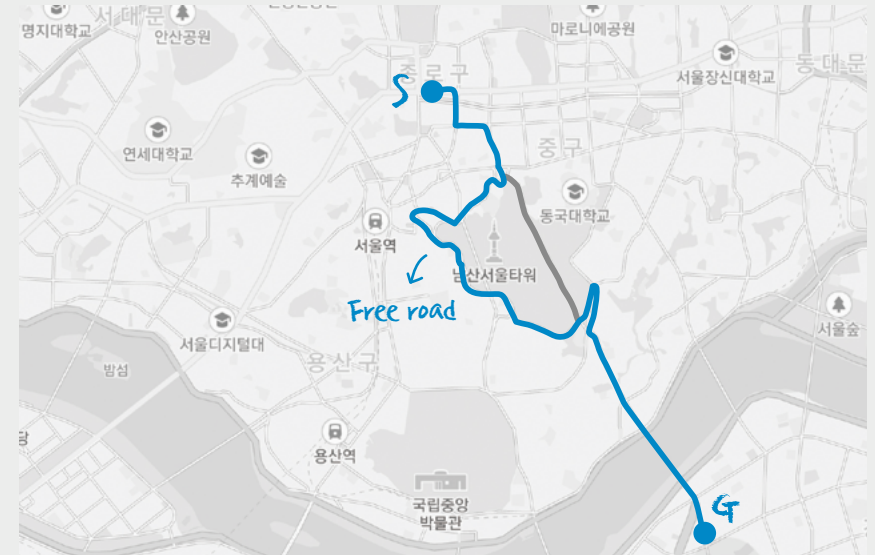
A

This problem occurs when RP puts priority of guide on a quick route than the travel time despite a close distance, physically speaking.

To solve this issue, we operate the system by **raising the distance value** so as not to provide a route that is too remoted only because it takes a shorter travel time.

Q

I do not like to use a toll road unless there is high congestion on other roads. Is there a solution to this?



A

At present, when finding the route "T map recommendations," we put priority of guide on the route with a lower toll by applying a separate penalty to toll roads.

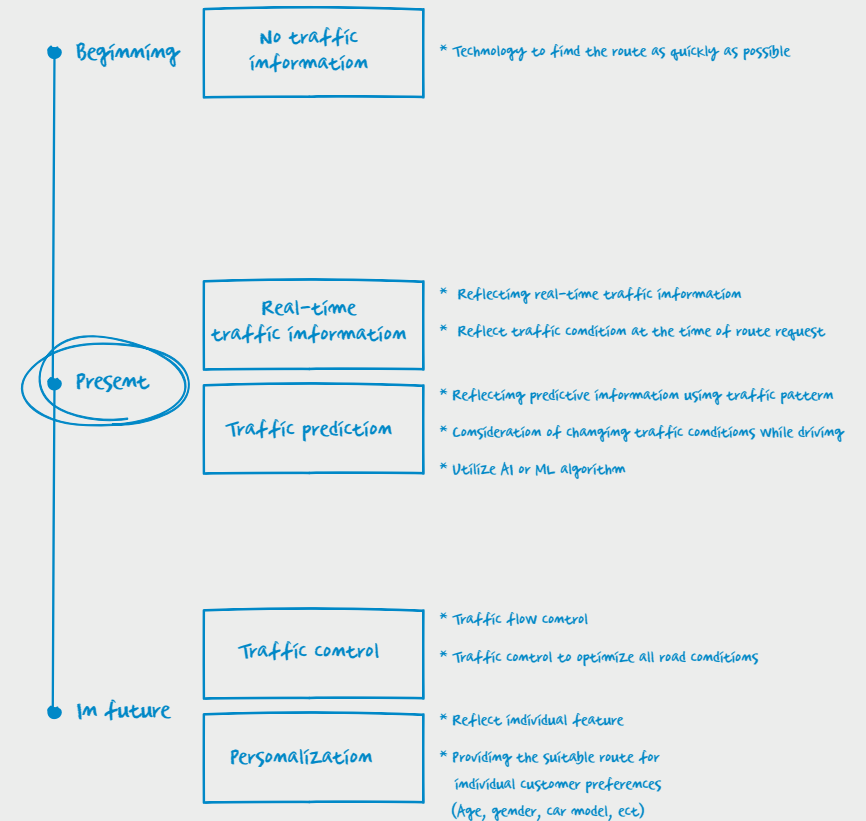
However, when the route detouring to reduce fare causes excessive prolonging of travel time, we may guide a route where toll is required. If you want to minimize toll, we advise that you should use the option "toll-free roads."

What is RP's future like?

Initially, we thought that the most important value was guiding the route with the shortest time of arrival in a precise manner. However, we recently upgraded service quality of route guide by predicting road situations and changes in realtime traffic information. Furthermore, we focus on technology to raise satisfaction of each user. We make an utmost effort to maximize our services of route recommendations in consideration of not only users' data such as age, sex, vehicle type and driving habits but also their personal preference or taste.

Technology development process

Static RP → Dynamic RP → Trip distribution → Personalization



T map, true or false?

For the past ten years, T map has been considered the national navigation in line with wide distribution of smartphones. Over time, the number of monthly users exceeded 10 million, and it grew into a mega-platform used by about 13 million a month as of 2020. Consequently, users who actively share their T map experience on the wheel began to emerge and this participation of users contributed to improving quality of service of T map. However, some groundless "ghost story-like" suspicions or canards about T map started to spread. We will pick up some popular examples of these stories to rebut misunderstanding of T map. You be a judge. True or false?

They say that T map received money to recommend this route. True or false?

Is it true that T map is receiving money from Gangnam beltway, the private road?

Most of roads are constructed and managed with the budget of the state or local governments. At times, there are some roads operated based on private capital. This kind of road is called a "private road" and it charges costly toll. We are aware that users prefer to get information of the route avoiding private roads. However, in some specific sections, there are no good alternative routes to recommend and it is sometimes inevitable to guide drivers to private roads. Putting these cases together, some people started to suggest that T map had been rewarded by the operators of private roads and this should lead T map users to the private roads on purpose. No, it is not true. T map is not receiving any rewards or anything similar from them. T map provides drivers with the optimal route "T map recommendations" by calculating factors such as time, distance and cost according to well-organized algorithms. We will give you an example of Gangnam Beltway, which was built as a private investment project. If you ask a route moving from Gangnam-gu to Geumcheon-gu, T map recommends Gangnam Beltway with high probability. Why? It is because the algorithm judges that advantages obtained from saved time and distance is greater than toll charged in the route passing through Gangnam Beltway. In a way, we can interpret that Gangnam Beltway is playing its intended role or doing a good job. If you do not want to follow the route recommended by T map algorithms, here go a couple of tips. The first one is to compare the route "toll-free roads" with "T map recommendations." Whether time/distance is more important than toll... this depends on each person, so we sincerely hope that you make your own decision. The second one is to count on "my favorite routes." How? If your home or company is located at an area where you are required to frequently pass through private roads like Gangnam Beltway, save the driving history of routes that you have been taking a detour from private roads in "my favorite routes" and compare the data every time.

Wouldn't it be more congested if we follow the route that T-Map guides us if we all go that way?

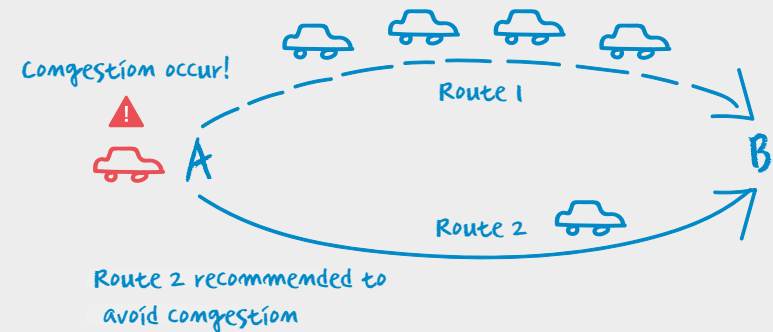
T map users cause congestion?

Forced gathering on national highways among T map users?

There is a term "navigation paradox" in the navigation business. Which says that, the higher number of drivers using the same navigation quick route the greater the congestion is. At a glance, this sounds somewhat rational though. When sudden congestion arises on national highways or local highways detouring from expressways during holiday season or national holidays, many drivers complain about forced gathering generated by T map users because the route is rarely traveled at other times. We will explain the truth. To begin with, T map algorithms provide routes based on realtime traffic information. For instance, if congestion occurs from T map users suddenly appearing in the same section going from A to B, the T map algorithm makes a realtime analysis of the traffic information of the corresponding section. When other users request a route passing through the same section, the algorithm guides a detour to avoid the recently occurred congestion. If sudden congestion is not relieved yet despite this detour, it means that the way to the destination is extremely limited in general. To solve this problem, the state or local governments should expand alternative roads. As a more future-oriented method, it will be possible to adopt the method called "dynamic optimization." What is this method? This is to evenly distribute the entire users to diverse routes by making predictive generation of traffic information of near future based on the number of T map users who have been provided with a specific road route.

In conclusion, temporary congestion may occur by T map, but this can be overcome technically. When it comes to dynamic optimization, as the number of users increases, accuracy and efficiency of traffic information improves as a result. Therefore, we ensure T map's worry-free and reliable use.

Reflecting real-time traffic information
What is the T map algorithm?



But, if the congestion is not resolved, then the route to the destination is very limited

T-map treats users of other telecom companies differently?

T map downloaded from One Store and App Store has a red icon, while the one from Google Play Store is green. If you have carefully observed both, there is no difference between them. Are you curious about why they have different colors? In 2016, T map began offering it for free but before that year, all users, except these from SK Telecom, had to pay to use T map service. The colors vary only to distinguish free services from paid ones, but they have no effects on functions. We will soon integrate the icon color to reduce unnecessary confusion.



T map sells the tag of popular tasty restaurants?

T map popularity

On T map, there are some restaurants that have the tag of "T map popularity." In fact, this function was inspired by a planner who was feeling tired of advertising of tasty restaurants posted on Blog. When searching for information on tasty restaurants on main web portals, the site is immediately flooded with advertising-focused texts. This normally makes people feel tired and skeptical. Based on this typical experience, we finally decided to utilize the use genuine tags of destinations with tasty restaurants. Since the tags "T map popularity" are marked through algorithms without commercial intention, they are not involved with advertising or external influences.

Curious things about T map

"T map just speaks too much."

On T map, you can find a "minimum guide mode." This is designed for those who don't feel very comfortable with voice instruction. Literally, it is a mode with minimum voice guide.

...

???

"T map consumes wireless data in excess."

The amount of data that T map uses is small compared to the recently launched services. The map section you passed once will be automatically saved in the terminal unit, so no additional wireless data will be used when you pass through the same section again.

"The speed on T map is different from that of the dashboard."

The speed calculated by GPS is more accurate than that of the dashboard. Since the number of wheel spins calculates the speed marked on the dashboard, it may create errors depending on temperature and the state of road surface.

!!!

04

T map Exploring Life

A fierce tournament of brands ¹³⁰

Now, when and where?

An agility game on the wheel ¹³⁸



T map Exploring Life

A fierce tournament of brands

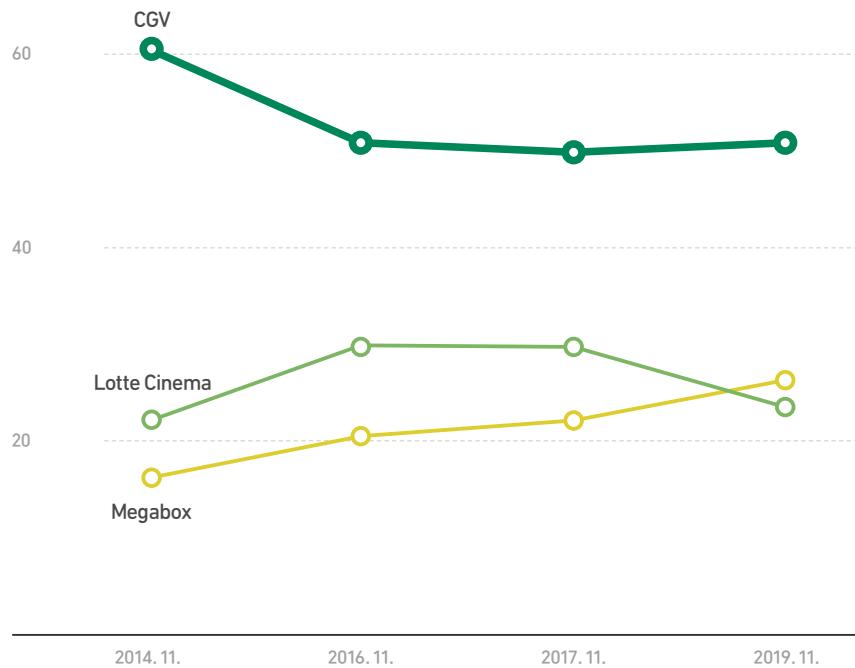
Post-it, Melodian, Poclairn, Takpul. At a glance, they seem to have nothing in common, but they belong to almost the same case in the sense that they represent the products of the generic category when the respective brand became widely known. The same cases can be easily found around us. It is because there is almost no limit of expression when it comes to movies, cafes and shopping, once we mention some frequently used brands such as CGV, Starbucks and e-mart. By the way, do you think these popular brands have a high market share as well?

Would it be ever possible that we are just accepting them in the same way as the brands are exposed to advertising or articles? To satisfy your curiosity, we will clarify the popularity rank by brand based on the analysis result of big data of T map users, excluding every detail of advertising.

