Best Engine

Vol. 8

Understanding and Leveraging the Transformation Taking Place in Silicon Valley

Kenji Kushida

Research Scholar, Shorenstein Asia-Pacific Research Center, Stanford University
Project Leader, Stanford Silicon Valley – New Japan Project

Best Engine

Vol. 8

CONTENTS

Notice

Transformation and T-shirts

Since becoming CEO I've had less time to read books, so during summer vacation and other times I've had extended breaks I'm spending more days in my room just reading books. I'm not particular about what type of written work it is. It could be a novel, essay, non-fiction, or even a business publication, but generally I enjoy reading historical material—particularly anything that provides hints from an economics perspective about figuring out the events taking place at various points in time.

When there are major changes in the world, usually economic forces are at work behind the scenes.

The Eve of the Meiji Restoration is one example. The feudal domains of Satsuma and Choshu were traditionally enemies but joined forces and formed the *Satcho Alliance* (Satcho combines the first syllable of Satsuma and Choshu) which led the overthrow of the Tokugawa Shogunate. Behind this was the financial might that the two domains had built up through illicit trade, and an agreement that they would help each other get what they wanted.

As for the Meiji Restoration, when we think of the young people of the *Satchodo (Satsuma, Choshu, and Tosa Domains)*, the first thing that comes to mind is their ambition. However, you cannot accomplish something so significant as toppling a Shogunate with ambition alone. It would be quite interesting if the string of events leading up to this historic accomplishment was fueled by the economic movements of trade.

Speaking of transformation, as part of our workstyle reforms we have been promoting our "Opening New Horizons, Starting with Clothing" initiative since last year, to give employees more choices in terms of work attire. This summer, we expanded the range of possible selections to include t-shirts on a trial basis.

According to younger employees from the Personnel Department this is a sign that "the times have changed," but from the perspective of my generation I somehow can't rid myself of the impression that t-shirts = underwear.

Of course, I'm all for smart casual. At the same time, there should at least be boundaries between "on" and "off" for work. I at least hope our employees dress in clothing that makes our customers say, "CTC people really do look snappy."

Looking stylish in t-shirts is really not so easy to begin with. If you really want to wear t-shirts, I hope you'll first consider starting a "fitness transformation" in order to look good in them.

Satoshi Kikuchi

President & CEO
ITOCHU Techno-Solutions Corporation

Understanding and Leveraging the Transformation Taking Place in Silicon Valley

We hear from Kenji Kushida, who connects Japanese companies with Silicon Valley

Multitudes of startups that operate in Silicon Valley are changing the way the world works with their revolutionary technologies.

As transformations that affect everyone continue to advance in every discipline, it is ultimately essential for everyone who is involved in business to understand what is taking place in Silicon Valley.

Kenji Kushida is a research scholar at Shorenstein Asia-Pacific Research Center at Stanford University and Project Leader of the Stanford Silicon Valley – New Japan Project. Based in Silicon Valley, he has accumulated a wealth of research and practice on the relationship between Silicon Valley and Japanese companies.

Kenji Kushida tells us what kind of a place Silicon Valley is, what drives it, and how Japanese companies should be approaching it.

Coverage and text by Yuki Kondo

Kenji Kushida

Special Interview

Research Scholar, Shorenstein Asia-Pacific Research Center, Stanford University
Project Leader, Stanford Silicon Valley – New Japan Project

The five elements of Silicon Valley

——In addition to tech giants such as Google and Intel, the services of startups such as Netflix (streaming video content) and Uber (vehicle dispatch) with bases in Silicon Valley have been changing society dramatically in recent years. Being based in the valley you have been watching over these revolutionary changes from up close. Can you first tell us how the situation currently is in Silicon Valley?

K. Kushida: Looking at it in terms of assets under management (AUM) by state in the US, the state of California where Silicon Valley is located has overwhelmingly larger numbers than other states (Table 1). I believe that this reflects how business is booming in the valley. Even now we can say that Silicon Valley is ground central for the destruction and creation of value in the world. In other words, while existing industries, companies, and technology are being dismantled at an incredible pace, new value is being generated to replace these at unprecedented speed. Nobody can passively sit back and just watch these changes any longer.

Table 1: Top 5 States by assets under management (AUM) in 2018

	2018 (billions of US dollars)
	AUM
California	228.19
Massachusetts	59.50
New York	56.00
Illinois	6.89
Washington	6.41
Total	356.97

[Source]
NVCA 2019 Yearbook, Data Provided by PitchBook
https://nvca.org/wp-content/uploads/2019/08/NVCA-2019-Yearbook.pdf

California has maintained an overwhelming lead over other US states in terms of outstanding assets under management by companies.

* Amounts in the table are rounded to the nearest second decimal place

——Why has Silicon Valley become so markedly different from other places?

K. Kushida: These are the five main elements to why global startups are being created in Silicon Valley one after another.

(1) Venture capital that wants to invest in startups is gathered there.
(2) It is an established trend for outstanding talent from around the world to gather there.
(3) Strong industry-academia collaboration. Elite universities such as Stanford and the University of California, Berkeley are nearby, allowing cutting-edge researchers and industry to collaborate quickly.
(4) Large companies and startups maintain close relationships as they grow. In other words, there are people who leave big companies to launch startups, while there are also large companies that acquire influential startups.
(5) There is an abundance of supporting professionals such as lawyers and accountants who have a firm understanding of startups and are efficient at helping to launch them.

These elements complement each other as they build Silicon Valley's "startup ecosystem." No other place in the world right now has such a high-level concentration and cyclical flow of the capital, human resources, companies, and technologies needed to create innovation.

How did Silicon Valley become such a special place?

——It seems the valley has established an ecosystem that is a rock-solid foundation for creating innovation. Why has such a place arisen in this location on the west coast of the United States?

K. Kushida: There are quite a few coincidences and some inevitabilities behind how it came about. California became one of the United States in the late 1850s. Industry was concentrated in the eastern part of the country, and California was developed out of nothing by foreigners. It seems these

Kenji Kushida

Research Scholar, Shorenstein Asia-Pacific Research Center, Stanford University
Project Leader, Stanford Silicon Valley – New Japan Project

After attending international school in Tokyo, he majored in both Economics and East Asian Studies at Stanford University and later obtained a Ph.D. in Political Science from the University of California, Berkeley before assuming his current role. His research is mainly in the areas of IT (information technology) innovation and the economic ecosystem in Silicon Valley, in addition to cloud computing, political economics, and the "galapagosization" (obsolescence due to isolated culture) of Japan's IT.

people were determined to establish new industry in the western part of the country. That was the era in which Stanford University, established in 1891, also began contributing to the creation of new technologies. Then, in the days when the second world war and the cold war were intensifying, with military involvement various other technologies were established there starting with long-range radio communication, along with the peripheral industries to support them.

