

Taiwan Tech Arena (TTA) is a flagship startup ecosystem building program launched by the Ministry of Science and Technology. Through integration of various resources, TTA strives to elevate Taiwan into a vibrant international startup ecosystem by supporting startups through networks of partner accelerators, mentors, investors, and corporate members while expanding their global reach to create more business opportunities.



TAIWAN TECH ARENA

Digital Transformation – The Driving Force to Level Up Industries

Digital transformation is imperative in the face of market trends and demographic preference shifts.

TTA Black Card Community

TTA Black Card Community continues to support TTA's endeavor to become a robust and vibrant international startup ecosystem.



OCT. 2021

08

Entrepreneurship Drives Digital Transformation

Driven by entrepreneurship and accelerated by the pandemic, Digital Transformation is NOW

TAIWAN STARTUPS CONTINUE TO THRIVE THROUGH TTA DIGITAL TRANSFORMATION STRATEGY

As the world enters the post-pandemic era, events and exhibitions are gradually moving back offline yet maintaining their virtual platform. It is, in fact, expected that hybrid events are here to stay as the world becomes more connected than ever before. TTA has foreseen the trend and initiated digital transformation strategies to continue empowering startups to seize global business and partnership opportunities. We are excited to be leading top-notch startups to take part in more upcoming globally renowned exhibitions including TechCrunch Disrupt, Web Summit, and CES 2022 through digital marketing which enables them to expand their business overseas.

As pointed out in this issue's feature article "Digital Transformation", all kinds of business need to embrace digital transformation in order to thrive in the digital economy. This presents an enormous opportunity for startups, and TTA continues to actively promote engagement between startups and corporates, VCs and CVCs who also anticipate the trend and are ready to partake in the emerging digital era which has undoubtedly been exponentially accelerated by the pandemic.

In this issue, it is our pleasure to introduce another two members of our Black Card community - Kevin Lin and Jameson Hsu, who are both well respected in the digital media industry. Be inspired by their entrepreneurial journeys, learn from their experience, and discover Taiwan's greatest advantages from their points of view. In addition, the 8 award-winning startups we proudly introduce in this issue have been internationally recognized by COMPUTEX d&i awards for their innovation and post-pandemic opportunities. It is these startups and countless more that are helping industries not just in Taiwan but all over the world to smoothly and effortlessly transition into the digital era. TTA is committed and determined to continue serving as the platform that drives entrepreneurship forward and lead Taiwan to stride confidently into the future as one of the world's most vibrant and robust startup ecosystem.



Andrea Hsu

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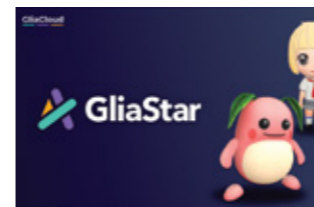
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Online, in person, and hybrid - TTA organizes events on a regular basis to provide startups with the opportunity to present themselves and build the networks they need to thrive.



DIGITAL TRANSFORMATION – THE DRIVING FORCE TO LEVEL UP INDUSTRIES

Digital transformation has become a prerequisite for companies in the face of the upcoming digital economy. The fundamental spirit of digital transformation lies in the creation of innovative value for the customer.

IEK Consulting
Chia-Ju Chen



1. Digital transformation has become a prerequisite for companies in the upcoming digital economy

Industrial revolutions since the middle of the 18th century have resulted in dramatic changes to industries and societies. New materials, new technologies or newly integrated concepts have continually pushed the productivity frontier and created higher values. Now, rapidly advancing digital technology is, once again, redefining the world. The existing boundary between industries is becoming increasingly blurred, and companies are seeking innovation by addressing the markets' demands and integrating multiple domains. Digital technology is rewriting the rulebook for industries by promoting digital service models. Digital technology allows companies to uncover new and potential markets and discover profit-making opportunities. It also empowers SMEs to challenge the big players, accelerate their growth and expand their scale with smartness and agility. As COVID-19 is here to stay and consumption behavior has changed, digital technology is no longer just an option; it is key to sustainable business.

The mere introduction or deployment of relevant information and communication technology to boost production/operational efficiency or enhance corporate health can only be