Domestic Multiplex cinema market as a proof of love for Lotte in Busan

The total number of movie theaters across the country is estimated to be 513 as of 2019. Of them, multiplex cinemas account for 80%. From the perspective of number of movie screens and seating capacity, multiplex cinemas take up more than 90% of the entire film market. By regional groups, Seoul and Gyeonggi-do own the greatest number of multiplex cinemas. Observing from the type of franchise, CGV has 168, Lotte Cinema, 130 and Megabox, 102, respectively. They share the piece of the pie according to the amount of movie theaters. In sum, CGV takes the biggest piece of the pie, followed by Lotte Cinema and Megabox, who are trying to catch up as the second.

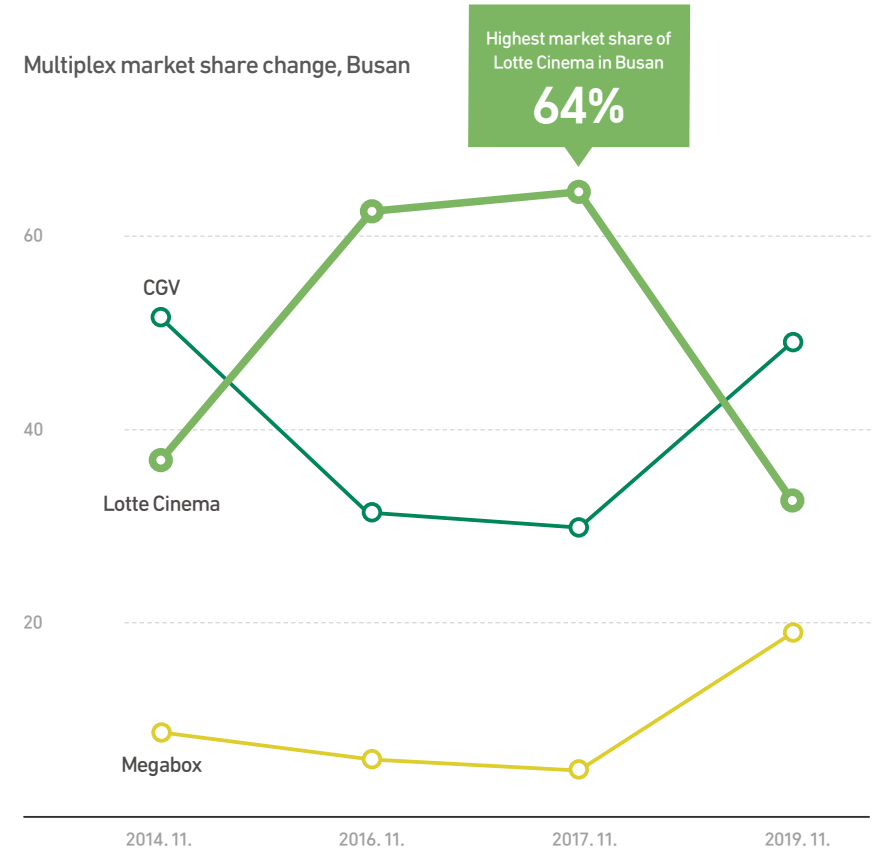
Multiplex market share change, Nationwide



* 2014.11. ~ 2019.11. | Number of start navigation

The only region where CGV becomes weak in the competition is Busan. It is assumed that love of people towards Lotte, the representative enterprise of the region, must have influenced the choice of movie theaters as well. Finally, in 2019, CGV captured the market leading position in Busan through aggressive investment. However, we will keep paying attention to the market share of multiplex cinemas in Busan where people are deeply attached to Lotte.

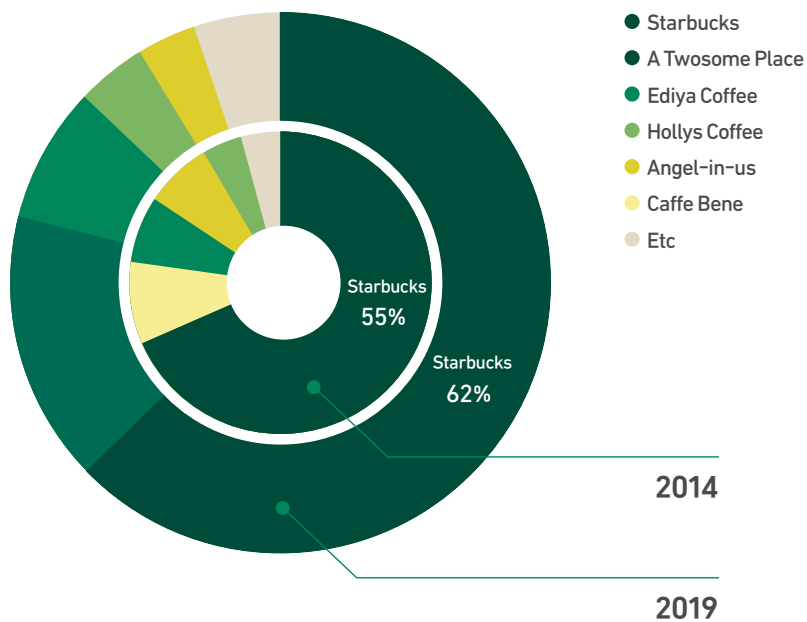
Multiplex market share change, Busan



A peerless presence of Starbucks

The current domestic coffee market can be summarized as "a battle arena among coffee brands aiming to be second winner under the dominance of Starbucks." From 2014 to 2019, Starbucks has occupied more than 50% of the coffee market, while other brands are close behind to take the honor of being No. 2. Thus, in 2014, Caffe Bene started to occupy the market by increasing the amount of branches. However, from 2015, upward mobility began declining in a notable manner. At present, EDIYA and A Twosome Place are holding second place. Even though the number of branches of Starbucks does not even reach half of that of EDIYA, it exceeded sales of one trillion won in the domestic market, as of 2019, and is boastful of its brand power.

2014 / 2019 Coffeehouse brands market share change

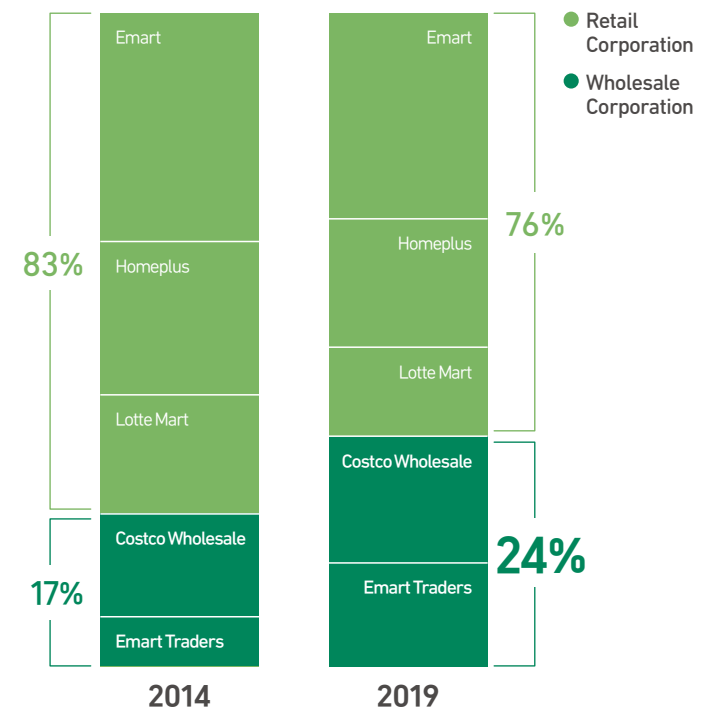


* 2014. 1. / 2019. 12. | Number of start navigation

Growth of warehouse stores

When it comes to hypermarkets, as is the case of multiplex cinemas, three "giant" enterprises (the so-called "dinosaur enterprises" in Korean) such as Emart, Lotte Mart and Homeplus have been keeping their positions in the market since 2014. Despite the fact that there is no such a thing as ferocious competition for ranking, we observe some gradual downward trend due to growing online shopping. On the other hand, warehouse stores such as Costco Wholesale and Emart Traders are growing to prominence. Emart Traders highlights its lower price, attracting customers with the non-membership system and gaining fast on Costco Wholesale. At the same time, Home Plus and Lotte Mart are also implementing the system of warehouse stores with a view to managing underperformance.

2014 / 2019 Retailer market share change

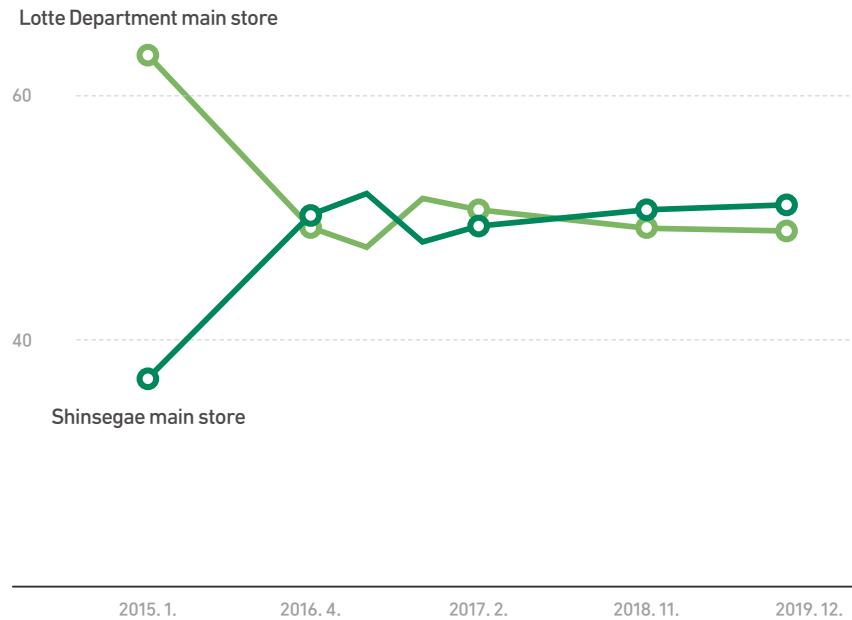


* 2014. 1. / 2019. 12. | Number of start navigation

An uncompromising match among department stores, on their honor

Myeongdong is famous for an avalanche of Chinese tourists to such an extent that it is nicknamed "China inside Seoul." The more that the number of tourists rises, the less domestic consumers visit the place. However, Lotte and Shinsegae representing our country's distribution industry are competing on their business. Lotte Department Store, the oldest settler in Myeongdong has held a dominant market position backed up by Duty Free shops. Nevertheless, Shinsegae Department Store that opened its Duty Free Shop in May of 2016 started to "attack." In 2019, Lotte Department Store finished renewal and began to attract customers again. Unfortunately, in 2020, COVID-19 led to sharp decreases in the quantity of customers, thus, the match between the two is postponed for a while.

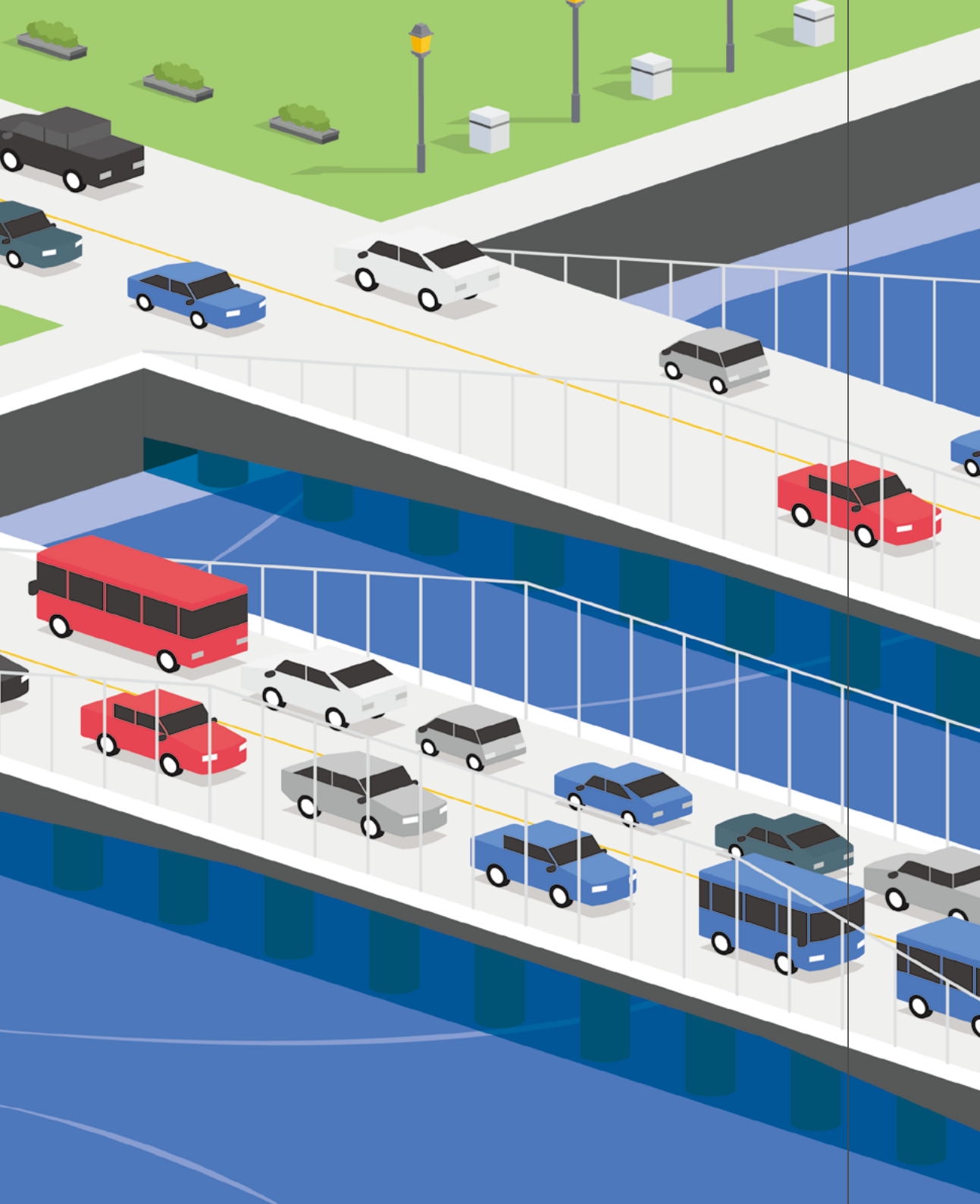
Shinsegae main store vs Lotte Department main store



* 2015.1. ~ 2019.12. | The total number of start navigation for the Lotte department and Shinsegae department headquarters is substitute with 100

What is your brand preference?