In that context, it was in the 1950s when William Shockley, one the inventors of the transistor, established a company in Palo Alto where Stanford University is located. Afterward, eight employees from that company who became known as the "traitorous eight" left his company to establish their own company Fairchild Semiconductor. This company achieved rapid growth receiving orders from the military to manufacture semiconductors for use in ballistic missiles and other weapons systems. Among the founding members of Fairchild were Robert Noyce and Gordon Moore who later founded Intel. Ex-employees of Fairchild laid the foundation for the ecosystem that exists in the valley today by enlisting powerful venture capital to establish companies that would go on to become big businesses.

The world's first electronic stock market NASDAQ was also created in 1971. Ideally suited to startup companies, the NASDAQ attracted the attention of investors with large IPOs for companies such as Intel (established in 1968) and Apple (established in 1976), which led to the way things are today.

——Silicon Valley became what it is today thanks to the history of the west coast of the United States and a combination of coincidental circumstances.

K. Kushida: There are cities all over the world such as Helsinki, Finland and London, England where startups are thriving. However, Helsinki cannot be said to be attracting the world's top talent, and while FinTech-related startups are indeed flourishing in London, there is also political risk from Brexit. Meanwhile in 2017 the world's largest incubation center was opened in Paris, but there is doubt as to whether the city has enough of the venture capital or supporting professionals

needed to help startups grow. Nowhere can we find all of the elements that are present in Silicon Valley.

——We hear that Japan also has an ecosystem for startups, but how is it currently?

K. Kushida: Things have improved quite a bit compared to 20 years ago. The IPO process used to be extremely cumbersome, but it is now a lot simpler. As a result, there are now large numbers of startups with smaller IPOs in Japan. This is not turning out so-called "unicorn" breakout startups, but on the other hand that could be considered an important characteristic. In Silicon Valley, if you do not scale up with rapid growth, you'll be weeded out without ever reaching an IPO. In Japan, science-related startups such as those that utilize iPS cells cannot easily scale up, so they might be better served to employ a strategy to get listed while still small, and then partner with larger companies to achieve stable growth. In this sense there are industry types which are not necessarily suited for Silicon Valley, which means that the startup ecosystems in each country can have a complementary relationship with the valley as they grow.

Radically different design concept and point of competition

——If Silicon Valley is a place that destroys and creates value, how does that destruction and creation take place? Could you explain exactly how that process works?

K. Kushida: Silicon Valley startups aim to compete on different playing fields and not in conventional business which is dominated by large companies. For example, development competition in the automotive field has mainly focused on superiority in terms of specifications such as fuel economy, toughness, ease of maintenance, and price. However, if the introduction of autonomous driving software leads to a sudden drop in accident rates, the quality of the software will become more important than the specs of the car. One case of this is

the entirely new automotive design concept employed by Tesla, led by CEO Elon Musk. They have equipped the cars with processors and sensors that are not used in the specs at the time the car is sold, but whenever a new feature is developed it can be added to the car by downloading the software. With developments like this, old value is being destroyed and new value is being created in Silicon Valley at incredible speeds, in a variety of fields.

——Are there any startups or new technologies that you believe will take the world by storm in the near future?

K. Kushida: In Silicon Valley, nearly everything you are intrigued by now will have fallen by the wayside a few years later. That's what kind of a world it is. Often the more appealing things will suddenly appear out of nowhere. In other words, any sort of prediction that something will make it in a few years is nearly always wrong. Therefore, I can't be entirely confident, but if I were to introduce one example based on that I would bring up the development under way to further bolster the value of autonomous driving, with active suspension being one specific example. This is the field of car suspension that extends,

Startups coexist with large IT companies in Silicon Valley, which spreads from San Francisco to San Jose. Traffic jams are a frequent occurrence on the surrounding freeways.

contracts, and otherwise moves on its own to absorb vibration. Autonomous driving frees up time spent in the car to do other things, but the value of that will be halved if vibration makes everyone in the car dizzy. There is new value in absorbing vibration so people can use computers and do various other things in the car without getting dizzy, so multiple studies are under way that look for ways to deliver this value.

One of these methods creates detailed 3D maps of the roads and adjusts the suspension accordingly while driving. Another possible method is to use high-speed sensors to instantaneously measure the bumps on the road while driving. There are startups working on either of these methods; some are creating systems that continuously update 3D maps, and others are developing sensors to instantaneously measure the bumps on roads. We don't know yet which of these methods will become mainstream, but since they both use AI it will be important to collect even greater volumes of data in order to create better systems. For that reason, information will be collected from users to enhance the quality of whichever method first goes into actual use. Then, there will be a cycle where it is used even more, and its value will continue to increase. All of the startups that chose the other method will be weeded out.

AI changes the very environment in which technology exists

——Similarly to the active suspension example that you explained, recently it seems that due to the spread of AI, the volume of data you collect is going to be a key to success in every field.

K. Kushida: That is correct. What today's AI does is pattern recognition. The more data it has to reference the higher its accuracy will be, which makes it important to collect larger amounts of data. However, it should also be pointed out that just being able to collect data doesn't mean that you can provide value. Providing value is what enables you to collect data. Google can collect all kinds of data because, for example,
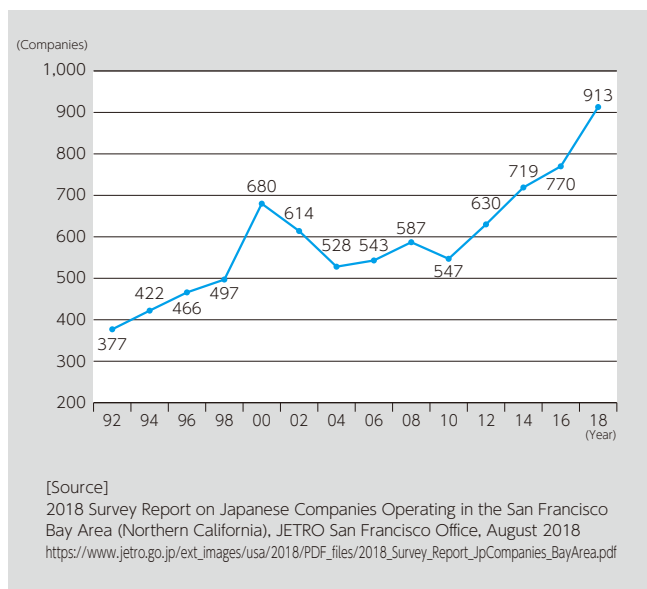
Google Maps is a high-quality program so everyone uses it, which in turn captures more data and enhances the quality even more. The important thing is to start by thinking about how much value you can provide.