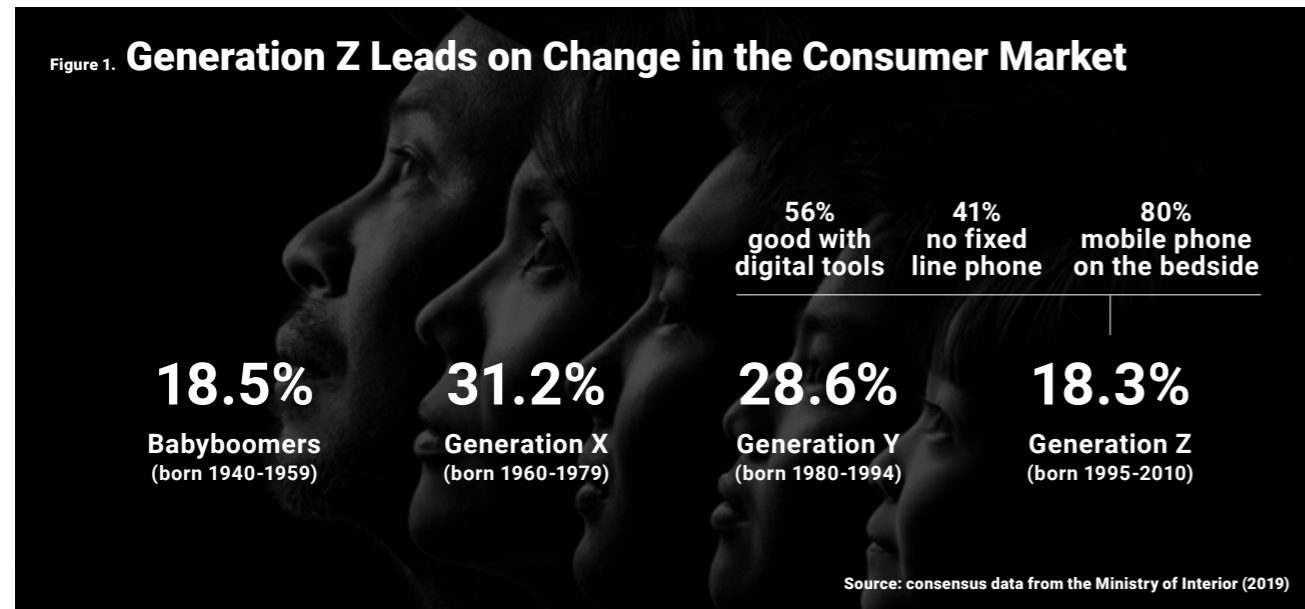
described as digitalization or digital optimization. It does not qualify as digital transformation. Digital transformation is about the revolution of industrial, market and production/service activities by the harnessing of digital technology. It involves the thinking about the change of operations and strategies and the pursuit of value-added utilization of emerging digital technology going forward. This is the reason why digital transformation is usually accompanied by the creation of new value and new services.

Whether it is digitalization, digital optimization or digital transformation, companies surely need to start embracing digital technology to keep up with the times. Three important reasons why companies must embrace digital technology are as follows:

(1) Digital technology is an unavoidable pressure for companies in the face of market trends and demographic preference shifts

Millennials and the digitally native generation, i.e., Generation Y (born between 1980-1994) and Generation Z (born between 1995-2010), are becoming the main spenders in the market. Their lifestyles, values and purchasing behavior are deeply

influenced by the digital age. According to a survey by McKinsey on the characteristics of different generations, Generation Y grew up in the era of globalization and the Internet. They are self-centered and emphasize personal experience. Generation Z grew up in an environment filled with digital products, and as a result, they are used to the mobility and multiple realities of the Internet. (In other words, they are proficient at rapidly switching between the virtual world and the real world.) Generation Z is familiar with how social media functions and hold an open-minded attitude to traditional issues. They are influenced by a massive amount of information and are good with analysis and decision-making based on information. They emphasize individuality and uniqueness and pursue unconstrained freedom. Both Generation Y and Generation Z focus more on experience rather than ownership. They enjoy personalized products and are competent with using digital tools when spending. The real implications for the consumer market are that if domestic companies are not keeping up with the thinking and digital literacy of the consumer cohorts of the digital era, they will be missing out on over 40% of the market.



(2) Digital technology is a requirement for companies to enter the global supply chain

The SMEs (small-and-medium enterprises) in the manufacturing industry in Taiwan started out as contract manufacturers for companies with brands, so they could join the global supply chain despite lacking advanced technology in the early days. As the profitability of contract manufacturing shrank, the industry sought to increase value by enhancing its technological capabilities or by moving towards brand management. However, the manufacturing industry in Taiwan still remains highly dependent on and in close contact with the global supply chain. All production has to adhere to specifications set by international heavyweights.

Basic digital competence is now a prerequisite for doing business with international companies, many of them require their suppliers in the upstream or partners in the downstream to

connect with them via a platform or a system for supply chain management. Receiving orders via the phone will soon be a thing of the past. The use of digital platforms for supply chain management will surely become the norm going forward. In other words, suppliers must have the digital literacy to keep pace with their brand customers.

(3) Digital technology enhances production efficiency, expands clientele and boosts revenues. Digital transformation promotes economic development in the long run.

Digital technology effectively enhances production efficiency and frees up human resources for value creation. It maintains customer relations and develops new markets. A study by Deloitte Insights suggests that the financial performance and digital maturity of an organization are highly correlated. The key lies in higher efficiency, revenue growth, product/service quality, customer satisfac-

tion and employee engagement. This leads to a focus on greater growth and innovation. The benefits of digital transformation can be seen to introduce opportunities, enhance competitiveness and encourage corporate investment. According to the IDC's top 10 predictions for global digital transformation in 2021, the first prediction was that 65% of the global GDP will be driven by digitalization in 2022. Direct investment in digital transformation is expected to exceed US\$6.8 trillion from 2020-2023.