Analyzing the T map data, we inquired into the market movement where brands are having keen competition. In the market of coffee shops or multiplex cinemas, they were fighting a battle with one another to a second behind the powerful leader, the large enterprise. Hypermarkets are striving to overcome the situation where online shopping is emerging as a mainstream trend. Therefore, they are trying to save this situation by adopting the system of warehouse stores. The representative Department Stores are still writing the typical "battle" story of Myeongdong to gain back their prestige. We choose a certain brand because it is simply eye-catching or we are just used to it, but each brand is struggling to survive, behind the curtain, in the competitive market. If you keep studying the T map data, you will be able to see the process and outcome of the survival between the brands.



T map Exploring Life

Now, when and where? An agility game on the wheel

When you are in a congested area while driving, you start to feel uneasy. Whenever you are approaching a road notorious for "turtle" speed, you may join the congestion "nightmare". But if you are a skillful driver, you can use the trick of choosing a detour based on predicting which road will have heavy traffic. You will soon realize that many drivers think about the same alternatives as you.

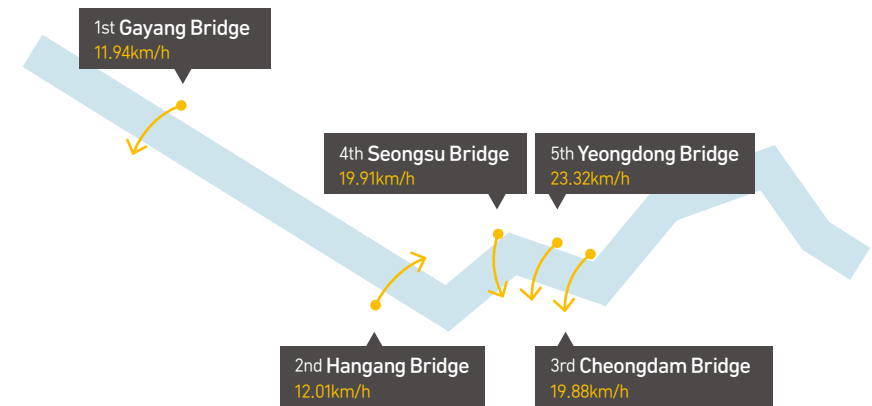
To solve this daily headache, T map analyzed the traffic data from main cities and detected the sections and time range with high congestion. If you pay attention to this data, the probability of failure to arrived on time will surely decrease.

Strategies to deal with Bridges over the Han River

At present, there are 31 bridges crossing the Han River. They connect Gangbuk with Gangnam, linking many corners of Seoul. Considering that the river has a width of about 1 km, it will take only a few minutes to cross by car. However, during commuting time, that is a whole different story. **Guess which bridge out of these 31 was the most stressful for drivers during the commuting time.** The answer is the Gayang Bridge connecting Gangseo-gu with Mapo-gu. This is the bridge that makes full-time workers complain the most during commuting time. In particular, around 8 am, the traffic speed slows down to 9.36km per hour causing serious congestion. Moreover, Seongsu Bridge and Yeongdong Bridge cannot avoid this repeated "traffic headache" every morning either. On the other hand, on Gayang Bridge and Cheongdam Bridge, congestion starts early in the morning. From 7 am, cars are crawling like turtles or snails. If you have to pass by these two bridges, we advise you to leave your house earlier than usual to be free from heavy traffic.

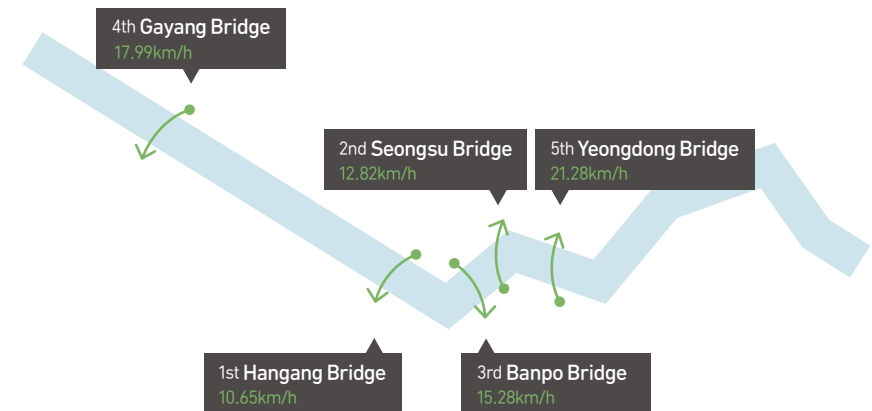
Hangang Bridges on the way home from work in the evening become more congested than on the way to work in the morning. Every section shows the same phenomenon in that traffic of the evening time slows down compared to that of the morning time, and this seems to be attributable to traffic volume concentrated at 6 pm. Moreover, the Bridges linked to Gangnam-gu such as Seongsu Bridge, Banpo Bridge and Yeongdong Bridge are highly congested during the evening time. If you need to move from Gangnam to another zone, try to avoid the peak hour of congestion when everyone is going back home. This will help you save most time. Hangang Bridge, being the first bridge built over the Han River, is one of the heavily-traveled bridges. Congestion occurs with frequency and the traffic volume is constantly on the rise even after morning rush hour. At 1 pm, the traffic speed drops to 10km per hour. Since congestion starts again from 5 pm, it is advisable to make a detour if you have to cross Hangang Bridge during the evening time when people move from work to home.

Han river bridge rush hour congestion, Morning TOP5



* 2020. 5. 25. ~ 2020. 6. 21. | Average speed | Go to work 07:00 ~ 09:59

Han river bridge rush hour congestion, Evening TOP5



* 2020. 5. 25. ~ 2020. 6. 21. | Average speed | Leave work 17:00 ~ 19:59

Seoul, a byword for a "turtle road"

In Seoul with a large population and many cars as a result, we can easily find congestion almost everywhere. In particular, Boramae-ro is literally a "turtle road" with the mean speed of 4.5km per hour at around 6 pm, which coincides with the time in which people go back home from work. The second slowest roads are Gangnam-daero and Bongeunsa-ro where heavy traffic takes place between 10 am and noon, which has nothing to do with commuting time. Toegy-e-ro and Cheonggyecheon-ro traversing Jung-gu join the turtle race, with the mean speed of 7.5km and 7.7km, respectively, during the heaviest traffic times.

Seoul congestion section TOP5

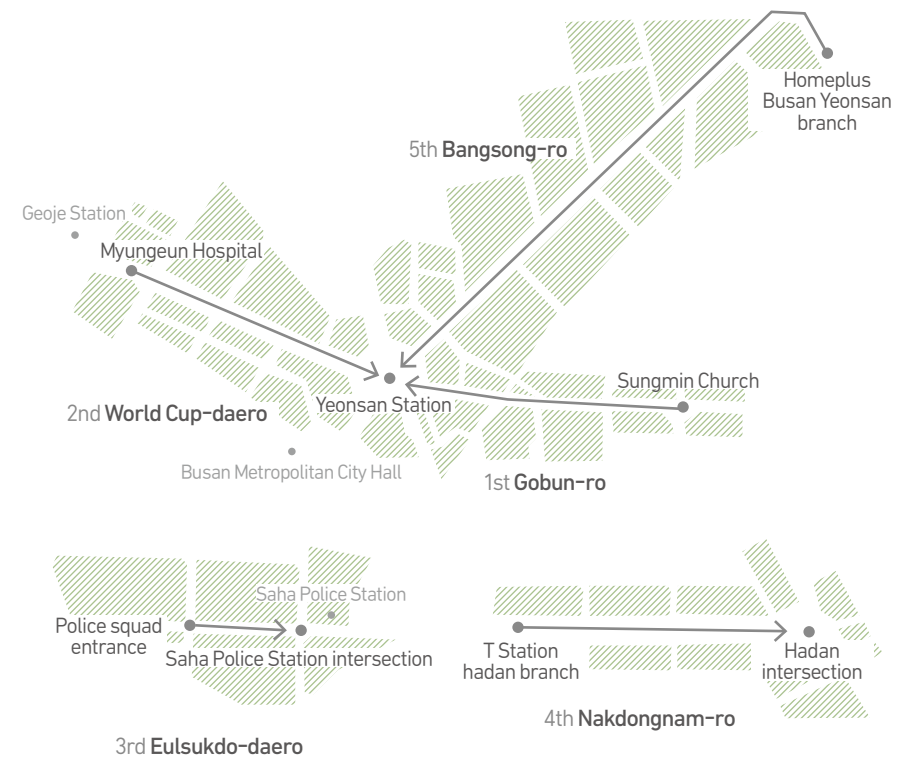


* 2020. 5. 25. ~ 2020. 6. 21. | Week day 07:00 ~ 19:59

Busan gathers focusing on Yeonsan Intersection

In Busan, congestion areas forms at the Yeonsan Intersection. Both Gobun-ro and World Cup-daero belong to the section passing through Yeonsan Station, where the average speed drops to around 3km per hour. Moreover, a high traffic volume is registered in both Eulsuk-do-daero and Nakdongnam-ro. since that high congestion is observed in this area during the commuting time, we can confirm that many people move to work towards Saha-gu where the industrial complex is located.

Busan congestion section TOP5

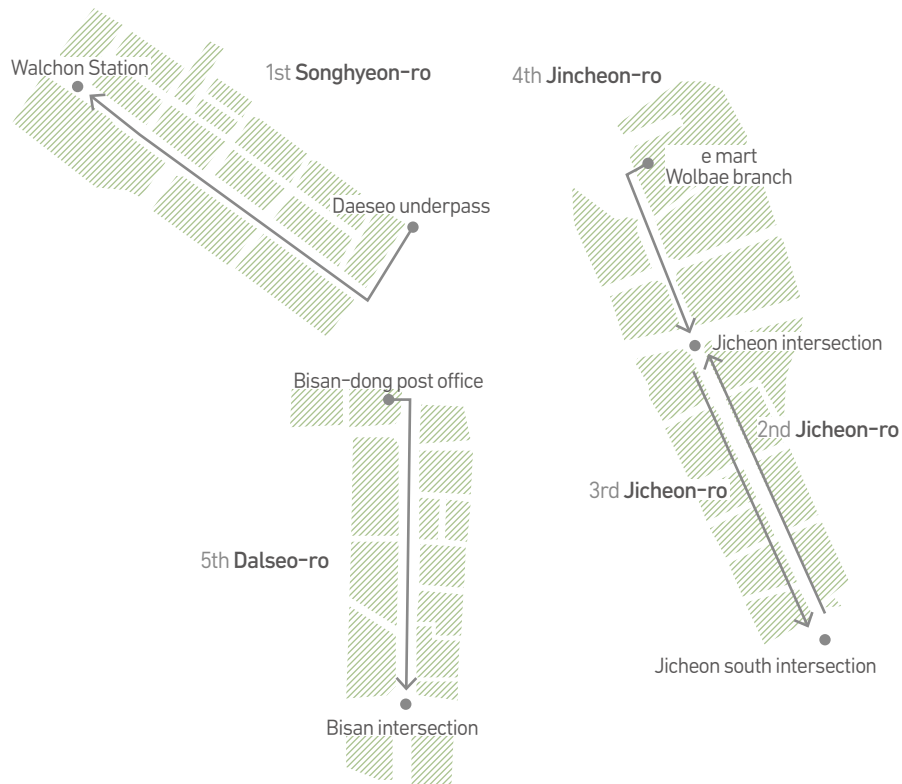


* 2020. 5. 25. ~ 2020. 6. 21. | Week day 07:00 ~ 19:59

The main factor of congestion in Daegu? That is apartment complexes

While the congestion in most cities happen near downtown or industrial complexes, Daegu presents a different phenomenon. Curiously, congestion mainly occurred around large-scale apartment complexes. In particular, in Jincheon-ro, the speed of cars slackens at the intersection between one complex and another, making the place the heaviest congestion area during commuting time.