——It seems that AI now plays important roles within various technologies, and approaches to technology itself have changed dramatically. What do you think is the essence of the changes that AI is causing?

K. Kushida: The big technological innovation trend caused by the advancement of computers in recent years is efficiency and productivity improvement by having computers perform work that was previously performed by humans, with the ultimate aim of complete automation. We can think of AI as a technology that is emphatically accelerating this trend. Not only that; it is also important to note that deep learning, which is the core of AI, is also changing many of the surrounding

Figure 2: Number of Japanese companies in the Bay Area by year

[Source]
2018 Survey Report on Japanese Companies Operating in the San Francisco Bay Area (Northern California), JETRO San Francisco Office, August 2018
https://www.jetro.go.jp/ext_images/usa/2018/PDF_files/2018_Survey_Report_JpCompanies_BayArea.pdf

In 2018, more Japanese companies than ever before were operating in the San Francisco Bay Area including Silicon Valley. In the past these were mostly in the IT field, but companies in manufacturing and other industry types have established a greater presence there in recent years.

circumstances since it is so different from any technology that has been around before. These changes include the value of data itself, the importance of sensor technology to collect the data, and social rules and industry frameworks. Therefore, older forms of value are being destroyed and new value is being created.

Start by thinking about what you can offer to others

——Amidst these trends, the number of Japanese companies with a base in Silicon Valley is increasing (Figure 2). You have said that it is important for Japanese companies to make good use of Silicon Valley. More specifically, what should they try to do, and what action should they take?

K. Kushida: Conventional Japanese companies tend to see Silicon Valley startups as threats, but if they can find good ways to forge partnerships they could also find big success. The key to accomplishing this is to build relationships while thinking about what each side can do to help the other.

When going to meet people at a startup, don't just vaguely ask them to tell you about their company. First, you have to think about what you can offer them. In many cases that is not money. What you should offer is data that the startup cannot obtain on their own, and relationships with customers that they cannot reach. Construction machine manufacturer Komatsu has produced one noteworthy example of an actual successful collaboration. They joined forces with a startup that owns 3D mapping technology deployed through drones, with the idea that it would be useful to map construction sites in 3D using drones. From the startup's perspective, partnering with Komatsu presented them an opportunity to expand their customer base all over the world, plus the benefit of producing 3D maps that are even more accurate by collecting large amounts of data from work performed by Komatsu. Get a good understanding of where the startup is experiencing pain (challenges) and provide the solutions. That mindset really is important.

——You have been linking Japanese companies with Silicon Valley through your work in SV-NJ.* Have you seen many companies building good relationships with startups the way Komatsu has?

K. Kushida: Currently there are not many, but I think the number is increasing little by little. When companies do make such efforts, it is difficult to say that doing any particular thing will lead to success. However, there are *worst practices*—things they should not do. Table 3 shows what these are, such as setting up an office "for now" and sending expats there without any particular vision, or clinging to Japan-style promotional methods. In any case, they key is for each company to increase their awareness, to be able to convince startups that they will benefit from partnering with a Japanese company. Leadership from upper management and commitment are essential to making this happen.

——To conclude, please share your own message for Japanese companies that are trying to figure out how they can take on Silicon Valley.

K. Kushida: There may be a strong tendency to see movements in Silicon Valley as threatening, but in truth the valley became what is now because it started by employing the mentality of keeping up with Japan, back when Japanese manufacturing

was predominant. That being the case, it should be expected that the Silicon Valley of today is stronger than Japan's old way of doing things. Now, it's Japan's turn to adjust and get stronger. Remember that before Japan's postwar manufacturing heyday, there was a time when the United States was stronger and Japan was weaker. This shows us that the power balance has swung from one side to the other over time, and I think that means we should have a positive outlook toward the future. Just looking at the last five years or so, Japanese companies have definitely improved their approach to Silicon Valley, and there is also a greater sense of urgency. There are likely to be an increasing number of opportunities in the future. Please keep that in mind and be proactive.

Speaking at the Silicon Valley - New Japan Summit 2019, the open innovation summit that links Silicon Valley with Japan

Table 3: *Worst Practices* which Japanese companies in Silicon Valley are prone to

1	Setting up an office "for now" and sending expats there without any particular vision
2	Making it a mission to gather information and seek strategic partners aimlessly
3	Failing to understand that in Silicon Valley the Japanese company is the seller
4	Having no decision-making authority or resources, and thus being unable to tangibly discuss any potential business with startups
5	Focusing most attention on head office, and having on-site staff preoccupied dealing with visits by top executives
6	Sending information that is behind the times because head office is unreceptive to information that anticipates future developments
7	Transferring away the person originally from head office who had been leading the Silicon Valley office
8	Sending in personnel who have been demoted or are too young and inexperienced
9	Staff being unable to work there long-term due to 3-year personnel rotations
10	Entering in the middle of a bubble economic period, and leaving when it ends

CTC Spreads Its Business Worldwide

Extending the Global Reach of the CTC Group

Discover cutting-edge technologies from around the world and deliver them in the optimal combinations to meet customer needs—.

At the core of CTC's business model is the keen eye for the latest technologies which the company has developed through roughly 30 years of operating in Silicon Valley.

Over the past 10 years, CTC's business model has also made tremendous strides in global expansion. Here we will share these developments and the current state of CTC's global business.

In September 2019, Indonesian IT companies PT. Nusantara Compnet Integrator ("Compnet") and PT. Pro Sistimatika Automas ("Prosia") were added to the CTC Group.

The Group has already acquired local companies in Malaysia, Singapore, and Thailand, and has also established operations in Indonesia from which it is providing IT services to local and Japanese customers. Having added Compnet and Prosia to the Group, CTC will now be able to conduct large-scale business in Indonesia and has also restructured its operations to cover a larger area of the ASEAN region.

The CTC Group is expanding its global business, with a focus on the North America and ASEAN regions. In the North American region, the Group conducts studies on cutting-edge technologies such as AI, IoT, security, FinTech, and cloud, and uncovers new products, while also providing systems development, maintenance, and operation services for financial institutions, building large-scale infrastructure for providers of internet-based services, and more. In the ASEAN region, as mentioned above CTC offers system integration and cloud services along with maintenance and operation services mostly in infrastructure. Customers are local and Japanese companies mainly in Malaysia, Singapore, Thailand, and Indonesia.