2. Five aspects of embarking on digital transformation

Companies can embrace digital technology and march towards digital transformation by focusing on five aspects: production/operation, organization, marketing, experience and networks. The production/operation aspect refers to the improvement of workflows, deci-

sion-making capability and efficiency, and the reduction of cost through the use of digital tools; or the development of new service models, products and channels with digital tools and data. The organization aspect involves the change of existing work modes and patterns, or the response to new business models and adjustment of the internal division of labor by using digital tools. This also encompasses the development of culture and mentality among employees. In the face of new changes, it is necessary to adjust the work mindset and adapt to the new changes. The marketing aspect is about the use of digital tools to assist companies to reach more potential customers, or the development and discovery of new markets with new business models, and the enhancement of customers' willingness to purchase products/services. The experience aspect entails the development of services catering to customers' needs based on a better understanding of the customers from digital tools. This creates product/service differentiation and eventually establishes customers' loyalty to and identification with the companies. The network aspect is to smooth the flows of materials, capital and information from upstream to downstream of the supply chain with digital tools, to reduce the loss or cost caused by information opaqueness and time difference.

Below is an explanation of how these five aspects worked for Hasbro, Inc.

Hasbro's Digital Transformation

Hasbro is a toy manufacturer from the U.S.; their products include Play-Doh, Monopoly and "My Little Pony". Over recent years, Hasbro's traditional business has been affected by the popularity of

personal computers and multimedia. In fact, this has become a problem for the whole toy industry, and even the education industry and the media industry share the same problem. This is due to the market trends and demographic preference shifts previously mentioned. Consumers today are different from consumers in the past. Traditional static toys now require more visual, audio or tactile stimuli as well as more interactivity and creativity.

After coming to terms with these issues, Hasbro embarked on a major transformation plan in order to change itself from being a traditional toy manufacturer to become an entertainment media company and create a world-class gaming and entertainment experience going forward. Under this blueprint, each toy would have to tell a story and cater to consumers' needs. The transformation scheme was structured into the five aspects of production/operation, organization, market-

ing, experience and networks. It sought to achieve its transformation goals with the assistance of digital tools.

1. Operation: Mastering of digital technology to connect innovative capabilities

As consumers are increasingly in favor of personalization, Hasbro uses emerging technologies to increase player involvement by enriching the gaming experience. For example, the company works with 3D printing startups so that consumers can 3D-print toys at home (by purchasing Hasbro's packages of materials and software). Gamers can come up with their own designs and manufacture personalized toys in small volumes by contacting 3D printers via a digital platform. This does not only realize the economics of customized production, but also presents a major breakthrough in operational philosophy. The idea of using cooperation instead of competition generates loyalty income from con-



sumers and avoids profitability erosion due to non-authorized manufacturers 3D printing Hasbro's toys.

Meanwhile, Hasbro has digitalized classic boardgames such as "Monopoly" and "Dungeons and Dragons", as well as card games such as "House of Cards" and has even joined the e-sports market. This is in a bid to keep up with gamers' preferences and revive their love for these classic games. Meanwhile, the revenue growth from digitalization of the physical products offsets the decline in income from the physical channels.

2. Organization: Instilling digital DNA into the organization

People are the most important asset of an organization. It is the people that can drive a company through the difficulties and steer it towards prosperity. The first step of Hasbro's reform was to establish a data analytics and insight team and create the position of Chief Consumer Experience Officer (CXO). The professional team is highly proficient with the use of digital tools and data analytics in order to discover the true needs of the customers. The cheaters edition of Monopoly is a great example. Through customer insight, the Hasbro team noticed that more than half of Monopoly players had cheated while playing the game. Therefore, cheating elements were included into this version. Stealing money from the bank, moving other players' pieces, and collecting rent on behalf of other players allowed gamers to have more fun and feel closer to how the game is played in real life.

Efficiency and efficacy have become more important in the development of

games and software. DevOps combines development, testing and operation across domains and reduces the complexity of communication between development and operation functions. This breaks down the traditional barriers between the development team and the operation team and increases the development speed and quality of online operation. Meanwhile, to boost the work efficiency of the entire team from top down, SaaS (software as a service) and RPA (robotic process automation) were introduced on cloud platforms in order to provide management with real-time and transparent operational information. This enables direct integration of marketing data and control of global capital and risks. RPA frees up employees from repetitive and tedious tasks so that they can focus on high-value tasks, and the team's productivity can be enhanced.

3. Marketing: Ecommerce as a priority and links with digital media

After the collapse of Toys"R"Us in 2018, Amazon became one of Hasbro's three major clients and the largest and fastest growing channel in Europe. This clear sign of the arrival of the digital marketing era has not been missed by Hasbro. The company has been striving to fully develop its ecommerce business in response to the changes in the retail industry. Tangible measures include the reduction of inventory and the development of new sales channels.

Given the high penetration of mobile devices and the long hours spent online, digital media has gradually become the mainstream avenue for exposure. Hasbro is also proactively connecting with digital media such as YouTube and Netflix. The large variety

of digital channels and streaming platforms offering on-demand content means consumers no longer need to stay in front of the TV at specific times. This enhances the consumers' stickiness with animated characters and allows for customized advertising, real-time tracking and effectiveness analysis according to the nature of the channels and the audience.