Daegu congestion section TOP5

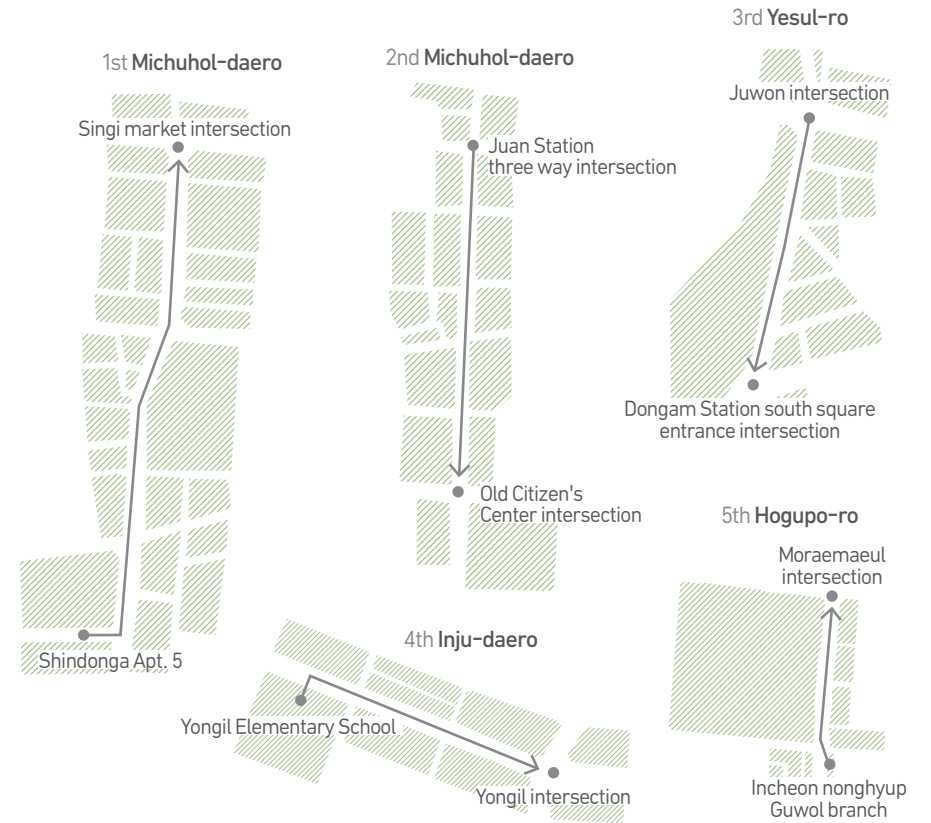


* 2020. 5. 25. ~ 2020. 6. 21. | Week day 07:00 ~ 19:59

Incheon, with the main road being the busiest one

Michuhol-daero of Incheon, which as penetrate through apartment complexes and downtown, is also connected to Juan Industrial Complex. On the other hand, Yesul-ro is the key road of Incheon covering the terminal, City Hall and Incheon SK Happy Dream Park. In sum, the congestion section is chiefly concentrated on these two roads. Yesul-ro is a turtle road where the mean speed reduces to 4.1km per hour at 6 pm, and Michuhol-daero also shows the decreased speed of 10km per hour during commuting time.

Incheon congestion section TOP5



* 2020. 5. 25. ~ 2020. 6. 21. | Week day 07:00 ~ 19:59

In Gwangju, cars gather where people gather

In Gwangju, congestion occurs at every corner of the city between 5 and 6 pm. The slowest road, Dongnip-ro passes through Gwangju Station. Hoeseo-ro, penetrating through the apartment complexes, Seomun-daero and Seonam-daero close to the university district, is also a congested area with the mean speed of approximately 11km per hour. Considering the nature of such places, it is interpreted that apartment complexes and the university district become congested when people flock together. From a similar context, we can also see why Jabong-ro, concentrated on department stores, banks and hospitals, becomes heavily congested.

Gwangju congestion section TOP5

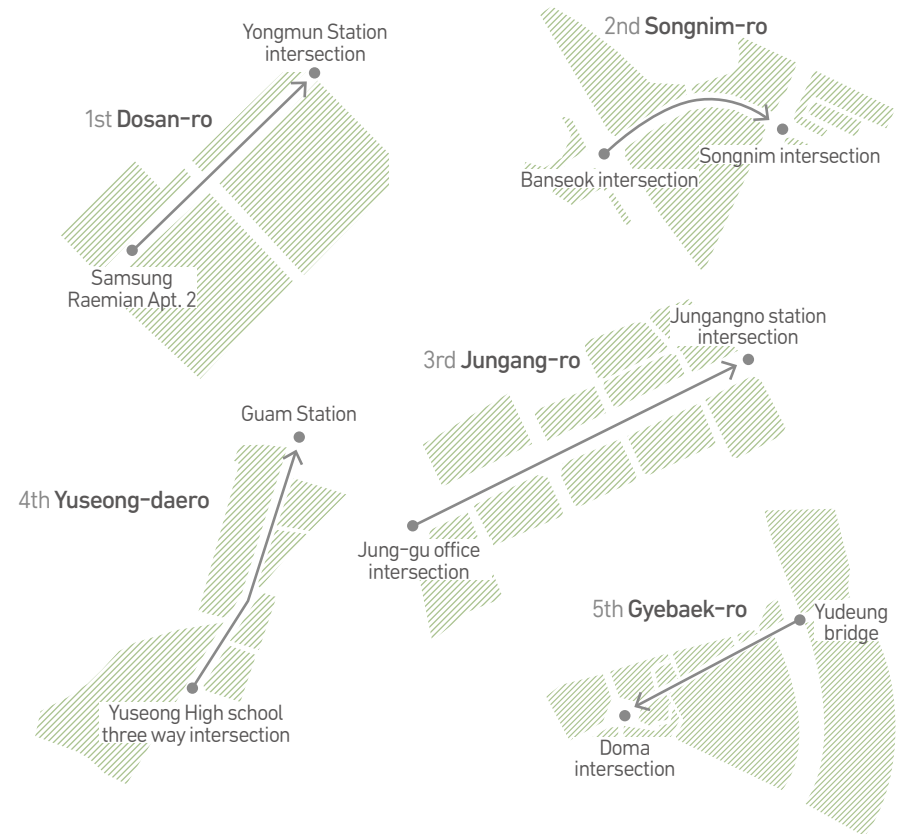


* 2020. 5. 25. ~ 2020. 6. 21. | Week day 07:00 ~ 19:59

In Daejeon, avoid downtown and peripheral areas!

In Daejeon, congestion is concentrated on the central area of the city. Dosan-ro and Gyebaek-ro are roads located near Yudeungcheon Stream, so is the area creates congestion during the commuting hours. Along with Jungang-ro, both roads belong to the central part of Daejeon. On the other hand, congestion forms in the peripheral areas. Observing that traffic becomes heavy at 8 am on Songnim-ro and Yuseong-daero near Sejong City, we can guess that many people move every day from one city to another.

Daejeon congestion section TOP5

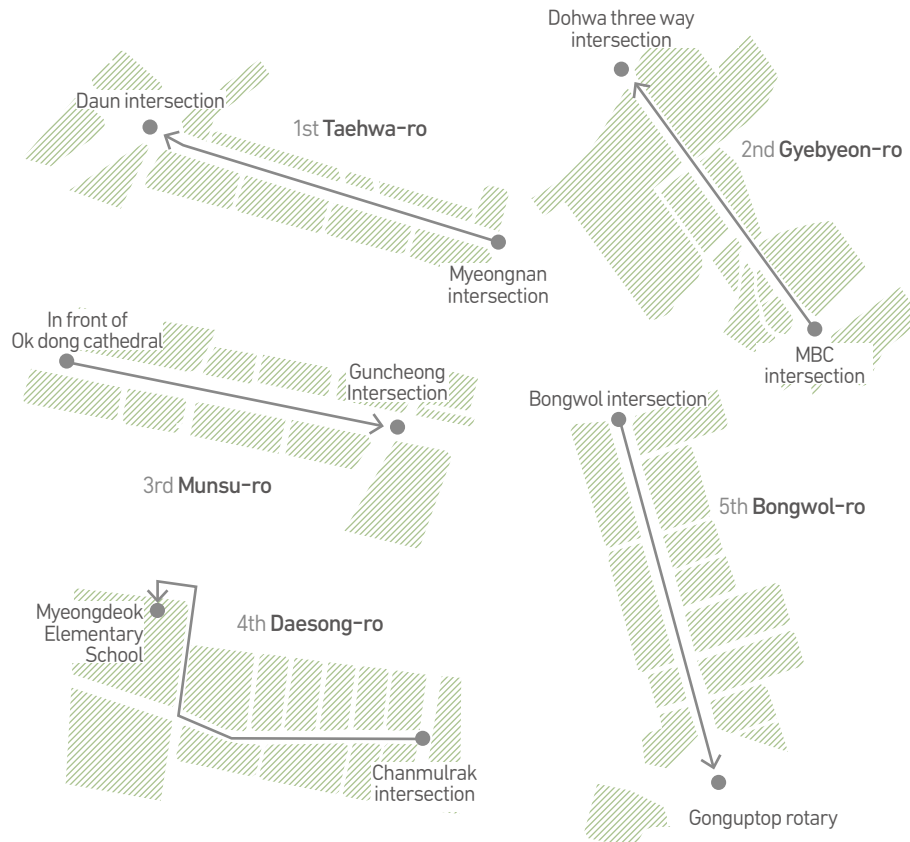


* 2020. 5. 25. ~ 2020. 6. 21. | Week day 07:00 ~ 19:59

Ulsan, with the congestion section by the Taehwa River

Taehwa-ro is a road running along the Taehwa River that divides Ulsan into Jung-gu and Nam-gu, and is considered the slowest road in Ulsan. Taehwa-ro is connected to Gyebyeon-ro after passing by apartment complexes, schools and parks. This section is known for its heavy congestion in Ulsan. During commuting hours, congestion on Gyebyeon-ro starts from MBC Intersection, where it is heavier in the morning when people go to work than in the evening when people go back home.

Ulsan congestion section TOP5



* 2020. 5. 25. ~ 2020. 6. 21. | Week day 07:00 ~ 19:59

The way to avoid congestion sections

As cars became popularized, many aspects of our life became more comfortable or convenient. However, cars also brought us inconvenience. When the driver gets stuck in traffic, no one can share the suffering of the confined moments inside the car. That only belongs to the driver. To cope with this problem, T map provides the route to help drivers avoid congestion sections as soon as possible, by analyzing big data of traffic movement registered from cities across the country and main transportation facilities. By analyzing the traffic phenomena of the Bridges over the Han River as well as data of nationwide cities. It is possible to apply technology that minimize the trouble of driving through congestion sections. With more enhanced technology, wouldn't it be possible someday to control traffic volume and prevent congestion right from departure? If T map develops even further, we hope that, someday, drivers will no longer play any kind of games on the wheel to find a detour.

T map Public Transportation

Your way to work where every minute counts, your way going back home exhausted, your way to a cafe to see someone with excitement, your way to escort your girlfriend late at night, At every moment of your daily life, public transportation can accompany you. T map Public Transportation is an App helping you arrive in time with no worries, whether you take a familiar unfamiliar way. As "a reliable companion during the commuting hours" and "a smart friend who knows all about streets," T map Public Transportation knows how to guide users with precision to wherever the bus and subway lines reach.

How T map Public Transportation started

T map Public Transportation launched its service in 2014. Since then, it has continued to add value beyond an app of path finding for public transportation, It uses the best capacities of No. 1 communication infrastructure and data of SK Telecom. In April of 2015, T map Public Transportation adopted the destination reminder notification for the first time in our country. This service helped users enjoy a comfortable ride in the bus or subway without having to worry about the "missed destination." In October of 2019, T map Public Transportation established the path finding engine for public transportation based on the independent technology of SK Telecom, and this significantly improved the quality of service in providing route information. From June of 2020, when COVID-19 was in full swing, T map led in implementing the prediction on degree of congestion in the subway. Thus, it contributes to practicing everyday rules live of social distancing in an effective manner. Based on data and technology, T map Public Transportation will continue to offer more pleasant and comfortable public transportation routes for everyone.

Major functions of T map Public Transportation



#Whenever, wherever you can count on the most precise route

T map Public Transportation recommends the most preferred means of public transportation for each user as well as the optimal public transportation route according to case-by-case traffic situation. Once you type the starting point and destination, it will immediately work to put the routes of subway, bus and walking together and identify the most effective route for user convenience. Even in some exceptional situations such as early morning or late at night, you can rely on our reliable T map Public Transportation to arrive your destination safely.



Destination reminder notification on bus and subway

"Sir, let me get off!" It sometimes happens that you miss your destination stop while talking with a friend or feeling drowsy. Fortunately, T map can save you in these situation. T map Public Transportation will prevent the unfortunate incident of saying, "oh, no! I should have got off earlier!" Based on the location of subway or bus on which the user rides is, T map Public Transportation kindly gives an alarm that says "get off at the next stop" when approaching the destination. With this notification, one can feel at ease during the ride and concentrate on other things.



Be at ease with our predictive services on subway congestion

No one enjoys the subway packed like sardines during commuting hours. T map Public Transportation will ease your anxiety. Now it predicts degree of congestion of the train you are going to take by analyzing data from SK Telecom base station and WiFi. From September of 2020, for the first time in the mobile phone history, we adopted the information about degree of congestion by subway car. You can choose the least congested car of the next train for a more comfortable.



Realtime arrival information of subway

"Can I catch the next train if I start running now?" A chaser? A thriller actor? You don't have to chase trains anymore during commuting hours. T map Public Transportation will do the work so you can rest for a while. We help our users take the train in time by providing realtime arrival information. SK Telecom offers exact arrival time of subway, which is more precise than general timetable of arrival. How is this possible? SK Telecom upgrades the realtime subway information provided by Seoul Metro based on data analysis technology and independent algorithms.

Development plan for T map Public Transportation

T map Public Transportation has been working on how to solve everyday problems that users of public transportation always faces has solved such as destination reminder notification and prediction of subway car congestion. "T map never gives up challenges." The solid communication infrastructure and data analysis capacity of SK Telecom are sources of solutions to optimize public transportation. Through accurate route plan, diverse ways of transportation information and pleasant user experience, we will keep improving the quality of our country's public transportation services.

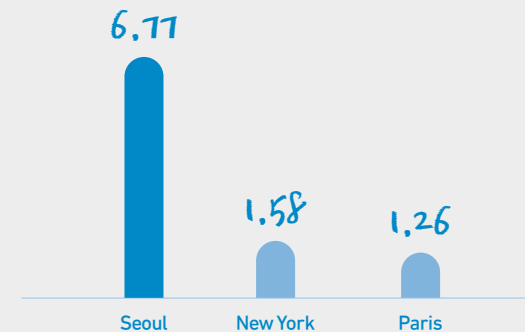
T map Taxi

The songs of the 90s evoking nostalgia are loved again, and the old objects with touches of old memories are in the limelight as "Newtro (New+Retro)." However, intangible services hardly come back once they are forgotten. In T map, there is one service that had been forgotten but revived. Guess what? That is T map Taxi. Many users sought the taxi services of another ride hailing company, which was launched one month earlier than T map Taxi, in April of 2015. Witnessing this phenomenon, we were not sure whether T map Taxi, would be succesful and deeply pondered over the issue. Thankfully, thousands of taxi drivers were still logging in to our app waiting for passengers.