Discovering cutting-edge technologies in North America

The companies that form today's competitive landscape in Japan's systems integration field were established one after another in the 1960s since the IT industry was born with the release of the first commercial-use computers in 1951. C. ITOH Data Systems Co., Ltd., the predecessor to CTC, then started operations as a late market entrant in 1972 mainly in the business of selling computers in the data entry field.

CTC Group Overseas Locations

Thailand

■ CTC Global (Thailand) Ltd.

- Deals with a broad range of industries including telecom, manufacturing, and finance
- Comprehensive services from infrastructure building to application development
- Numerous collaborative projects for customers in Japan
- Focusing on agile development and RPA solutions

U.S.

■ ITOCHU Techno-Solutions America, Inc.

- Roughly 30 years of R&D experience in Silicon Valley
- Open innovation facilities with customers regularly on-site
- Providing global support from North America
- Proven performance in internet-related services and system integration for finance

Singapore

■ CTC Global Pte. Ltd.

- Over 45 years of system integration business in Singapore
- Offering an integrated lineup of services from infrastructure implementation to support and operations monitoring
- Roughly 80% of sales from local government agencies, government-affiliated companies, and financial institutions
- Operates with hyperconverged infrastructure

■ Singapore Branch

The building where ITOCHU Techno-Solutions America's Silicon Valley headquarters is located

When the 1980s arrived, there was a downsizing from centralized control by mainframes to distributed processing by workstations, and the IT industry entered the age of the Internet and open architecture.

Amidst this context CTC established its current business model of combining various advanced products and services from overseas to provide the optimal systems for its customers in Japan.

In February 1990, ITOCHU Technology, Inc. with operations in Silicon Valley was established as a subsidiary of ITOCHU Corporation. Focusing on the exchange of human resources, CTC established close coordination with ITOCHU Technology, Inc. to discover and research the latest technologies that could solve problems for its customers. CTC thus developed its keen eye for new technologies and expanded its business within Japan.

Employees celebrating Lunar New Year at CTC Global (Singapore)

In March 2012, CTC converted ITOCHU Technology into a subsidiary by acquiring an ownership stake and changed its name to ITOCHU Techno-Solutions America, Inc. In the US, CTC is building large-scale infrastructure using container management software Kubernetes, while ITOCHU Techno-Solutions America is bolstering its systems integration organization and working to expand its local systems integration business with a focus on Japanese companies, in addition to its existing R&D activities.

Additionally, in 2018 CTC invested in Syscom (USA) Inc. which provides systems integration services throughout the US and offers a comprehensive range of services from consulting to operation and maintenance support. Together, the two companies are now working to generate business in systems architecture and operation, security services, and other related fields.

Launch of business in the ASEAN region

As one of the growth strategies in its business plan, CTC set out in 2010 to bolster its capability to cater to the overseas expansion needs of its customers. Customer demand for IT support in the ASEAN region at the time led to thriving business in Japan, and CTC launched efforts to establish an organizational structure to support Japanese companies entering overseas markets. As part of these efforts, the Singapore Branch was established in April 2011 as CTC's first independent base in the ASEAN region.

Amidst efforts mainly at the Singapore Branch to explore inroads into new regions, the next tangible action taken was in Thailand. In July 2012, CTC invested in Thai IT company Netband Consulting Co., Ltd. ("Netband") and launched a joint venture with them. While support for Japanese

customers was an obvious goal of this joint venture, the scope of the venture was also expanded to include business with local companies in the ASEAN region, which offers overwhelmingly larger growth potential than the domestic IT market in Japan. Additionally, Netband's business operations had previously been focused on domestic product sales in Thailand, but being strong in infrastructure business as is CTC, they were able to leverage this common strength to generate synergies which led to more business with Japanese companies and application development projects. This is an exemplary case of what CTC can accomplish in global business.

Business expansion in the ASEAN region: Malaysia, Singapore, Thailand

In March 2013 CTC acquired two companies in Malaysia and Singapore that would subsequently be renamed CTC Global Sdn. Bhd. and CTC Global Pte. Ltd., and made them into subsidiaries. At the time these two companies employed a total of around 700 people, so with this acquisition CTC became fully engaged in global business in the ASEAN region with a focus on local companies.

Including its head office, CTC Global (Malaysia) has 23 service locations, and operates a broad scope of business operations from product sales to maintenance and operation services for customers including major financial institutions, and in the distribution and retail, and manufacturing industries. The company's strengths include building large-scale IT infrastructure, setups at factories, building private clouds, service desks that are open 24 hours per day year-round, and on-site support. In 2019 the company began providing the IaaS-style cloud service CUVIC Cloud in Malaysia.

Testing center at the office of CTC Global (Malaysia)

Reception desk at CTC Global (Thailand)

CTC Global (Singapore) now has a 45-year track record in the local systems integration business and does around 80% or more of its business with government agencies, government-affiliated companies, and financial institutions. Offering an integrated lineup of services from infrastructure implementation to operations monitoring, CTC Global operates with highly scalable hyperconverged infrastructure which links servers with storage, and has also launched utility services which provide monthly subscription-based IT. In September 2019 they also opened the PoC Lab which tests out systems and new technologies.

In Thailand, Netband was made a subsidiary in November 2017 and renamed CTC Global (Thailand) Ltd. Since that time the company has worked to expand its local application development and systems integration services business. Mainly active in telecommunications, manufacturing, and finance, CTC Global (Thailand) does business in a wide range of industries and is characterized by doing roughly 40% of its business with Japanese companies, which is a larger proportion than CTC companies in Malaysia and Singapore. In application development, it handles agile development for projects that require standardized development quality and speed. The company has also begun working with the OutSystems low-code development platform and RPA tool UiPath, which have produced results for the CTC Group in Japan.

ASEAN region business strategy, and Indonesia

CTC's strategy in the ASEAN region is to acquire local companies that have the same type of business model as CTC and utilize high levels of affinity to leverage expertise built up in Japan. With investment by CTC, projects for Japanese companies are added to the local business of the companies that become subsidiaries.

Since the joint venture in Thailand began in 2012, CTC has sought to extend its reach throughout the ASEAN region as part of its overseas expansion that aims to build a more diversified business portfolio. The only country that CTC had yet to enter in the region was Indonesia. With a large population of around 265 million and sizable real GDP growth rate of 5.17%, Indonesia stacks up right alongside Malaysia, Singapore, and Thailand, and CTC has been continuously exploring potential M&A targets there.