4. Experience: Omni-channel development to enhance user experience

The transformation from the manufacturing of toys to the creation of entertainment experience is about the shift of focus from the sale of single products to the delivery of feelings. Hasbro develops its branding strategy based upon the content of products and the narrative of stories. This means the characters owned by Hasbro become the center of product management. In addition to physical toys and digital games, Hasbro is extensively involved in publication, music & art, TV and movies, e-sports and location-based entertainment to extend the reach of product content and connect online with offline activities. The goal is to surround consumers with a plethora of product types and build a powerful relationship, so that the brand is deeply rooted in the mind of consumers.

Meanwhile, the company has also launched the Hasbro Gaming Crate, a subscription-based product in which the subscriber receives four crates a year, valued at \$49.99 each. There are three toys in each crate with a seasonal theme and include exclusive items not yet officially launched on the market. If consumers feel that they already have enough toys at home, they can either stop the service or skip

one season. In addition to the creation of a stable source of revenue, gaming crates can test consumers' response to the toys in order to decide whether market launches or heavy promotions are a good idea.

5. Networks: Supply chain platform to drive collective changes among suppliers

In 2012, Hasbro developed a Chemical Management Database (CMD) in conjunction with DynaSys Solutions Limited in Hong Kong and Scivera in the U.S. in order to ensure compliance with international safety regulations such as the Restriction of Hazardous Substances (RoHS) Directives; the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) regulations; the U.S. Consumer Product Safety Commission (CPSC) regulations; and the 1986 California Proposition 65. The purpose was to use a digital platform to inspect whether toy materials are compliant. Brand management functions are gradually added. For example, Hasbro can quickly compare the regulations in different countries and track the materials used by suppliers across the board by integrating with third-party testing laboratories and chemical substances databases concerning toys. This has become an important tool for Hasbro in supply chain audits and product risk management. It connects Hasbro with supply chains around the world, in order to conduct comprehensive tracking of suppliers at different levels and enhance the quality of the entire supply chain.

This also echoes our previous statement that digital technology is a prerequisite for companies to break into the global supply chain. Going



forward, if manufacturers from Taiwan would like to enter Hasbro's supply chain, they will need to have attained a certain level of digitalization to be able to connect with Hasbro's supply chain management platform.

Hasbro's digital transformation demonstrates the importance of having established a clear direction. The company started with a blueprint for corporate transformation and a confirmation of its goal to become an entertainment media company before determining which aspects to transform and what digital technology to use. The global corporate survey by McKinsey also mentioned that the success rate of digital transformation is less than 30%. Without a comprehensive blueprint in place, digital transformation initiatives are likely to be reduced to piecemeal solutions and eventually fall apart. Before embarking on transformation, a robust strategy should be first devised. This is then followed by the commencement of suitable transformation programs and the introduction of relevant digital technology.

Among the five aspects of digital

transformation, most companies in Taiwan are still focusing on investment in production/operation, such as the enhancement of production efficiency and optimization of manufacturing processes. Going forward, the thinking should be shifted from the supply side to the consumer side. It will be even more important to grasp the consumers' needs via digital technology. The key to sustainable business is to understand the consumers better than your competitors do, or even, better than the consumers themselves do.

3. Identification of the most suitable path for transformation

Hasbro developed its transformation scheme for all five aspects discussed above based on its blueprint, which is the optimum path. However, according to the 2020 White Paper on Small and Medium Enterprises in Taiwan, 97.65% of the companies in Taiwan are SMEs (small and medium-sized enterprises). Given the resource and manpower constraints, these companies are unlikely to be able to afford transformation in all five of these aspects. Therefore, the following three differ-

ent paths can serve as a reference for companies of different sizes in pursuit of digital transformation.

1. Total leadership and transformation

If a company has the resources and manpower, it may initiate a complete transformation in all five aspects in the same manner as Hasbro did. One frequently seen pattern is to develop one's own digital transformation, become a new benchmark for the industry, and then sell the relevant solutions or accumulated experience to one's peers or other industries. In this respect, the company has undergone another transformation and become a consultancy

McCormick, the global food company specializing in spices and flavorings, established Vivanda, a data management and analytics platform, and launched a transformative service called FlavorPrint. This analyses the flavor fingerprint unique to each consumer and enables the prediction of recipes, seasonings and ingredients to satisfy the taste buds in different scenarios. New products can subsequently be developed using the data collected and analytical findings. This system assists restaurants in the development of new recipes and helps bars with the creation of new cocktails. Eventually, this service was spun off from the food production business and became a consulting firm.

2. Leveraging the resources of mid-sized firms to create differentiated value

Mid-sized firms cannot afford a comprehensive digital transformation due to a lack of sufficient resources. However, they are able to resolve pain points by the use of digital technology. These companies can leverage resources from the government and

start-ups, and learn from peers how to identify opportunities for transformation for differentiated value over the next three to five years.