T map Taxi, what for?

When it comes to taxis in the city, their supply needs to be controlled in terms of environment and city management. When infrastructure of public transportation was not enough, taxis used to be the most convenient means of transportation. However, the amount of taxis increased up to 6.77 units per 1,000 people, and this means that taxis in our country surprisingly outnumber those of Paris, New York and London. In proportion to supply surplus, income of drivers decreased, so they struggle to secure customers, for every minute counts. They literally fight for seconds. Nonetheless, from the perspective of passengers, taxis are hardly available when it is urgently needed. It is not easy to stand in uncomfortable silence when the passenger's only option is the taxi driver. Even though T map Taxi is unable to solve chronic problems of taxi industry, we believed that improved taxi service quality through new attempts would be helpful to both passengers and drivers.

Number of taxis per 1000 people



How to use T map Taxi



Check your departure location

We paid attention to the fact that passengers of T map Taxi call taxi from inside the building, most of the time. Since we carry out location tracking of passengers with satellite-based GPS information, it is difficult to identify the exact position when they are indoors. For this reason, it is inevitable that the location of a passenger does not coincide with the point where the taxi arrives. For this situation, not to make the taxi driver wait in a wrong place, we added a system to check the agreed place where the taxi and passenger should meet.



Deliver the passenger's request

Since the intermediation service is limited, during ride T map Taxi is not able to directly control or correct the behaviors of drivers. However, we added some functions to deliver general requests of passengers such as "no unnecessary talks to assure a more comfortable ride" and "no speeding." The driver on duty can check the passenger's request before arriving at the pick-up point. This service can make the ride more enjoyable for both drivers and passengers.



Rate your driver

During your ride T map Taxi will send an app push notification asking you to rate the driver. This information is essential to provide better matching services for the future, but it is not easy for most of people to spare for lengthy review. Therefore, this App invites you to take part in quick star rating. Of course, the rating is anonymous.



Try special functions

We add new functions helpful to taxi users such as delivering the route option chosen by the passenger to the driver's navigation and sending "a safe return home LIVE" notification showing the user's location in real time.

Bring satisfaction to both passengers and drivers

We devote ourselves to rigorous development of services, through lengthy debates about the best way to satisfy both passengers and drivers. Passengers want to take a taxi from a desired place at certain desired times, while drivers are forced to move towards somewhere at every moment. Both parties have their needs and suggest. Beyond the traditional options such as "the waiting nearby taxi" or "the empty taxi passing by," we try to study a variety of preferences and patterns of passengers to give T map Taxi an identity with superior values. Moreover, we make an effort to give meaning to each encounter between the passenger and the driver beyond the mere coincidence of catching a taxi.

T map Parking

It is reported that the parking supply rate of Seoul City accounts for 132%, but the imbalance between demand and supply of parking worsens the parking shortage problem every year. According to some studies, vehicles that "wander about" the downtown looking for a parking place take up 30% of traffic in the city, while social costs produced by illegal parking and stopping are estimated to be 4.9 trillion KRW a year. There are some alternative plans such as a 5-day rotation system and parking lots by day of the week but it is essential to find fundamental solutions to this chronic problem.

How T map Parking saw the light of day

It is not surprising that drivers go around in circles looking for a parking space or wait in endless line to pay the parking fee. Your driving will be more enjoyable if you have an assistant effective in not only finding a parking space anytime anywhere in precise and fast manner, but also reminding you of where car is parked. To solve such worries of drivers, T map finally launched T map Parking on June 19 of 2019.

Key functions of T map Parking



Simple search for parking lots

T map Parking makes sure smart parking offers innovative and considerate convenience. Drivers can check the parking location around the destination as well as the information of parking fee. Simple route guidance synchronized with T map is available. When searching for a parking lot, drivers can check the optimal parking if the date of parking and length of service hours are additionally set.



Intelligent automatic payment system

T map Parking calculates parking fee in proportion to length of service hours and provides the information for drivers. This was thoughtfully designed for drivers who worry about an exorbitant bill. If you register payment information in the app, automatic payment of parking fee is enabled. This will facilitate unimpeded passes like the wireless toll system of the expressway (Hi-pass in Korea). This will definitely change the history of parking payment systems, because there will be no need to wait in line to pay the bill at the parking exit.



Attractive discount benefits

When small parking fees are all added together, the total is not trivial and it affects your monthly budget. With this in mind, an essential function of T map Parking had to include the task of reducing parking fees. It allows users to purchase an hourly ticket with discount of up to 80%, and this may differ depending on parking lots. SK Telecom customers can benefit from discount of 10% of the parking fee with their T membership (once a day, max. 5,000 KRW, 5 times a month). Besides, by purchasing "points," you can have additional point savings of 5%.



Safe parking lot

What comes to your mind first when you hear the word "a parking lot"? It is very probable that it reminds you of a dark underground parking first. T map Parking is even considerate of safety of drivers by providing the safest parking lots based on security design and direct management of ADT Caps allowing 24-hour surveillance with a high-tech video control system and infrastructure of immediate preparedness for rescue. We are proud to say that this service will be of great help to parking owners as well since it is able to secure safety of users of parking and protect the parked vehicles at the same time. This service is available only at some parking lots for the time being, but we plan to expand the service coverage to create an environment where people can park even late at night with an easy mind.

Future T map Parking

Parking places can be used in many other ways, beside parking cars, and this leaves something to be desired. T map Parking is preparing for a new future as a mobility hub that offers one-stop solution to all services required for our daily life such as charging space for electric vehicles, car wash, quick repair work for vehicles and unmanned parcel storage.

T map AUTO

You must have felt upset when you were using an embedded car navigation or an aftermarket stationary navigation. You must have felt tired of the incorrect information given by such devices. For example, you could never figure out the location of a new restaurant you were looking for and you noticed the huge difference between the estimated arrival time and the real one. Instead of such wrong information, many people decided to mount their smartphone, connected to T map. Wouldn't it be logical to make T map visible on the cars built-in display considering the popularity of mounting smartphone? T map AUTO originated from this logical question.

What is T map AUTO?

T map, which used to be available only in mobile phones, is now developed for vehicles and embedded into IVI (In-vehicle infotainment). This is T map AUTO. This makes it possible to provide the same quality and functions of T map, such as realtime traffic information, recently searched data, and map services on embedded car navigation systems. Furthermore, through vehicle data synchronization that could not available in T map, advanced services can be provided. For example, when the car lacks fuel, it indicates some nearby gas stations, and the destinations searched from your Smartphone are now synchronized with T map AUTO allowing display in your car as well. As a device embedded into vehicles, T map AUTO pay special attention to safety. In particular, it places importance on design not to distract attention of drivers. In addition, the navigation minimizes the time of drawing attention of the drivers away from the road by combining strict UV design principles based on intuitive delivery of information and easy operation with sophisticated UI of T map.

IVI, car navigation with a vertiginous speed of changes

Today's automotive industry is rapidly changing in connection with information technology. IVI (In-vehicle infotainment) with embedded navigation is speedily on the rise as well. As the number of connected cars allowing in-vehicle communication rises, the navigation system is working on improvement of quality to provide users with enhanced convenience such as realtime traffic information and POI information. Besides, with the appearance of services mirroring Smartphone screen onto car display such as Apple CarPlay and Google Android Auto, drivers can enjoy services similar to those of Smartphones in the car. Moreover, the expected level of consumers towards IVI services is becoming higher and higher. IVI is expected to play its given role as the fourth-generation screen succeeding TV, computer and Smartphone, which is beyond the well original design of a closed system. Several global companies including Google started to engage in development of Android operation system for cars. The new setting makes it easier to add new services such as music streaming and VPA (Virtual Personal Assistant).

Which cars are embedded with T map AUTO?

T map AUTO's fascinate ability to drivers is embedded in the XM3 of Renault Samsung, which is gaining sensational popularity lately. This function is considered one of the major competitive values of the model XM3. Moreover, premium brands such as BMW, Volvo, Jaguar and Land Rover have already selected this service option so that future production will be embedded with T map AUTO. In line with the changing trends of automotive industry where electric cars are increasing, T map AUTO is preparing for new functions exclusive for electric cars highlighting advantageous ability of car data synchronization. T map AUTO will identify the battery charge amount and mark the reachable range on the map, and it will also guide a route to reach the destination minimizing power consumption. At the same time, T map AUTO aims to

provide services to book electric vehicle charging stations.

T map AUTO is advancing towards integrated IVI services, such as NUGU and FLO. Even without a Smartphone, various tasks are allowed. For instance, you can find a destination with voice control, open and close windows, operate the air conditioner, and drive while playing music suiting your taste with FLO.



< Volvo's integrated IVI developed by SKT >

Future of T map AUTO, with deep understanding of drivers

SK Telecom is creating a mobility system by adding a variety of supplementary services one by one, aiming at smart vehicles focused on T map AUTO. In the near future, drivers will be able to order coffee and book car wash service from inside the car even without your Smartphone. T map AUTO intends to evolve into data-based services that fully understand drivers and propose appropriate services with an active attitude. How? The evolved services will make your time inside the car more valuable and enjoyable. T map AUTO can recommend some insurance products matching your disposition or driving habits based on the analysis of diverse service data. In addition, it can propose some candidate destinations even before you search one and recommend some music to go with the mood of the places you are visiting. T map AUTO will bring this dream future forward.

T map API Business

As long as you have your Smartphone at hand, you don't have to go to a store or a supermarket and buy anything you want online. The delivery time is getting shorter and shorter. If you order a product in the morning, you will get it the same evening right in front of your house. Order something before going to bed and you will have it the next morning. Behind this daily magic, there is T map API technology. Thanks to this technology vehicles are allocated by calculating the distance to the destination within 5 minutes after the order. This complex technology is open to T map API as a shared public source and diverse companies use it. In sum, T map tech and the front line of map-based businesses converge on T map API.

What is T map API service?

T map API (Application Programming Interface) is a service provided in an open API form, allowing external partners to have easy access to different data used by T map such as electronic map, POI, address, traffic route and realtime traffic information. It is not necessary for partners themselves to develop map-related functions. They can easily access the T map API system, which combines powerful T map performance with services of SK Telecom. Since it provided in the form of JavaScript API on the Web, and in the form of Android/iOS SDK on mobile phones, easy and simple use is available in accordance with the nature of business requirements. Currently, T map presents more than 80 APIs through exclusive documentation. It provides partners with some practical examples to easily help with their applications. The range of data constitutes map viewing, POI searching, route finding, address finding, multiple stopovers, stopover optimizing and realtime traffic information. If you use T map API for the first time, it is advisable to launch after developing services within the scope of API provided free of charge. Over time, when the amount used increases, it is possible to change to a paid measured rate system or a fixed rate system to enlarge the business using the expanded T map API.

Overview of key functions of T map API



T map API provides a variety of route options such as recommended route used by T map, minimum time route and comfort able route. Moreover, if you use the function of time machine route search, you can be guided with the optimal roads based on variation of traffic data for the past three months. When is this function mainly used? It is used chiefly to check how long it takes from a distribution center to the destination when morning delivery is made, and adjust allocation time of vehicles for delivery.

Route guide API provides information not only for passenger cars and trucks but also for pedestrians. In particular, when it comes to trucking routes, it includes essential information for cargo transportation operators such as weight limit sections and access restriction time. Truck drivers often face facilities with height limits such as pedestrian overpasses and tunnels. If the truck drivers register height and length of the vehicle beforehand, it is possible to reduce the chances of collision risks since the data of route finding is obtained by avoiding such restricted sections. Multiple route API and stopover optimization API are mainly used by delivery companies and distribution companies. Multiple route API refers to the function to calculate the estimated time when making turns to the destination with the sequence of way points fixed. On the other hand, stopover optimization API informs the most efficient sequences of delivery by collecting traffic information around the destination of maximum 100 spots. Even if the delivery is cancelled or a new delivery destination is added, the system allows realtime correction of routes. With this advantage, it is significantly helpful to not only partners but also transportation operators. For partners, the greatest objective of using T map API is to find addresses with precision. More than 5 years passed since our country adopted the address system of using road names. Despite this, not all road names are standardized and many people still use the lot number-based addresses, leading to difficulty in delivery tasks.

Geocoding API is technology changing the lot number-based addresses or unstandardized information to addresses using road names. Thus, it is one of API services with a high utilization rate. This also allows transforming GPS coordinate itself into a recognized address. This contributed to reducing one inconvenient task. In the previous method, the guide was available only until reaching the en-

trance of an apartment complex. For this reason, it was inconvenient to look for the corresponding apartment building after arriving the complex. However, this Geocoding API is able to recognize GPS coordinates as an address and exactly guides to where the corresponding apartment building is located.

Road API refers to technology calculating information of real distance traveled by remembering the driver's driving route as a GPS log. For example, when a company calculates the gas bill after having used an outsourced vehicle, Road API makes it possible to compute the real distance traveled by the driver for business purposes. At the same time, it is possible to diminish costs by efficient operation of vehicles if TMS (Transportation Management System) API of provided by T map API is used. TMS API is a service allocating many vehicles based on the system of route finding in T map. This contributes to reducing costs by replacing the work that used to be applied to overpriced solutions or required manual work.

What are goals and future of T map API?