In 2017, PT. CTC Techno Solutions Indonesia was established as a CTC Group company and went into business in Indonesia serving Japanese companies. In September 2019, Compnet and Prosia were then made part of the Group as mentioned at the beginning of this article.

Compnet and Prosia are both system integration companies with their core businesses in systems architecture and application development, and they work together to provide comprehensive services including everything from infrastructure to cloud and applications. Compnet comprises a maintenance network spanning 33 locations throughout the Indonesian islands. Together with Prosia who handles upstream processes such as defining business requirements, they cover the entire IT life cycle from consulting to maintenance and outsourcing services. These companies currently provide optimized IT services to government-affiliated companies, conglomerates, and companies funded by capital from Japan, the US, and Europe, in fields including government, telecommunications, banking, natural resources, and manufacturing. Recently these companies have been dedicating more efforts to expanding the fields of FinTech, including cashless payments, and AI/IoT related to smart cities and similar applications. Actual business is already under way in these areas.

Another global business expansion initiative is a collaboration which has also begun with British system integration company Newton Information Technology Ltd. for IT services business in Europe. Meanwhile, R&D efforts are also moving forward in Shenzhen, China.

CTC operations in North America, Europe, ASEAN, China, and Japan will be working together to support customers on a global level, while at the same time finding ways to generate synergies with these new additions to the CTC Group, Compnet and Prosia.

This issue's theme is...

【 esports 】

Last year was said to be the first year of esports in Japan. We hear the word esports increasingly often.
However, according to various surveys, although the word itself is becoming known,
it seems the details are not very well known.
We will provide an overview of what exactly is esports, its momentum, including the surprising situation overseas.

Text by Yuki Kondo

40 Million Qualifying Participants, 300 Million Yen in Prize Money

In July 2019, the World Cup finals for the popular battle royale game (a survival game where players fight to the last player standing) Fortnite was held in New York.

Over 40 million people participated in online qualifying for this tournament, and 100 qualifiers proceeded to the finals in New York. Among the finalists from over 30 countries, the winner was a 16-year-old boy from the United States. It is surprising enough that the winning prize is 3 million dollars (roughly 300 million yen), but the fact that every one of the 100 players in the finals received at least 50 thousand dollars each, and that there were millions of spectators in the finals indicates the enormous scale of the event.

The UK's leading newspaper The Guardian reported that the second place winner was a 15-year-old from England, who continued to play the game despite being scolded from his mother for playing too much, but came back with roughly 120 million yen in prizes.

This writer who is also in his 40's, also shares the sentiment with the mother that children should not be too indulged in games. However, games are now becoming a world renowned competition that renders such thinking obsolete. Esports is currently being considered for addition to the 19th Asian Games to be held in 2022 an official medal event, and efforts are also under way to make it an official event in the 2024 Paris Olympic Games. This is the status of esports.

Video Games Are Not esports

Let us discuss what *esports* are.

People may think that video games are esports, but it is not that simple. For instance, the Japan esports Union (JeSU) describes the following four conditions in order to be qualified as esports:

1. The game includes a competitive element (competitiveness)
2. The game has at least three months of operation or sales (track record)
3. There are plans to continue to organize esports tournaments (tournament continuity)
4. There is promotional value in the esports tournaments (promotional value)

In other words, among the many games, only the ones that satisfy the conditions of competitiveness, promotional value, and tournament continuity will be classified as esports. Likewise, only the games that meet similar international requirements, where tournaments are held, and spectators are gathered either online or in real venues are considered as esports.

Currently, the esports game with the greatest player population is said to be League of Legends (a battle game where teams of five battle against each other), which surpassed 100 million monthly active users in 2016. If we were to make a simple comparison, when you consider that the worldwide number of tennis players are 100 million, it allows you to get an image of the expanding size of esports.

The Environment Was Built in Sync with Technology Development

Esports tournaments that are held today began in the late 1990s in the United States in cities such as San Francisco (Professional Gamers League, or PGL). This coincides with the

Internet expansion era, and along with the development of telecommunication technology, games became something that can be played with people around the world over physical boundaries. It is said that the word *esports* started to be used around the year 2000.

Furthermore, the introduction of Twitch, a platform for online spectators, had a great significance in the development of esports as a competition. Twitch was established in 2011, and built an environment where esports games and events can be viewed over the Internet, which quickly expanded the popularity of esports, and gained a sports-like character. In the United States, esports has expanded to a level which can be considered an industry. The sports channel ESPN carries esports as content along with other events, and covers team developments.

The size of tournaments is also quickly expanding. Dota2-The International which is a tournament for the team battle game Dota 2 is showing remarkable growth. The total prize money had reached 320 million yen in 2013, which has continuously grown to over 2.8 billion yen in 2018, with the grand prize at a whopping 1.2 billion yen.

Japan's esports Situation Is Behind

When we look at Asia, esports is rapidly growing in Korea and China, but although Japan is considered a major gaming country, it is behind in esports.

Japan had numerous hardware and software that were popular worldwide, such as Space Invaders, Pac-Man, Super Mario, Street Fighter II and Famicom and PlayStation. However, those were centered around home game consoles,

Japanese game industry focuses on esports. Konami Digital Entertainment Co., Ltd. held the PES League 2019 World Finals in London and determined the world's number one player of Winning Eleven 2019.

and while the world shifted to online games using devices such as PCs, Japan had taken a back seat. Language and Japanese regulations such as gambling laws, Premiums and Representations Act, and Entertainment Business Law have been barriers to providing huge prize money as is done in other countries.

However, the situation is gradually improving. Professional esports teams have been born in Japan, and there are professional gamers who have been successful internationally. Special facilities such as esports schools for developing players are increasing around the country. Furthermore, since the three domestic esports associations have been unified to JeSU in 2018, Japan is now able to send Japanese representatives to international esports events. It may be a matter of time until this major gaming country of the past expans its presence in the esports world as well.

New Possibilities That Existing Sports Do Not Have

Although there is no doubt that esports will increasingly expand, there are strong doubts among people whether games should be called sports. For instance, in a survey conducted in Japan in 2018 to 600 males and females between the ages of 15 and 69, only 16.8% said that "esports is sports", and 47.0%* said otherwise (see footnote). Whether esports should be an official Olympic event should be thoroughly discussed, putting aside the size of the commercial market. On the other hand though, because esports is easier for disabled and elderly to participate, it is said to offer possibilities such as social unity that existing sports do not.

As we approach the Tokyo Olympics, situations can change quickly in just a few years. We need to keep a close eye on esports trends which also have huge business potential.