For instance, the mid-sized fashion company from Sweden, ATACAC, knew that its pain point lay in pricing. Inventory management is a challenge for fast fashion companies. Surplus inventory that is no longer in fashion can only be sold at discount. However, this gets consumers wondering how the products could justify such a high initial price tag and hence undermines the brand value. Therefore, pricing becomes a key issue. To resolve this pain point, ATACAC found a partner to help with the introduction of a pricing mechanism based on machine learning. Pricing is determined dynamically using a machine learning model which takes into consideration the timing and quantity of orders and the level of popularity. This pricing mechanism, similar to flight ticketing, reduces ATACAC's inventory to almost zero.

3. An organic and collaborative network of mutual benefits for members in a cluster

Some companies may be limited by their own scale. However, they may develop systematic cooperation by building corporate synergy within a local industrial cluster. This facilitates knowledge sharing, collective procurement or production, and innovation, and compensates for each member's weaknesses. It can even extend into international market development and establish win-win strategies for members in the same ecosystem, so that all members achieve sustainable development and value creation in the fiercely competitive market. For example, The Wood Manufacturing Cluster of Ontario (formerly known as

Bluewater Wood Alliance) is a strategic alliance of over 120 local SME timber companies and peripheral service providers such as design, machinery and business management. This ecosystem consists of government agencies, academic institutions and companies, and injects synergistic energy into the art, technology and marketing of the local timber industry. This includes the introduction of art design templates, automated precision carving and an online order-taking platform. Internet-of-things (IoT), lean production and collaborative order-taking have been deployed. It has also helped the local timber industry to move from the manufacturing of kitchen units and furniture to the market for high-end architecture (such as churches).

4. Small and micro businesses can directly reach customers via existing platforms

Small or micro businesses with less than nine employees are advised to leverage existing platforms to directly reach customers. Nowadays, there is an "Uber of X, Y, or Z" in many different industries. Small/micro businesses without the resources for transformation can simply develop new clientele by signing up to existing platforms and receive orders on their mobile phones.

For instance, the Japanese beauty and hairdresser platform "minimo" allows beauty therapists and hairdressers to advertise and find customers who like their styles. New businesses can find models on the platform too. This platform charges a service fee based on completed reservations and collects advertising fees. Beauticians and hairdressers can develop clientele outside of their physical salon and stay on top of their customer base by referring to backend data analytics and reports.

IEK View

Forbes Magazine has made an appropriate interpretation of the importance of digital transformation to companies. Digital transformation is more than just technological enhancement and workflow optimization. Rather, it should encompass corporate earnings and all stakeholders. Many companies hesitate to invest in digitalization because of concern over the difficulty in achieving the desired effectiveness. However, a strategic approach in planning and execution should be able to enhance share prices and profits in the long run. Hasbro's digital transformation was from top down and inside out the organization. All the partners and the whole supply chain were involved. Despite a 1100% rise in advertising expenses on digital media, sales went up by US\$1 billion. Microsoft, Nike and Honeywell all saw their share prices rise significantly after transformative efforts over between two and eight years. As Generation Y and Generation Z (both adept at digital tools) are becoming the main spenders in the market, the failure of domestic companies to keep up with these consumer cohorts in thinking and digital literacy will lose them more than 40% of the entire market.

Whilst the development of companies and industries is under the inevitable threat from the changing environment, the companies able to sail into the wind by keeping pace with the digital age will thrive. The disruption to the industry starting at the end of 2019 due to COVID-19 is a case in point.

Digital transformation may be initiated in the five aspects of production/operation, organization, marketing, experience and networks. Before kick-off, it is important to come up with a blueprint and a set of goals. Reviews and anchoring are advised in advance, in order to identify where you are and where you would like to go. Only by doing so can the optimal solutions be found. Every company has its own particular market-efficient solutions best suited to its scale and cost. There are many maturing digital tools in the marketplace. The key is to team up with partners who are able to work for your industry characteristics, company advantages and target markets. Cooperation with start-ups in digital technology will be the most cost-effective method. It is often seen as one avenue to identify the best investment target and source digital talent.

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Only Through Constant Learning and Interacting With Communities Can We Grow Stronger

Kevin Lin is a member of the Black Card Community of Taiwan Tech Arena (TTA). He is an experienced Taiwanese American entrepreneur and angel investor. With his experience as the co-founder and COO of Twitch, he has opened a new window for Taiwan startups and is attempting to build a bridge of innovation that connects Silicon Valley with Taiwanese founders.



Kevin Lin

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Q: As an angel investor and founder in the digital media industry, can you please share your entrepreneurial journey and experience?