T map API, which was released in 2012, currently provides services for more than 6,500 projects, creating more than 500 million API calls a month. This system is being applied to multifarious service areas covering distribution control, food and beverage delivery, emergency service, taxi calls, designated driver and car sharing. Such technology not only contributes to progress of companies and industries but also brings changes to everyday life of consumers. It is equally important to support start-up companies that have good business ideas yet with insufficient technology. Therefore, since 2017, T map has been holding competition events regarding development of Smart Tourism App in cooperation with the Korea Tourism Organization to fully support technology of services proposed by star-up companies. What are goals and future of T map API? T map API will lead in creating an environment that offers more convenience by assisting various partners and supporting B2B service areas in an effective and reliable manner.

05

Joy and sadness in the alley business district

The light and shadows of gentrification ¹⁷²

A history of Korean alleys that is writing again
along with taste ¹⁸⁰



Joy and sadness in the alley business district

The light and shadows of gentrification

The term "gentrification" first appeared in London in 1964. It describes a redevelopment process in which middle-class professionals (gentry) were moving to the underdeveloped housing area, and the working-class and the local residents were displaced outside London due to the high rise of rental fees. In Korea, the phenomenon happened in Garosu-gil, Samcheong-dong and Gyeongnidan-gil, making it a social issue. Based on the analysis of T map data, we followed the light and shadows of gentrification in some preferred alleys of Seoul such as Mangridan-gil, Yeonnam-dong and Ikseon-dong.

Gyeongridan-gil vacancy rate, 2019

24.3%

(Gyeongridan-gil vacancy rate, 2015)

Gyeongridan-gil restaurant sales change

-20.9%

(2018. 3. ~ 2019. 3.)



Background of gentrification

When deciding a right place for dating or gathering, the hashtags on social media can serve as a highly useful tool. Once you search for "hot places," you will have a shower of information regarding pretty cafes and tasty restaurants. If you refer to some trendy districts that come along, you will easily find streets with many exciting things to discover. The districts such as Gyeongridan-gil and Yeonnamdong offers familiar names that pop up for hashtags of "hot places" and you will soon identify "rising" places and "fading" districts. If we define such changes as mere "trends" or "changes of taste" in a superficial way, we will have to deal with this complex issue for quite a while. Behind this apparently cool and splendid expression of "hot places," therein lies the gentrification phenomenon, intertwined with various interests such as local people who had settled in the area from the beginning, owners of buildings, franchise, etc. Gentrification begins when artists and small businesspeople arrive in the underdeveloped old town with inexpensive rent fee and start to form a cultural street full of individuality. When the area goes viral via social media and leads to rise of floating population, large-scale commercial capital is invested, and the rent fee increases as a result. The initial settlers and artists who have been contributing to creating a new atmosphere of the alleys cannot handle the high rent fee and have to leave the place. This way, the local culture slowly fades, and the commercial vitality also disappears as time goes by. This is the final stage of gentrification. Starting from Samcheong-dong and Garosu-gil, the areas such as Ilseon-dong and Seongsu-dong have gone through these processes and arrived to present status.



Appearance of new hot places

Now the title of "hot places" moved to Yeonnam-dong and Mangwon-dong. Ateliers of young artists and small stores moved in large numbers movement to the neighborhoods of Yeongnam-dong and Mangwon-dong, due to the high rent fee by the areas of Hongdae and Hapjeong. Yeonnam-dong earned the nickname, "Yeontral Park" (suggestive of Central Park of New York) when the Gyeongui Line Forest Park was created in 2016. With this, Yeonnam-dong emerged as a "Mecca" on social media. Mangwon-dong is nicknamed "Mangridan-gil" inheriting from the original name "Gyeongnidan-gil," which indirectly implies the origin of today's megatrend alleys. Songnidan-gil is also influenced by Gyeongnidan-gil. It is an alley of apartment houses ("villa" in Korean) leading to a residential area from Seokchon Lake Park. It also enhances a synergy effect along with Bangidong Food Alley, as the number of cafes and restaurants is on the rise. Lotte Tower nearby is a favorable factor to attract shoppers. For this reason, this district is expected to grow with success. It is no exaggeration to say that authenticity of hot places can be determined by its photographic value to post on social media. Posting some "evidence" like pictures on social media after visiting popular places now forms part of our daily culture. Instead of repeat visits to the same places, people prefer to focus on seeking completely new places. This is what makes today's trends different. In fact, Ikseon-dong and Seongsu-dong were able to emerge as hot places thanks to the "evidence" picture fever on social media. Ikseon-dong attracts our attention with its unique space remodeled from the traditional house style of Korea (Hanok). On the other hand, Seongsu-dong, renewed from factories and warehouses, is simply perfect to satisfy the taste of today's consumers seeking at newness every moment. However, on the flip side, some residents of Ikseon-dong are sad when they see how their long-settled "nest" suddenly transform into a commercial district. Some business owners must move their respective factories to the outskirts because they can no longer pay the increased rent fees. Imagine this situation. After a certain period of time, if people forget about this area and discontinue their visit, would it be ever possible that the original scenery and identity can be recovered? Gentrification hidden under the splendid name "hot places" or "rising districts" is an ongoing phenomenon observed in many corners of Seoul.

Gentrification and its light and shadows

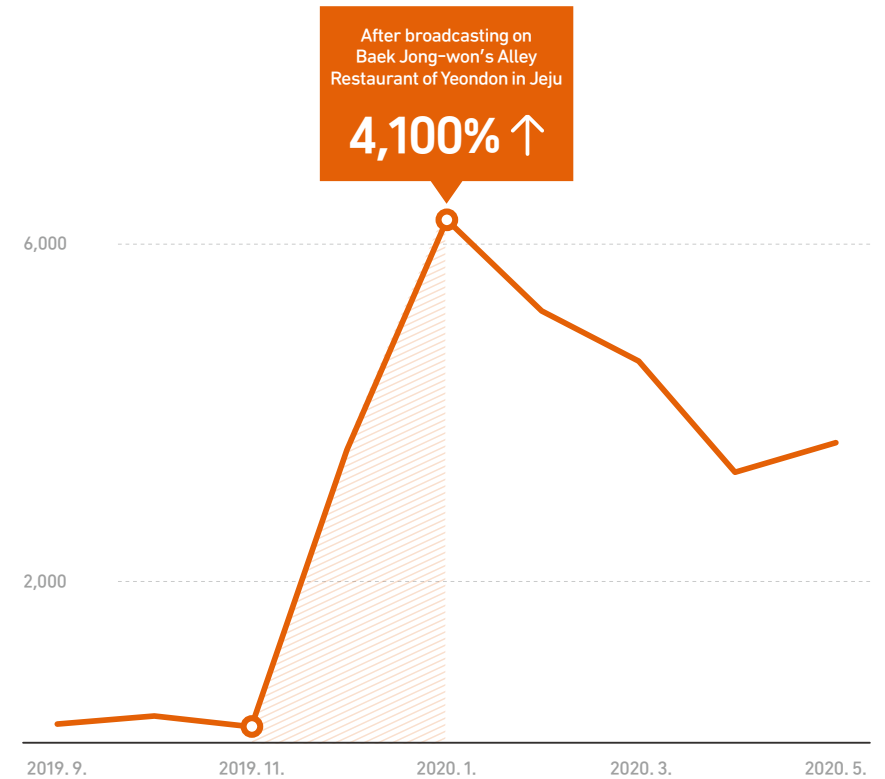
In general, gentrification happening in Korea is focused on conflicts between the building owners and tenants. To make a long story short, they say that, those who contribute to expanding the business district influence and bringing positive features to the area are the very tenants, but those who take the biggest pie are the business owners making profits out of high rent fee. However, the greater problem than this finally appears after gentrification has swept. Yes, the problem, which is far more serious than the previous one, consists in the fact that individual distinctiveness vanishes away because the area is occupied exclusively by large-scale franchise businesses when small businesspeople had left for not being able to pay the costly rent fees. Unless people visit alleys any longer, we may have to face a situation with deeper recession than the time prior to gentrification. Seoul City recognized such problems and made an effort to control rise of rent fees by directly leasing or purchasing specific areas. Seoul City also tried to seek a way of coexistence by creating a Council composed of building owners, tenants and local residents. Even though side effects of gentrification are clearly present, at the same time, we cannot ignore some positive effects of the phenomenon in the sense that backward neighborhood can transform into new attractions. Irrespective of interests involved, it is urgent that we need to make an effort to minimize the shadows of gentrification.



The superstar Yeondon produced by "Baek Jong-won's Alley Restaurant"

When we walk down the street, we sometimes see a signboard of restaurant boastful of its TV broadcasting record as a "tasty restaurant." With the fever of "Mukbang" or eating shows that started from online broadcasting channels, many food-focused TV programs have mushroomed. However, it seems that no other programs have been as influential and persuasive as, "broadcast on Baek Jong-won's Alley Restaurant." The restaurant Yeondon did a great job in displaying the colossal power of this program to the public. A couple leading a simple and honest life by selling mouth-watering pork cutlet at a restaurant located in a small market alley just captured everyone's heart, including that of chef Baek Jong-won. Enthusiastic visitors were even lining up from three in the morning in front of the restaurant. When the little restaurant emerged as a "must see place" Yeondon's success story seemed to reach its final page. However, the real legend of Yeondon began in earnest after words. When the program visited Yeondon again one year later, the restaurant still excelled in taste but some undeniable gloomy mood had taken over. Why? After it had been broadcast, the restaurant was ranked as one of the tastiest restaurants. However, they had suffered conflicts with the Association of Market Business Owners and some side effects produced by sudden popularity, so the couple was preparing to leave for another place. With willing support of Baek Jong-won, they moved to Jeju Island and opened a new restaurant with an upgraded menu of black pork cutlet. Every process was aired through this program, ending 2019 on a high note and people were deeply moved by this story. This sensational story was precisely reflected on T map data. **The search word "Yeondon" on T map increased by 40 times, and the name ranked No. 1 in the search word record even including all restaurants of Jeju Island.** Numerous people even set up a tent to include their names in the waiting list, and many flew to the island only to try Yeondon's pork cutlet. With this popularity, the owner of Yeondon announced that he would transfer his secret recipe by fostering his "disciple." This way, Yeondon's story is a drama of the joys and sorrows of the self-employed in our country. Undoubtedly, this event also proved the tremendous power of the program, "Baek Jong-won's Alley Restaurant." It is safe to say that the fever of Yeondon started when Baek Jong-won praised the Yeondon's pork cutlet as "Korea's best of the best."

Yeondon traffic change



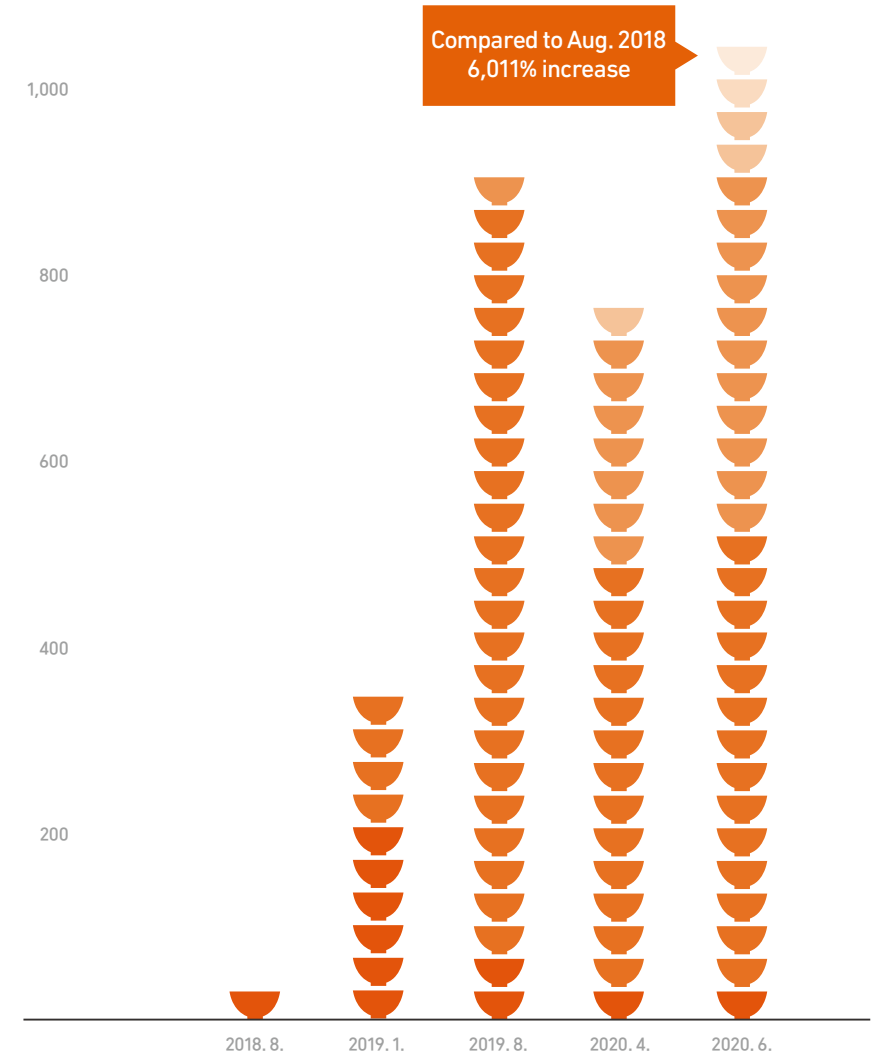
* 2019. 9. ~ 2020. 5. | Number of start navigation
 * Broadcast date: 2019. 12. 18. ~ 2020. 1. 8.