---

* "Survey on esports" Research Plus
https://www.research-plus.net/html/investigation/report/index141.html

[References]
"Everything you need to know about esports" Fumio Kurokawa, Nippon Jitsugyo Publishing
The Guardian
Fortnite World Cup: the $30m tournament shows esports' future is already here
https://www.theguardian.com/sport/2019/jul/30/fortnite-world-cup-esports

Business Transformation in the Digital Era

Teppei Tsuchikawa

Deputy General Manager, Silicon Valley Office, ICT & Financial Business Division
ITOCHU International Inc.

Joined ITOCHU Corporation in 2004 after working at a US communication equipment manufacturer and other companies. Stationed in US ITOCHU Technology, Inc. (currently ITOCHU Techno-Solutions America) from 2017 for two years. After returning to Japan, specialized in venture capital and strategic investment to startups. Current position from October 2017.

Silicon Valley is unmatched in the world as the birthplace for innovation. Mark Andreessen, the co-founder of Andreessen Horowitz, the leading venture capital in this area, who is also invested by ITOCHU Corporation, published the concept that "Software is eating the world" in the Wall Street Journal in 2011. This concept had wide acceptance, as startups such as Uber and Airbnb who would be acclaimed worldwide had just been founded. However, there is a bigger change than just that the target for investments has shifted from hardware to software.

The Size of the Challenge

The framework, which is currently widely known as a design thinking, is a systematic attempt to apply a designer's thoughts to a problem solving process. The era of competition of hardware specifications as in Moore's Law has ended, and as times have changed to pursue the value for "solving challenges of mankind", its need has become prevalent and widespread.

When entrepreneurs make a presentation in Silicon Valley, they first describe the "challenge to be solved", and then describe the business as a method to solve the challenge. As far as business potential is concerned, whether it is a challenge for a specific geography, or a management challenge, or a challenge for mankind, the size of the challenge equals the size of the market, which becomes the expectation of return for investors.

For instance, the Farmers Business Network identified agriculture as the challenge to be solved, and provides a platform to improve productivity and profitability for farmers based on a "farmers first" philosophy. Revitalizing agriculture is a global challenge amongst the concern for food shortage caused by the increasing world population. Enterprises such as Orbital Insight and Spire who provide satellite data analysis, position satellites as sensors in space, to allow for the efficient 3-dimensional capturing of outdoor space such as farmland, and have high hopes to advance the industry.

Rapid Growth of Startups Due to Widespread Cloud Services

In the background, hyperscale cloud services such as Amazon Web Services (AWS) and various cloud software services have become widespread. We should not overlook the fact that due to the proliferation of software development methodologies utilizing the benefits of the cloud, companies have become able to focus on their competencies and eliminate waste while adapting to customer needs and conducting development in an agile manner. It is known that Lyft and Pinterest who became public in the first half of 2019, have over a billion dollars combined in contracts with AWS. It is said that Amazon CEO Jeff Bezos said in the "Big Mandate" to all employees in 2002, that "all service interfaces, without exception, must be designed from the ground up to be externalizable". The philosophy to aggressively utilize data exchange by APIs is at the core of Amazon's services including AWS. We can see that the cloud has enabled more than just transforming the way CPU and storage resources are provided, and startups have taken this advantage and been growing rapidly.

Last year, the leading cloud CRM provider Salesforce has acquired Mulesoft, which provides an integrated API connectivity platform at 6.5 billion dollars, which is 22 times the previous fiscal year revenues. It is not an exaggeration to

ITOCHU Corporation has invested in Via Transportation, as well as making a strategic investment in Via Mobility Japan who will provide its systems in Japan.

say that the connectivity with external data in the cloud is a "mandatory requirement" in providing services. It is symbolic of this era that Salesforce has built its headquarters in the highest skyscraper in the West Coast in central San Francisco.

Business Transformation of Long-established Companies

Major corporations also respond quickly to these trends. The long-established New York Times has undergone transformation under the policy of "digital first". This does not pertain only to utilizing technology, but they have radically transformed their business structure from maximizing advertising revenue to maximizing the lifetime value that their customers pay. They are very watchful of the rapidly expanding new digital media companies. They were also probably affected by the acquisition of The Washington Post by Amazon CEO Jeff Bezos, whose mantra is "customer obsession".

As information overflows and consumer needs become diversified, similar movements are seen in all industries including automotive, finance, and distribution. Walmart, who is strengthening its battle against Amazon, has established a development organization in Silicon Valley with several thousand people, and has hired executives from Google, Microsoft, and Amazon to head technology and development.

Meeting diversifying consumer needs globally

JOOR, who operates a marketplace for fashion brands, Plethora, who contracts manufacturing for prototypes and small volume parts, and Rescale, who enables engineering

work on the cloud, may be in different industries, but are all services that link manufacturing with the market, or enable high-mix low-volume production to meet the increasing demand for shorter product development lead times. For the same reason, 3D printers are not only a technological evolution from traditional cutting machines, but are positioned as a "solution" for meeting diversifying consumer needs while transforming the distribution structure of various industries, and thereby attracting large investments from venture capital.

Via Transportation, Inc. who provides ride sharing systems, has the technology to transport multiple passengers to multiple destinations using the optimum route. While providing a convenient and cost effective means of transportation by also connecting with public transportation, it is also addressing urban traffic congestion and a challenge of global scale in reducing CO_2. The founder of Via is from Israel. While having its business headquarters in New York, it has partnered with ITOCHU Corporation, and is developing its business in conjunction with ITOCHU Tokyo headquarters, Tel Aviv, and Silicon Valley.

The concept of "supply chain" where the provider was the central figure, has evolved into a global level "demand chain" where the central figure is the customer. The mechanism of enabling a long term relationship of trust with the customer based on the premise of problem solving is steadily progressing while benefiting from technological innovation. When you examine the new protein space which is gaining attention such as Beyond Meat and Impossible Foods from this standpoint, you will see a different picture.

Nobuo Serizawa

Born 1959; age 59. A lifetime record of five Japan Golf Tour wins, including the Japan PGA Match-Play Championship (1996). One Japan PGA Senior Tour win marked since becoming eligible. Currently heads Team Serizawa, which he formed with professional golfers Hiroyuki Fujita and Katsumasa Miyamoto. Opened a golf academy at the Daihakone Country Club. Has many fans and followers and is known for his easy-to-understand golf lessons.

"Three Ways" to Tackle Your Weak Hole

Players have a "strong hole" where they can always hit well, but on the other hand, have "weak holes" where they "feel nervous just by standing in the tee ground."
How should players tackle their weak holes? Let us explore how to overcome your weak holes, which is important in making your scores.