Everything was a bit random. After graduating from Yale University in 2004 with a BS in Ecology and Evolutionary Biology, I honestly didn't have too much of a plan aside from eventually going to Veterinary school. I moved to New York City in hopes of volunteering at the Animal Medical Center, but only realized when I got to NYC that there were 150 other volunteers registered and waiting before me. The reality is I wanted to move to NYC to be with a girl I had recently started dating. Anyway, my hopes for getting into veterinary school were diminished, and I was left considering other career paths. Without a job lined up, I ended up working some freelance gigs in the event planning and production world, eventually landing a more full-time job at NYC & Company, the city's convention and visitors bureau. Several friends helped me get interviews at consulting companies and investment banks, but no luck. Turns out my college major wasn't very marketable in New York. Then, in late 2005, my brother suggested I join a beverage startup based in San Francisco called Adina for Life. They asked to help launch their sales and distribution in the Boston area, so I began commuting from NYC to Boston on the Amtrak every week. Eventually, at the end of 2005, they asked me to fly out to San Francisco to meet the core team, and then asked me to move there to work full time at headquarters. After some contemplation and speaking to my then girlfriend, we decided to move to San Francisco and officially landed there in January 2006. I was in charge of the

warehouse and distribution center - doing sales, loading up trucks, driving forklifts, and delivering beverages of all sorts around the Bay Area. My parents were not so happy with me and my non-optimal use of my Ivy League degree, so after about two years, I started opening my mind to other career paths again.

In April 2008, I was asked by my college friends Michael Seibel and Justin Kan to join Justin.tv as a Chief Operating Officer. Justin.tv was the brainchild of Justin Kan who sought to stream his life 24/7 on the internet. Justin.tv had four founders - Justin Kan, Michael Seibel, Kyle Vogt, and Emmett Shear. Justin.tv's premise was such a big, bold idea - to be able to broadcast live video of whatever you wanted to anyone in the world. Eventually, the platform became open for anyone to use for free. Coming out of the recession in 2010, we started to think of ideas of where to take the company, and out of Justin.tv came two companies - SocialCam, which Michael led as CEO who brought on two engineers as co-founders; and Twitch, led

by Emmett Shear, our original CTO and co-founder, who brought me on as co-founder and COO. Then things really started to take off. Twitch was one of the fastest growing websites on the internet from 2011-2014, and in early 2014 was the fourth highest peak internet traffic platform just behind Netflix, Google, and Apple. This fact is what started to draw interest from leadership of the big tech and media giants, and ultimately led to our acquisition by Amazon in late 2014.

My role as COO meant I had to figure out a lot of the business as we built. This was before "creator economy" as a term existed and early days in cloud, so there wasn't a lot of history to base our planning on. It's anxiety-inducing yet fun to build a startup in a new space with a massive opportunity size - there is no playbook, no set of best practices, no clear growth hack or monetization path. We luckily found a large niche and a behavior that an entire generation grew up doing - watching each other play video games.





Q: Besides recognizing you as a co-founder and COO of Twitch, most people also know about your role as an angel investor and the several startups you have founded, including Gold House Collective, and your financing services for independent films. Your love for gaming and animation is also widely known, so which is your favorite role?

Of course, my career at Twitch is so far the most formative experience. A third of my life - from ages 26 to 38 - was dedicated to Twitch. We learned so much so quickly - how to build a team and good culture, how to think about product, how to talk to customers, how to keep a company going. Aside from the initial Justin.tv live video system and platform that allowed Twitch to scale quickly, learning how to engage with streamers as our core customer and understanding their needs and desires was the most important thing we figured out in the early days of Twitch. Many founders out there assume they

themselves have a good enough sense of the customer needs and end up building the wrong things. We became obsessed with building a real relationship with our creators, ensuring we understood their needs which helped us better understand what they needed to succeed. Finally, I got to work with some of the smartest people I've ever met, which helped me grow as a person.

Q: What brought you back to Taiwan? Do you have any plans to create startups in Taiwan?

The COVID-19 pandemic was definitely a catalyst that led me to come to Taiwan. After I left Twitch in November, I flew to Taipei with my parents. My parents are originally from Taiwan, and given how well Taiwan managed the pandemic, it made sense for us to fly here to enjoy some normal life after 9 months of lockdown in the US. Plus, I love Taiwan and the thought of spending some time here

was of course appealing regardless of the COVID situation.

I had many great memories of Taiwan as a child and have been coming to Taiwan a few times a year for the last 10 years for work. Taipei was the first place in Asia in which Twitch established a team and it was an important market for us in our early growth stages.

Several friends of mine who are successful Taiwanese American entrepreneurs have been discussing doing something for the Taiwan startup ecosystem for a long time, and several initiatives have popped up. 886 Studios, a venture studio focused on building startups in Taiwan, is one of those initiatives, offering ideas, starting capital, knowledge transfer and network to Taiwan startup entrepreneurs. We also hope to help attract more venture capital fund interest to Taiwan's startups.

Finally, I am about to launch a game company that will have a Taipei office. We're just getting started, but I'm excited to work with local talent on this new project.

Q: You are very familiar with the games industry. Are there opportunities for Taiwanese startups in the games industry?