Onsen, a leap from a food truck to nationwide chain stores

"Nunkot Village" of Sinpo Youth Mall started to be full of life, living up to the name "Youth," as soon as the Tendon restaurant "Onsen." where a man works together with his future mother-in-law. showed up on the program "Baek Jong-won's Alley Restaurant." When people from every corner of our country began to visit the restaurant to try rice with deep-fried toppings, the young man's dream came true in the old traditional market where his dream had been left unattended in the darkness. Sinpo Youth Mall is located inside Sinpo International Market that has been installed in Incheon for a long time. At a glance, it seems that the traditional market wishing to restore the past glory shares the same space with young people who had no place to pour out their passion. However, some dishes such as Tendon, Takoyaki and macron that can be quite new to some age groups became familiar to everyone where the episode of Sinpo International Market of "Baek Jong-won's Alley Restaurant" was aired. Combined between nostalgia for a traditional market and curiosity for newness, not only Onsen but also the nearby restaurants transformed into tasty restaurants to such an extent that visitors had to be arranged by waiting list to enter the restaurant. Onsen was a tiny restaurant that began with a food truck, but it grew into a franchise restaurant after gaining popularity through the TV program. **The number of searches for the key word "Onsen" on T map was steadily on the rise. It is estimated that Onsen increased the number of stores little by little, beginning with the food truck.** People who used to find Incheon too far are willing to join the long trip only to try Onsen's characteristic Tendon. Putting it all together, we can predict, though it may sound a bit early, that Mukjagolmok (Food Alley) originated from Onsen can expand throughout the country.

Onsen traffic flow (by branch)

- Trailer branch
- Main branch
- Pohang branch
- Cheonan branch
- Jeonju branch
- Bupyeong branch



* 2018. 8. ~2020. 6. | Number of start navigation

Why do people love "Baek Jong-won's Alley Restaurant" so much?

Among many restaurants broadcast on "Baek Jong-won's Alley Restaurant," one place must have left an unforgettable memory for all. We are talking about "Mommy's Sonkal-guksu" from Wonju Central Market. The owner's attitude and devoted food were deeply heart-touching. In particular, she never gave up hope despite difficult situations. Even now people do not forget to send her messages of encouragement. The owners of KumTeurak Mall of Yeosu, who have been keeping the business struggling against the hardship in the hardly known alley restaurants, were able to make big changes in their businesses thanks to the broadcasting opportunity. Moreover, the program also reminds us of the rollercoaster-like story of changing fortunes in of Hongtakjip. The greatest reasons for the constant love from TV viewers toward this program can be found from the remarkable discernment and insight of chef Baek Jong-won, and the persistent efforts of restaurant owners who hate to miss the once-in-a-lifetime chance.



The age of limitless search for tasty restaurants

Success of restaurants depended on the concerned statements of Baek Jong-won, and the public shared the owners' tears and smiles together. It has been already two years since we were in the same boat of emotions. This program "Baek Jong-won's Alley Restaurant" is still a hot topic by making a new tasty restaurant see the light of day every week while fascinating T map users with visually enriching pleasure along with gastronomic joy. In any traffic volume data of T map, we can easily find how influential the program is. Receiving the sparkling limelight from TV of broadcasting was the case of all restaurants without exception, but their future destinies depended on the owner's truth, sincerity and efforts. This new trend of alley culture could be established thanks to the wise and skillful solutions of Baek Jong-won and our the neighbors who are faithful to their life as keepers of "alleys", and wait for the right time by working hard in the same place. The fever of the program "Baek Jong-won's Alley Restaurant" will continue as long as people keep showing great enthusiasm for new and diverse tastes. All we have to do is to make a joyful plan of visit to a new tasty restaurant in company with T map, witnessing how a new tasty restaurant is born every Wednesday night. This is how we can enrich our life and relationship.

The world viewed from data

Interview with T map Data Part



Benedict Kim

Unmin Baek

Dongwoung Kang

Back in the past when the term "Big data" was not a familiar part of our daily life, T map data only counted on simple statistics and analysis that had been additionally checked by our Development Team. Since 2014, the year when the analysis of T map data started in earnest, Data Part of T map Service Team has been dedicated to the improvement of internal services and finding insight by actively cooperating with many institutions.

Q. Please introduce yourself and tell us what you are in charge of.

Benedict Kim | AI/Mobility Development Team

Hello, I am Benedict Kim from AI/Mobility Development Team of SK Planet. I am mainly in charge of data processing and reporting after getting requests from T map internal members or business partners.

Unmin Baek | AI/Mobility Development Team

Hello, my name is Unmin Baek and I work at AI/Mobility Development Team of SK Planet. I am in charge of NBIS and TOS in T map. NBIS is a BI system of T map showing various types of indicators. TOS stands for Target Offering System, and this system combines characteristics of customers that were previously sorted to make a target group.

Dongwoung Kang | T map Service Team

Hello, I am Dongwoung Kang from T map of SK Telecom. My duty is to carry out various analyses based on T map data and apply newly found insight to service planning and operation. Shinyoung and I carry out data analysis in response to diverse requests, while Woon-min focuses on systemization of repetitively required tasks through Web or infrastructure.

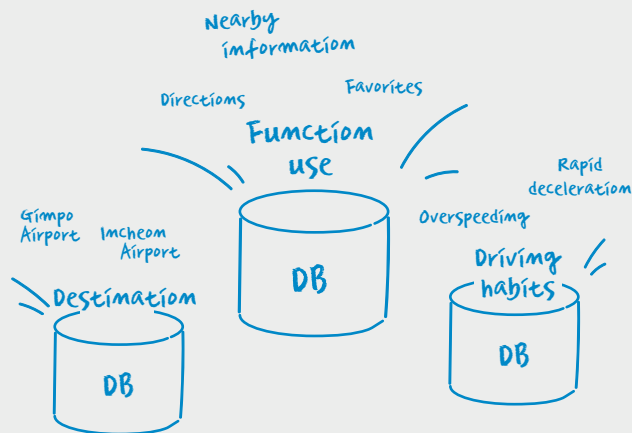
Q. What exactly does Log mean?

Benedict Kim | AI/Mobility Development Team

When using T map App, some information is recorded, for example, display movement, user's behavioral pattern and location. Each record is arranged by item based on pre-defined rules and later is generated in a systematic way. These records are put and stored in a space called "Database."

Dongwoung Kang | T map Service Team

When using T map, you search for the destination and select one of the route options, so you can start driving to the destination. Every process is recorded. Such records are clearly classified by type and stored in Database.



Q. How do you analyze data?

Benedict Kim | AI/Mobility Development Team

Data analysis is divided into two tasks. The first one is to analyze data required from inside our company. The second one is to analyze data required from outside, I mean, external requests, in cooperation with partners. Most of the time, I deal with external requests. The external institutions asking for data analysis include partners such as Kia and Volvo. We provide data according to needs of corporations requesting. We also receive requests from insurance companies. By finding dynamics between driving data of T map users and the involved accidents, insurance companies can design services or gain new data insight data to make marketing more effective.

Unmin Baek | AI/Mobility Development Team

At the company level, employees mostly request data necessary for updating T map App. In most cases, they are about general usage forms of T map. The data is used to determine necessity for the coming update after identifying daily usage amount and the number of users.

Dongwoung Kang | T map Service Team

When it comes to methods for analyzing different themes, they can be largely divided into two; an exploratory data analysis (EDA) and a hypothesis testing analysis. The exploratory data analysis is a process of finding an answer to questions with general description like "how do people usually spend their leisure time?" so the scope covers vast areas and the task processing is quite complex. On the contrary, the hypothesis testing analysis deals with the process of identifying truth or falsehood regarding specific cases such as "Is this function mostly used by frequent drivers?" Therefore, it is a relatively simple processing work.

Q. How do you approach data to analyze it?

Dongwoung Kang | T map Service Team

Well, each analyst may have his or her own approach method. In general, in the first stage, we need to understand what the themes are about. Those who request data analysis are not expert in data, so it is difficult to figure out the general background required for the analysis if we have only the request content. In this case, we must ask the client about some details of the motives to understand first the context of the request. This way, we can understand the background with precision. For this reason, there must be sufficient talks between the client and the analyst. We must prevent the situation in which the client receives the result and says "No, no, this was not the answer I wanted." Therefore, it is vital that the analyst should know how to sympathize with the requester. After that, the analyst ought to explain using an easy expression in order for the client to easily understand the analysis result and utilize it.

Q. Have you had any eye-catching data results or some interesting topics?

Dongwoung Kang | T map Service Team

Yes, I remember a feature story where I participated with Joong Ang Ilbo (Daily). I was making various data analyses including the commuting hour pattern in Gangnam and Pangyo. The period coincided with the time when the 52-hour workweek policy had been just implemented. We compared which changes have really appeared before and after adoption of this policy. According to the analysis result, we realized that the commuting hours of Pangyo, the city mainly composed of IT industry, showed a sharp contrast with those of Gangnam. In Gangnam, the traffic volume evidently increased during the usual commuting hours. On the other hand, Pangyo with a flextime environment showed dispersion in the commuting hours by and large. From 5 pm on, the traffic started to rise. To be honest, the task was challenging, but, at the same time, it was quite interesting to witness the effects of the national policy through a data analysis.

Unmin Baek | AI/Mobility Development Team

I participated in the analysis of promotional effects on TV media including "Baek Jong-won's Alley Restaurant." After looking into the influence of promotional effects of mass media and subsequent aspects, some interesting results surprised me, which are partly describe in this book.

Q. What competence does this data analysis work require?

Benedict Kim | AI/Mobility Development Team

To begin with, you must have knowledge of relational data. In the second place, reading plenty of books is helpful because, for analyzing, you need to come up with number of cases as many as possible. In addition to that, I think abundant curiosity will be a plus for this area. It is because curiosity about data can lead to the capacity of capturing new analysis and patterns.

Unmin Baek | AI/Mobility Development Team

I think it is essential to develop the ability of paying attention to details and precision as an analyst of key indicators. This duty asks you to keep looking at the same numbers every day, and it is easy to miss every detail. However, since key tracking indicators determine successful business choices, this quality of attention to precise details should never be disregarded.

Dongwoung Kang | T map Service Team

I totally agree. To sum up, data analysts require meticulous precision about ten times higher than that of others. I believe that this duty does not fit someone who is half meticulous. This job of data analysis suits those who are usually considered meticulous and precise. One important quality to add is imagination. The analyst's imagination is a key tool to determine how diversely data can be applied.

Q. Do you have any messages you would like to deliver to T map users?

Unmin Baek | AI/Mobility Development Team

I just want to emphasize that all users should drive safely since T map service is used during driving. As navigation notifications pass, navigation information is not an absolute mandatory tool but just a means of assistance. Please remember that judgment of each driver on the road situations is highly important as well.

Benedict Kim | AI/Mobility Development Team

When reviewing T map data, I understand why the top winner gets the place. As more people use the service, data is accumulated as a result. Thanks to this, T map can build experience and strategic knowledge. The changing content is quickly updated to the next stage despite errors in algorithms. While analyzing data details, we always think about how to improve our service for our customers. Keep supporting our service and the quality will improve. That's for sure.

Dongwoung Kang | T map Service Team

All I want to say is "thank you." Back in the age of feature phones, we had a small amount of information obtained from data because there were not many users. However, as the usage volume is getting higher and people use with greater frequency, data increased as a result. Thanks to users, we were able to extract more reliable and valuable information than before. We process data making an effort to return it as maximized benefits to our valued users. We will work on data analysis to fulfill expectations of our customers for more convenient services and greater benefits.

People who pave the way, the pioneers

Interview with Quality Control Team



Kyung Min
Lee

Hyun Joon
Yoo

Tae Ho
Kim

There are some indispensable tasks to make T map reach a near-perfect levels, but they work behind the scenes. Since navigation service is used during driving, it is not easy to verify the quality only in the laboratory. Real world tests must be conducted outside the laboratory as well. For this purpose, the Quality Control team in charge of driving tests repeats travel from Seoul to Busan numerous times.

Q. How is Quality Control Team composed of?

Hyun Joon Yoo | Content QC Part

It comprises three Parts. They are Application Quality Control Part in cooperation with Development Team, Content Quality Control Part and Voice of Customer Part.

Q. Please introduce yourself and tell us what you are in charge of.

Kyung Min Lee | VOC Part

Hello, I am Kyung Min Lee, and I am working for VOC Part. When customers find some inconvenience while using T map, they call Customer Service Center first. When there are some issues that Customer Center cannot handle, then VOC Part engages in settlement. For this reason, I sometimes meet the customer in person or check errors in person going to the roads where problems occur with frequency. When the error is confirmed, I formalize this case and solve the problem in cooperation with Development Team.

Hyun Joon Yoo | Content QC Part

Hello, my name is Hyun Joon Yoo. I am working for Content Quality Control Part. Simply speaking, I verify maps of T map and background images. I also inspect when content update is made.

Tae Ho Kim | Content QC Part

Hello, I am Tae Ho Kim and I am working at Content Quality Control Part. My main duty is to manage characters and symbols that appear on road network and maps. I also check contents such as POI (Point of Interest) and safe driving assistance.

Q. Normally, we associate Quality Control Team with road driving test only. It is surprising to discover how broad your scope of duties are.

Hyun Joon Yoo | Content QC Part

In my case, when the task requested from Development Team can be conducted in the lab, I do in at the office. I go out when I need to test drive or confirm the field conditions.

Q. What kind of tests do you normally conduct?

Hyun Joon Yoo | Content QC Part

I check if T map is under normal operation when a new version of T map is released or the operating system such as Android or IOS is updated. When content such as safe driving information and maps are updated, I periodically conduct tests in the lab and in real world. In addition, for route guide quality control, I do comparative tests with navigations from other companies. When it is necessary to carry out reenactment or field quality inspection upon the customers' request, I also conduct tests. During the test, I basically verify if all functions are under normal operation. I also check if the details modified by customer report or data received from Korea Expressway Corporation have been properly updated.