Do Not be Intimidated by the Distance, Relax, and Address the Ball

In my case, since I am not a long hitter, I am not good at holes where you are hitting uphill from the tee ground, and you have to hit the second shot with a high ball from above. Specifically, it is holes like the 18th hole in Hamaoka (Shizuoka Country Club Hamaoka Course & Hotel. Held the men's tour "DyDo Drinco Shizuoka Open" until 2002), and the 18th hole in Kawana (Kawana Hotel Golf Course Fuji Course. Held the men's tour "Fujisankei Classic" until 2004). Thanks to the advancement of golf gear, my distance has increased, but at the same time the total distance of tournament courses has increased, so the fact that long holes are difficult compared to long hitters remains the same. I can enjoy courses like Wago (Nagoya Golf Club Wago Course. Held the "Chunichi Crowns"), whose total distance is not very long.

For golfers, "the length of the hole" is the largest weakness factor. In a par 4 hole that is over 400 yards, the average amateur tends to try to hit the ball too hard under the pressure of the yardage, and cause miss shots. It is usually after the shot that the player realizes he was trying to hit the ball too hard. You can tell if you are addressing the ball as usual in a relaxed state if you can "waggle" the clubhead smoothly. If you try to waggle, and the clubhead does not move well, it is a sign that you are trying to hit the ball too hard. In such cases, it is effective to waggle the club vertically in the manner of hitting the face mask in kendo. I often use this method in a tournament.

Beware of the Misalignment Due to Sense of Weakness

A player's "compatibility" with a hole depends on the combination of the character of his shot and the hole layout, particularly where the penalty area is. For instance, a player with a slice ball would find a hole with a pond or an OB on the right side to be "difficult to address" and "difficult to hit." In this case, you want to avoid the risky right side and hit on the left side, but this is difficult to do if the player has a sense of weakness. In most cases, this is caused by an unconscious misalignment.

People "face" the direction they want to hit, so if the player wants to hit to the left, his face would turn left, and the shoulders would open. So the open shoulder line and the stance line would "cross", causing a player with a slice ball to hit with an even stronger slice. A player with a hook ball who wants to avoid the left side and hit to the right would have the same misalignment under the same principle. To avoid this, grab the club with both hands, and raise the club slowly from the waist up, and check to see if the stance line, the waist line, and the shoulder lines are all

parallel. By checking the alignment for each ball during practice will allow you to improve the accuracy during the game.

Change Something Clearly, Such as the Club

A player's sense of weakness is closely linked with past memory. For instance, if there is a memory of hitting an OB in a previous round, and if you hit another OB in the same hole, it reinforces the memory of a missed shot. So when you play the hole again, the fear that you will hit another OB again causes the body to stiffen and repeat the same mistake again, causing a vicious circle. In order to get out of this vicious circle, it is effective to clearly change something, such as stop using the driver and use a spoon or utility club for the tee shot. Or, changing the tee height or the number of practice swings may allow you to play with a totally different mindset.

When judging the "compatibility" with the hole, it is important that the player's skills are above a certain level. For instance, can the player "avoid the right and hit to the left" consciously. If the player can do so under normal circumstances, but cannot on certain holes, it would mean that the compatibility is not good, but if missed shots are common regardless of the hole, it is a matter of "skill". If the player does not have the ability to objectively judge his own skills, his golf game will not improve quickly. In addition, unless the player has the ability to collect course information, and to come up with a strategy to build what he can do based on that information, he will not be able to improve his score. Of course, if the player makes a mistake, he needs to analyze the cause and diligently strive to fix it after the round during practice. This process is the same as producing results in business.

Message from
Hikari Fujita
a Female Professional Golfer Supported by CTC

I am Supported by the Power of My Fans

The hot summer has passed, and the best season for golf is here. Today, I would like to talk about my motivation in my seventh year as a pro.

I can keep going on because of my fans. I truly think so from the bottom of my heart. I won the rookie championship in 2013 in my first year as a pro, and my first tournament win was the "Fujisankei Ladies Classic" in 2015. I may have seemed to be on a roll, but I had pains in my left elbow from around 2016. When I continued playing with the throbbing pain in my elbow, it worsened as much as to make everyday life difficult, and did not qualify on the tours. I had surgery for elbow canal syndrome in 2018, but could not perform well, and I was very tough mentally as well. I had no concerns technically other than the injury, but I was afraid to lose my place by not being able to product results.

But even so, there were many fans that continued to support me. The fans that followed me from around my first win did not leave me even when I could not perform well, and there are always about ten people that came to cheer for me anywhere in the country in step-up tours. Compared with regular tours, there are fewer people in the gallery in step-up tours, so my other players would say, "I can always tell where Hikari's group is".

Ever since I was around 19, I tried to talk as much I can with my fans after the game. With regulars, I would just talk about that day's round of golf. Sometimes, they would even point out my errors such as, "Why did you hit it that way in that hole?"

When I just became a pro, I used to lock myself in the locker room when I couldn't play well, but not anymore. Even if my score is bad, or I should say the worse the score, I try to talk to my fans after the game. Recently, after I would finish talking with my regular fans, some other fans who were watching on the side would applaud. I realized that I can become positive by talking, and make it easier for me.

I had some anxiety after surgery, but after I did not qualify after the third Qualifying Tournament for the 2019 season, I got over it. I decided to be patient, and to focus on winning in the step-up tours. When I changed to that mindset, I was able to win the "Yupiteru, The Shizuoka Shimbun & SBS Ladies". I was really happy to be able to show that win to my fans. Winning in the regular tour may take some time. But it is certain that the fans that support me give me the motivation to continue playing golf toward that goal.
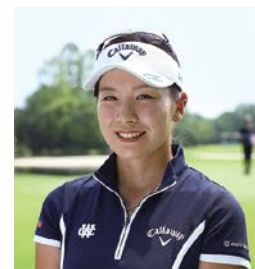
Hikari Fujita - born 1994. Started playing golf from age 3 with her father as her teacher. Passed the JLPGA pro test in 2013. First win as a pro was the JLPGA Kaga Electronics Rookies Cup. Achieved her long-sought win in a regular tournament in 2015.

News Pickup

Here is information on solutions and services,
selected from CTC news releases, that are in the limelight.