I believe so. Building games runs on quite a different process than a traditional software company does. Games combine technology and art in a much deeper way, meaning you really need great talent on both sides. A lot of games these days are starting to focus on story and narrative again. I believe the talent in Taiwan not only cover the core needs of building video games - great engineering, computer graphics, music, character design, world building - but can also help bridge multiple gaming cultures. A lot of great games come out of the US, EU,

Japan, Korea and China and expand across the globe, and we're starting to see more development happen all over Southeast Asia. A couple of the challenges for Taiwan gaming ecosystem is the fundamental mental and ambition shift to thinking and acting more globally, as everyone here says, and of course solving the cold start problem of fundraising for early stage startups in Taiwan. From what I have seen, Taiwanese games startups are still facing problems with money and capital because in the end, operating in an industry related to culture, creativity, and art and moving into the international market is not a cheap endeavor.

Q: Taiwan has held a special place in the global supply chains for electronic production and semiconductors. Regarding new software industries such as games, how can we leverage that position?

Taiwan No. 1! I don't know all that much about this space, but all of these hardware gains help empower new options for games. Better rendering with lower bandwidth allows for better art and gameplay experience over a mobile network, for instance. This can be powered by hardware improvements, edge network deployment, etc. With AR and VR on the horizon, Taiwan has an opportunity to develop in and around those ecosystems quickly as well. The main point is to have an ecosystem and entrepreneurial environment for these startups with different ideas and abilities to quickly raise money, grow and fulfill their potential to capture not only the direct opportunities but those that flourish as

a result of any particular one industry's growth. We must think about the full ecosystem.

Q: What are your personal development plans for the next few years?

It's hard to say. I'm going to work on this game idea, and beyond that I am not so certain. Taiwan is a great place to live and the people are friendly and happy to help others. I am very excited to build something here.

Q: Do you have any advice for Taiwanese startups?

Keep going, talk to customers, share your experience with other founders and help each other out, don't give up, experiment a lot and fail, and learn be proud of the attempt.

Q: Do you have any advice for TTA?

Admittedly, I have not been as involved as I would like to be yet since I have only been in Taipei for so long. I can still feel the energy and passion of TTA and its community. I think what TTA can do is help breakdown the core problems in ecosystem development and align the community on solving them one at a time.

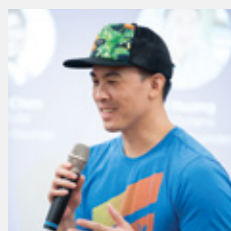


Kevin Lin at the Emmy Awards 2019 where 96Next won the Outstanding Innovation in Interactive Media Emmy Award for the Twitch show Artificial



The Rising Trend for Digital Sports and Fitness Startups

With the COVID-19 pandemic showing no signs of ending in sight, its impact continues to be felt by nations around the world. As global supply and demand struggling under such circumstances, industries are now diverging away from their existing business strategies and looking for a new way to survive the turbulent market. At the moment, the trend of new technology-powered home fitness that soared to surprising popularity during the pandemic is one of the hottest topics.



Jameson Hsu

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As one of the Black Card Community members of the Taiwan Tech Arena (TTA), a tech innovation and entrepreneurship hub under Taiwan's Ministry of Science and Technology, Jameson Hsu saw a great deal of potential in fitness apps derived from profound artificial intelligence (AI) and big data analysis technology which have been custom tailored and applied to compact wearable devices. In the course of his entrepreneurship journey, he has been invested in three times with two startups, Mochi Media and Pieceable Software, he founded later acquired. This time, it is Jameson's fifth time of entrepreneurship. An innovative startup named Kinetik, geared towards fitness, is poised for greatness.

Jameson graduated from Virginia Tech and has worked at PwC, Facebook and Tencent. As a serial entrepreneur, he has been exceptionally creative in setting up 5 ventures. He is also known as an angel investor who has invested in over 40 startups in areas ranging from finance service, AI, chip design to big data platforms in healthcare.

The first startup that Jameson founded was WDDG in 1999, which set out to develop fun games and websites for enterprises using Flash technology. Founded in 2005, his second startup was the brainchild of his game building creativity infused with inspiration - Mochi Media. This gaming distribution platform was devised to track and analyze logs in any program produced by Flash, from which enabled game developers to earn income and make advertising more accurate. Mochi Media was then acquired by Shanda Games from China in 2010 for US\$80

million. Later, Pieceable Software, another startup co-founded by Jameson that focused on developing iOS Apps, was bought by Facebook in 2012.

Driven by the pandemic, fitness startups and sports brands are proactively increasing their presence

Jameson expressed that when he experienced the explosive growth of the fitness industry in San Francisco, he came up with a lot of new ideas. Hence, he started a new company called Kinetik. The company is going to pour effort into fitness and has a product development team in Taipei. Before the spread of the pandemic, workouts and fitness activities were site specific. By contrast, a wide variety of digital fitness platforms are now springing up as cutting-edge technologies like 5G, AI, and the IoT increasingly mature. Users' fitness performance is well monitored and recorded through customized design so that users feel motivated as if a personal coach were by their side.

From the perspectives of venture capital, Jameson touched on the immense resources invested in fitness startups

over the past two years. Smart fitness apps, smart fitness application platforms, and smart fitness equipment have proven themselves successful with a large number of target users as well as attracted attention from numerous venture capital investors.