Q. How do you carry out comparative tests with products from other companies?

Tae Ho Kim | Content QC Part

In three test vehicles, we place many Smartphones and install both T map navigation and navigations from other companies. We conduct comparative tests according to the scenario. We also do the test to see who arrives first at the destination by setting a destination from the same starting point using different navigation systems. We analyze if there are any problems in T map routes and what the advantages and disadvantages the services have. Then we deliver the analysis results to Development Team and they modify T map. WE finally do one more test again with the modified T map.

Q. What is the most challenging area or duties in field work?

Tae Ho Kim | Content QC Part

It may differ from person to person. Personally, Busan was the toughest one. Busan has many complicated roads. In particular, on coming out of the tunnel, you catch sight of two divided roads in many cases. After coming out of the tunnel, it takes time to get the GPS signal again, so you go off course many times.

Hyun Joon Yoo | Content QC Part

Same here. Busan is tough for me too. The old town area is quite complicated for the roads are not well-maintained. The older the city is, the harder the field work is. Cities like Daejeon where recent urban development has done are relatively well-maintained and things are smoother.

Kyung Min Lee | VOC Part

In my case, it is not very often that I go to other regions for work because I belong to VOC Part. Sometimes I need to meet customers in person in other towns. Many times, they are upset. It is because they see me when a pending issue from Customer Service Center has not been solved. They have been waiting too long. When I visit the concerning areas, some issues can be solved on the spot, but there are other issues that are hard to be solved immediately. This kind of complicated situation can sometimes happen.

Q. What are the most frequently asked questions?

Kyung Min Lee | VOC Part

Well, it is about the GPS-related problem and we have been constantly receiving this inquiry for a long time. In fact, the problem occurs when the performance of the user's mobile phone deteriorates, but many of customers think this is the problem of T map. In this case, we analyze a primary source and deliver the confirmed result to the customer. Then they sometimes go straight to the manufacturer. Even after visiting the manufacturer and the problem persists, we visit the customer and carry out the test.

Q. Do you sometimes receive test requests from other Parts?

Hyun Joon Yoo | Content QC Part

Yes, Develop Team sometimes requests a verification test. This test is done to check if there are any errors in the App and if the routes have been corrected before launching it to customers. In general, the route test is conducted during peak hours. The peak hours refer to heavy traffic congestion time such as commuting hours or holidays. Standard data can be established if you test during peak hours. Of course, we sometimes carry out tests during non-peak hours. It all depends on the situation.

Q. When you do tests, are there any parts to which you pay special attention?

Tae Ho Kim | Content QC Part

I pay special attention when I make test routes in the metropolitan areas or in the provinces. I focus on the task of finding differences in the guided routes between T map and navigations from other companies.

Hyun Joon Yoo | Content QC Part

For example, if navigations of other companies guide drivers to perimeter roads or paid roads in the province, T map ponders over the possibility of making a different route trying to avoid using the same road. It is not only about making a different route but about creating a better experience. With this mission in mind, we carry out tests.

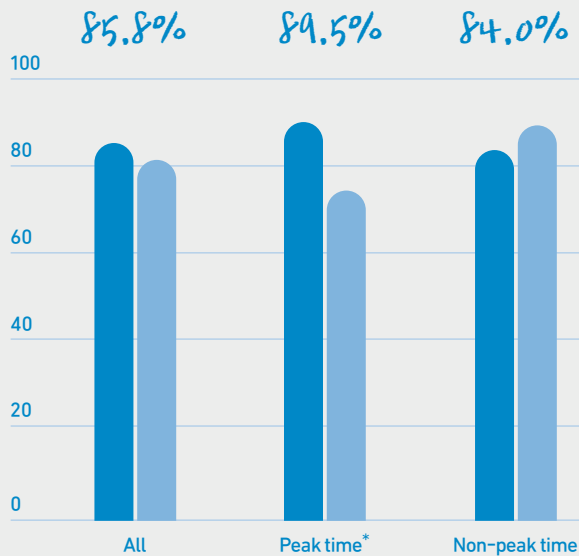
Q. What is the outstanding competitiveness of T map compared to other companies?

Tae Ho Kim | Content QC Part

I think that competitiveness of T map lies in precision of information on estimated arrival time. It is essential to predict how long it takes to the destination when congestion is predominant. I am proud to say that T map is able to calculate the estimated arrival time with precision.

Estimated time of arrival accuracy

● T map ● Other company



* 2019. 11. 18. ~19.

Q. When was the moment you felt most rewarded or fulfilled while working at Quality Control Team?

Hyun Joon Yoo | Content QC Part

One day, a customer complained that when he comes out of the alley, he is supposed to turn right and immediately turn left, but the distance from right turn to left turn was too short, making the access to left turn lane difficult. I asked the corresponding Part to improve the guide and they corrected it. I feel rewarded when my coordination works for correcting problems. I also feel fulfilled when many people compliment T map on the performance and only T map could detect some speed cameras.

Tae Ho Kim | Content QC Part

I feel rewarded when people around me and friends compliment T map on the performance. Other navigations missed but only T map detected the speed cameras. When this kind of thing happens, I feel happy.

Q. Do you have any messages you would like to deliver to T map users?

Tae Ho Kim | Content QC Part

Since T map is created by many processes and many people, it is not always able to fully identify unexpected accidents or traffic volume increase. Our Quality Control Team is conducting a variety of tests to steadily improve the system by identifying merits and demerits of T map. If you find some inconvenience when using, we kindly ask your cooperation in informing us of your observations based of developing T map as a partner. We are always deeply thankful to you all.

Ask anything!

Interview with T map Customer Service Center



Young Guk Jang

No A Lee

When counting on the navigation service, users sometimes come up with various inquiries or complaints. They raise complaints almost every day. The complaints are mainly about the following situations: simple inquiries such as membership registration, membership withdrawal and data usage level; the user failed to arrive on time for an appointment because T map guided to a completely unexpected route or to a heavy traffic section; the user had to be fined because the information on speed cameras has been left out. Customer Service Center operates to solve such complaints of customers and deliver some detected errors of T map to the relevant Team for proper correction.

Q. Please introduce yourself and tell us about your main roles in the Team.

Young Guk Jang

Hello. I am Young Guk Jang. I am a co-head of T map Customers Service Center. My main duty is focused on T map, but I also cover the areas of taxi, public transportation, AUTO, and parking.

No A Lee

Hello, I am No A Lee, co-head of T map Customer Service Center. I carry out the same duties as Chang does. Customers might not notice it is the same Center, but we attend to various services of T map in one place. There is a special number assigned to each service, so we see the number and start our customer attention by saying "This is counseling manager of T map Customer Center" or "This is taxi manager of T map."

Q. How many calls a day on average are made to Customer Service Center?

Young Guk Jang

About 500 calls a day-- but sometimes we receive up to 700 calls a day when we are busy. In the beginning of last year, that was the busiest season of the year. We received 1,800 calls a day. 1:1 online inquiries account for about 130 cases a day.

Q. Are there the busiest hours during the day?

No A Lee

Yes, the busiest hours during the day are between 9 am and 10 am. It is because customers call after having waited from the night before. Yes, we do receive many calls from 9 to 10 in the morning. On the other hand, regarding T map Parking, they normally ask right before finishing their work. That is between 4 pm and 6 pm. I guess it is because they finish their work and go out to find the car during this time.

Young Guk Jang

When it comes to T map Taxi, drivers usually call around 4 pm because their shift work starts at 4 pm.



Q. What are the most frequently asked inquiries?

Young Guk Jang

They are inquiries on address change. They often say, "I just followed the navigation guide, but the location changed." When the business owners move to another place, they rarely inform us of the fact. In this case, customers ask questions and inform the changed information to us. Customers also inform us of newly installed speed cameras and of changes in speed limit. We deliver this report to the relevant Part to improve the quality of T map.

Q. Are there many customers informing you of the updated road information?

No A Lee

I think they inform us of the fact because they can pass by the same road again and they want to get updated information. They ask that the information should be modified because others can find it inconvenient.

Q. Are there any inquiries you remember the most?

Young Guk Jang

Yes, I remember some calls I received from drivers using T map Taxi. Sometimes they just call half-drunk after finishing the shift work. They just want someone to listen to their story, for example, how they felt upset with a certain passenger... That has nothing to do with Customer Service so there are no technical issues on T map. However, I talk with them and try to listen to their story as a friend.

No A Lee

About one year ago, a person posted an article on a Web portal comparing T map with a navigation app from another company. Unfortunately, T map did not get good scores. However, a customer called to say that he had an experiment to compare T map with another navigation and prove which one was better. Finally, he won the bet because T map had higher performance. He felt happy and called to say, "thank you" and share the joy with us. I remember another customer. He was going on a family picnic and he failed to find a way with the old navigation he was using. Then his son recommended T map. He said that, thanks to T map being able route to even the small paths of the mountain, he could arrive at the destination with success. He wanted to send us some gift to express his thanks. I just said, "No, I already received the gift with your kind words." I am immensely proud when people say that they use SK Telecom because of T map.

Hello, this is the T map Customer Center Consultation Manager



Have a safe drive!

Q. What qualifications are required to work at T map Customer Service Center?

No A Lee

An active attitude is vital to use services and find causes from the perspective of customers. You must be ready to immediately check the presence of the cameras via road view and do a test in the problem section in person. Since we must check cases one by one, it takes a lot more time (by 3-4 times) to complete each case.

Q. Do you have any messages you would like to deliver to T map users?

Young Guk Jang

I am thankful for strong trust from our customers for our T map services. I would like to emphasize that all members of Customer Service Center are doing our best to help customers, since we meet them in a direct and close manner. We do feel responsible for what we do.

No A Lee

When customers use diverse T map services, they have a clear objective. I would like to stress that we are making our utmost effort to provide the highest satisfaction for our customers. Unfortunately, some customers think that we counselors are made of AI. We are humans dedicated to counseling duties. Please try to reduce abusive language or aggressive expression considering that it can hurt us. If you show consideration to us, we will repay your kindness. Always remember to drive safely!

Humans, infinite curiosity and imagination

Curiosity and imagination, the intrinsic nature of humankind have been incessantly leading us to a better world by going through the process of solving innumerable mysteries and scientific doubts for a long time. Thanks to both qualities, truth could be distinguished from falsehood, and unexplained phenomena could be thoroughly identified and eradicate uncertainty. At the same time, materials of new ideas are accumulating at dizzying speed. The newly emerged digital platform is recording every human behavior in the form of data, giving humanity another opportunity to move forward a new world again. Now humanity is witnessing the era of colossal curiosity and imagination, which are unprecedented and unmatched in its dimension.

A true story on the road created by true data of travel

Even at this very moment, in T map, 800 cases of routes are being generated every second, and data equivalent to 12 terabytes are piling up on top of one another, 365 days a year. 18 years ago, T map started route planning services. From that moment on, every step and footprint of roads, places, people and cars that have existed in Korea have been imprinted in the soul of T map.

Useful and not empty, familiar and not hard

"What could do people really love to know first about T map?" This question has followed us everywhere like shadow. For T map, things can be all fun. However, imagine a situation of a blind date. You say you like cats to the man, and he is busy talking about "Schrodinger's cat" describing an experiment of quantum mechanics using a cat. We want to avoid this incompatible situation between users and T map. Therefore, we reached a conclusion that we must make information useful in everyday life of users. Finally, we are left with the assignment of making a familiar and useful book containing data able to minimize the chances of "no" from users, and to make them feel at ease.

"The most useful book ever." It is our wish.

The true story of the road covered by this book is the fruit of our years of work concerning how we repay our gratitude to our faithful customers, who have been sharing their invaluable data with T map. In this book, you can find various stories of users moving in search of happiness, and the stories are tasty, fun, pretty and cool. One more thing that T map wishes is... we would love to hear this comment, "Oh, I use it every day", instead of "Oh, you made a nice book" because this will be the superlative compliment for T map. Wherever you go, when trying some new restaurant or for taking a trip, we hope that your moment is full of joy, and can surpass the expectations set in the pages of this book.

Towards the All-in-One Mobility Platform together with our valued customers

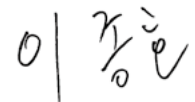
Hello.

My name is Jong-ho Lee and I am the Executive Vice President of Mobility Business Division at SK Telecom. First of all, I would like to take this opportunity to express my deepest gratitude to our valued T map customers. T map would not have been able to establish itself as the 'people's navigation service' in Korea without them. This White Paper is a little token of appreciation to show how immensely grateful we are for all the support and kindness our customers have given us over the past several years.

In order to make the next leap forward beyond navigation, T map will transform itself into an "All-in-One Platform." T map will encompass not only navigation but also other essential mobility services such as parking, metro, bus, taxi, etc. and offer them according to each customer's end-to-end transportation needs.

The new "All-in-One Platform" will enable more organic collection of transportation data and allow us to process them into a more valuable form with A.I. and machine learning for our customers. We will continue on with our effort to make great progress and also ensure that it comes into fruition as our customers' happiness.

Thank you so much.

Handwritten signature in Korean: 이종호

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The Story of Real Roads Told by T map

T map Trend Map 2020

Published	25 September 2020
Publisher	SK Telecom T map Service Team
Editor	Dong-Gwan Im
Data Analyst	Dongwoung Kang, Benedict Kim, Unmin Baek
Design	Seul Lee, Ji Eun Park
Thanks to	Jong Gab Lee, Ji Hye Park, Jongmin Kim, Do Han Shin, Nag Chun Kim, Hye-jin Jung, Hongbeom Ahn, Kewjin Paik, In Joon Choi, Yonghun Kim, Sangyoon Kim, Hyunbin Park, Seeun Park, Joohyun Park, Seong Pyo Hong, Youngsoo Lee, Junho Yun, Soha Park, Inchang Cho, Ken Youm, Seungsoon Park, Andrew Chen
Writer	Kim Jeongye
Illustration	Rudolph Studio
Publishing	Newtype Imageworks Inc.



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