SDGs / Educating the Next Generation

CTC Establishes the ITOCHU Techno-Solutions Future Foundation for Educating the Next Generation

On October 1, 2019, the CTC Group established the ITOCHU Techno-Solutions Future Foundation with the goal of helping to educate the next generation through its business. Based on CTC's corporate philosophy, "Leveraging IT's potential to change the future for the global good," CTC will operate the ITOCHU Techno-Solutions Future Foundation to actively make social contributions, providing support for IT training for children and young people, offering learning opportunities for young people who seek careers in IT, and providing learning and job opportunities to young people with disabilities.

SDGs / Environment

Reducing CO₂ Emissions to Zero by 2050

CTC has formulated the "2050 CTC Environmental Declaration," of medium-to-long term environmental goals intended to help achieve measures to counteract global warming as well as the SDGs. With this declaration, CTC aims to reduce the CO_2 emitted from its business activities by 30% in 2030 compared to levels in 2015 and reduce emissions completely to zero by 2050. These goals will be accomplished through means including energy savings from advanced technologies such as AI and IoT, innovations generated through IT, use of renewable energy, and the use of Non-Fossil Certificates and Green Energy Certificates.

AI / Nursing Care

CTC Conducts Field Test—Using AI Optimization Engine to Generate Travel Routes for At-Home Nursing Care

With the aim of improving the productivity of caregivers and at-home nursing care offices, CTC and Welmo have developed a system that uses AI to optimize at-home care deployments of helpers. This engine links the Milmo Net local nursing care resources platform developed by Welmo with the AI deployment optimization engine developed by CTC. The engine produces more optimized assignments by taking upwards of 60 different parameters into consideration including the helpers' skills, desired work days and off days, compatibility between helpers and users, and policies specific to their business offices.

Cloud

CTC Launches "Spotinst" Cloud-based Cost Optimization Solution

CTC began offering its public cloud cost optimization solution "Spotinst." This solution uses unique AI algorithms to predict price fluctuations and availability, enabling stable, low-cost spot cloud service that provides idle resources of cloud service providers at low prices. In addition to AWS, Spotinst is also compatible with Google Cloud Platform (GCP) and Microsoft Azure, and is also be expected to be made compatible with IBM Cloud and Alibaba Cloud in the future.

AI / Robotics

CTC Acquires Stake in AI Chatbot Provider Intumit of Taiwan, and Begins Collaboration

CTC has acquired a stake in Intumit, an AI and robotics startup based in Taiwan, and the two companies have begun a collaboration for AI chatbots in Japan. The SmartRobot AI platform runs on a proprietary AI engine developed by Intumit, and incorporates technologies including speech recognition, speech interaction, natural language analysis, and intelligent search. Along with acquiring a stake in Intumit, CTC will also manage SmartRobot in Japan and operate AI chatbot services primarily for customer support operations at regional banks, local government agencies, tourism-related businesses, and more.

Cloud / Data Centers

CTC Establishes Study Group Focused on Data Centers

Aiming to explore the new roles that the age of multi-cloud will require of data centers, CTC has established the CTC Datacenter Exchange Community (CDEC) study group which includes customers and IT vendors. This study group sets different topics for each session addressing the troubles and challenges faced by customers and deliberates on the fundamental problems and challenges to find solutions based on advanced precedents implemented by CTC, challenges faced, and information about trends. Through CDEC, CTC will seek service formats for multi-cloud and data centers which can contribute even more to its customers and to society in general.

Please visit the following for further details.

https://www.ctc-g.co.jp/news/

Principal Group Companies

Japan

CTC Technology Corporation (CTCT)
Kurita Kudan Building, 11-5, Fujimi 1-chome, Chiyoda-ku, Tokyo
https://www.ctct.co.jp/

CTC System Management Corporation (CTCS)
Sanban-cho Tokyu Building, 8-1, Sanban-cho, Chiyoda-ku, Tokyo
https://www.ctcs.co.jp/

CTCSP Corporation (CTCSP)
Komazawa Nakamura Building, 16-7, Komazawa 1-chome, Setagaya-ku, Tokyo
https://www.ctcsp.co.jp/

CTC Facilities Corporation (CTCF)
1-2, Ninomaru, Tsuzuki-ku, Yokohama
https://www.ctcf.co.jp/

CTC Business Service Corporation (CTCBS)
Kasumigaseki Building, 2-5, Kasumigaseki 3-chome, Chiyoda-ku, Tokyo
https://ctcbs.ctc-g.co.jp/

CTC Business Expert Corporation (CTCBE)
Kasumigaseki Building, 2-5, Kasumigaseki 3-chome, Chiyoda-ku, Tokyo
https://ctcbe.ctc-g.co.jp/

Asahi Business Solutions Corp.
Asahi Beer Azumabashi Building, 23-1, Azumabashi 1-chome, Sumida-ku, Tokyo
https://www.n-ais.co.jp/

Hinari Corporation
Kasumigaseki Building, 2-5, Kasumigaseki 3-chome, Chiyoda-ku, Tokyo
https://hinari.ctc-g.co.jp/

CTC First Contact Corporation (CTCFC)
Komazawa Nakamura Building, 16-7, Komazawa 1-chome, Setagaya-ku, Tokyo
http://www.firstcontact.co.jp/

Overseas

ITOCHU Techno-Solutions America, Inc.
3945 Freedom Circle, Suite 640, Santa Clara, CA 95054, U.S.A
https://www.ctc-america.com/

CTC Global Sdn. Bhd.
Level 10 Tower A, Plaza33 No.1, Jalan Kemajuan, Seksyen 13
46200 Petaling Jaya, Selangor Darul Ehsan, Malaysia
http://www.ctc-g.com.my/

CTC Global Pte. Ltd.
315 Alexandra Road, #02-01 Sime Darby Business Centre
Singapore 159944
https://www.ctc-g.com.sg/

CTC Global (Thailand) Ltd.
2525 FYI CENTER Tower 2, 5th Fl., Unit 2/502–2/504, Rama IV Rd.
Klongtoey, Klongtoey, Bangkok 10110, Thailand
https://www.ctc-g.co.th/

PT. CTC Techno Solutions Indonesia
The Plaza Office Tower 25th Floor, Jl. M.H. Thamrin Kav. 28-30
Jakarta 10350, Republic of Indonesia
http://www.ctc-g.co.id/

PT. Nusantara Compnet Integrator
AKR Tower Lantai 8, Jl. Panjang No.5, Keurahan Kbon Jeruk
West Jakarta, Republic of Indonesia
http://www.compnet.co.id/

PT. Pro Sistimatika Automasi
AKR Tower Lantai 12, Jl. Panjang No.5, Keurahan Kbon Jeruk
West Jakarta, Republic of Indonesia
http://www.prosia.co.id/

Best Engine