Take the U.S. fitness startup Tonal for example. They introduced a "smart home gym equipment" that just needs to be mounted to a wall to provide all the training and exercises that are normally only possible in commercial gyms. They ditched the conventional dumbbell and barbell experience in favor of the weight simulation of plates through an AI-controlled electromagnetic resistance motor. A giant LED screen is meanwhile used to display and assist users with their posture mistakes and fixes in real time. The product is a perfect fit for user to work towards an ideal body shape.

Lululemon has made a \$500 million purchase to acquire Mirror, a hardware tech startup, aiming for a more





immersive at-home fitness experience for their customers. Customers can play music while they exercise, check fitness data to see how the workout transformed their body, or train with fitness coaches from pre-recorded training courses that come as part of their subscription to Mirror. This type of highly interactive and highly personalized workout is one of the key factors that made Mirror a popular choice for home fitness.

Moreover, tech giant Apple has announced the launch of "Apple Fitness+," their own value-added fitness plan that works with the Apple Watch. The app provides various workout types from running, yoga, rowing, physical training, to dancing. Apple Fitness+ utilizes AI to track and analyze user statistics, and give smart feedback on the recommended workout intensity for their users, effectively creating a virtual AI personal trainer.

Jameson emphasized that even if the pandemic comes to an end in the future, fitness culture will have by then undergone a revolutionary change. Consumers are now met with the rising trend of home fitness and might not go back into the gym-centered fitness lifestyle they had before the lockdowns. With the fitness app, consumers can choose between various workout types such as freehand exercises and weight training. Some workouts combine AR devices to make users sweat more; some targets muscle-building and shape-toning; and some workout programs offer different levels of workout intensity, or they can cater to various user scenarios and fitness goals for a personalized fitness program. Given the trend, not only have major sports and fitness brands like Lululemon and Nike engaged in creating a better home fitness experience for users, so do startups and tech firms. These drivers for innovation are gradually changing the state of the fitness industry.

Taiwan with its Hardware Centric Background and Cutting Edge Software Development Technology will Stand out in Sports Tech

In the future, as the home fitness market becomes full-fledged, many of the electronic fitness equipment and wearable devices will rely on Taiwan's supply chain. "Taiwan will play an instrumental role in the fitness industry," Jameson said. He also mentioned that Taiwan has another competitive advantage - its abundance of technical talents. Notably, software and hardware designers possess impressive capabilities and skills. Highly educated and approachable engineers quickly get the hang of it and find solutions with great teamwork. Taiwanese government launched the Employment Gold Card plan to welcome talents from around the globe. Jameson held the second Employment Gold Card (the first one was given to Steve Chen, co-founder of YouTube), and moved back to Taiwan with his family in March 2020.

Before moving back to Taiwan, Jameson had frequently traveled between San Francisco and Taipei to help assist in fundraising and financing for Taiwanese startups. It was not until when he was actually staying in Taiwan for many months at a time, had he truly appreciated the reason why the country was called "the precious island." Taiwan has friendly people, stunning suburban scenery, and people can even visit a mountain and a sea on a one-day trip. "Taiwan could be an excellent place to live, work, and build a team in," said Jameson.

Go beyond the national boundaries and Target the tremendous economy of scale of overseas markets

Jameson added that he looks for startups with high potentials with no particular focus or specific verticals. He candidly pointed out that Taiwanese startups tend to be more focused on developing within the local market, which is regrettable. If they can set their



eyes on larger markets like that of the U.S., the economy of scale can often-times completely transform what they think they are capable of. His advice for startups is: "When designing your products, do not be confined to the national boundaries. Go above and beyond!" He gives his appreciation to the Taiwanese government for its support to the Taiwanese startup cycle. Taiwanese Tech Arena (TTA), for example, is devoted to the development of the Taiwanese startup ecosystem. He hopes that he can have more interactions with TTA and contributes to this exciting Taiwanese startup ecosystem.



STARTUP STORY

As Taiwan startup ecosystem continues to grow and become more robust, startups are emerging in various verticals across the board. TTA is proud to support startups, local and international alike, to thrive not just in Taiwan but worldwide. Many of our startups have been globally recognized and honored with several international awards which validate that Taiwan has what it takes to take on and shine on the world stage.



DoQubiz

“Fractal Encryption,” a Game-Changing Approach to Cybersecurity

The recent surge of AI, 5G, and IoT technology has given rise to unprecedented levels of cyber threats that even target critical infrastructure and government. The severity of these threats has turned cybersecurity into a matter of national security for countries around the globe. To safeguard their digital assets, governments and enterprises have increasingly been investing in high IT security budgets year after year, which has led to the growth of the cybersecurity market. In fact, Gartner estimates that by 2023, the global cybersecurity market will reach US\$168 billion.

While most cybersecurity companies are based in Europe, the United States, or Israel, Taiwanese startup DoQubiz is using the idea of security through obscurity to develop their proprietary ‘Fractal Security Engine’ that implements a highly resilient



data protection protocol. The company has won honors including the 2021 COMPUTEX d&i Awards and 2020 IAPS Award; and it has since become a rising star in the global cybersecurity industry.

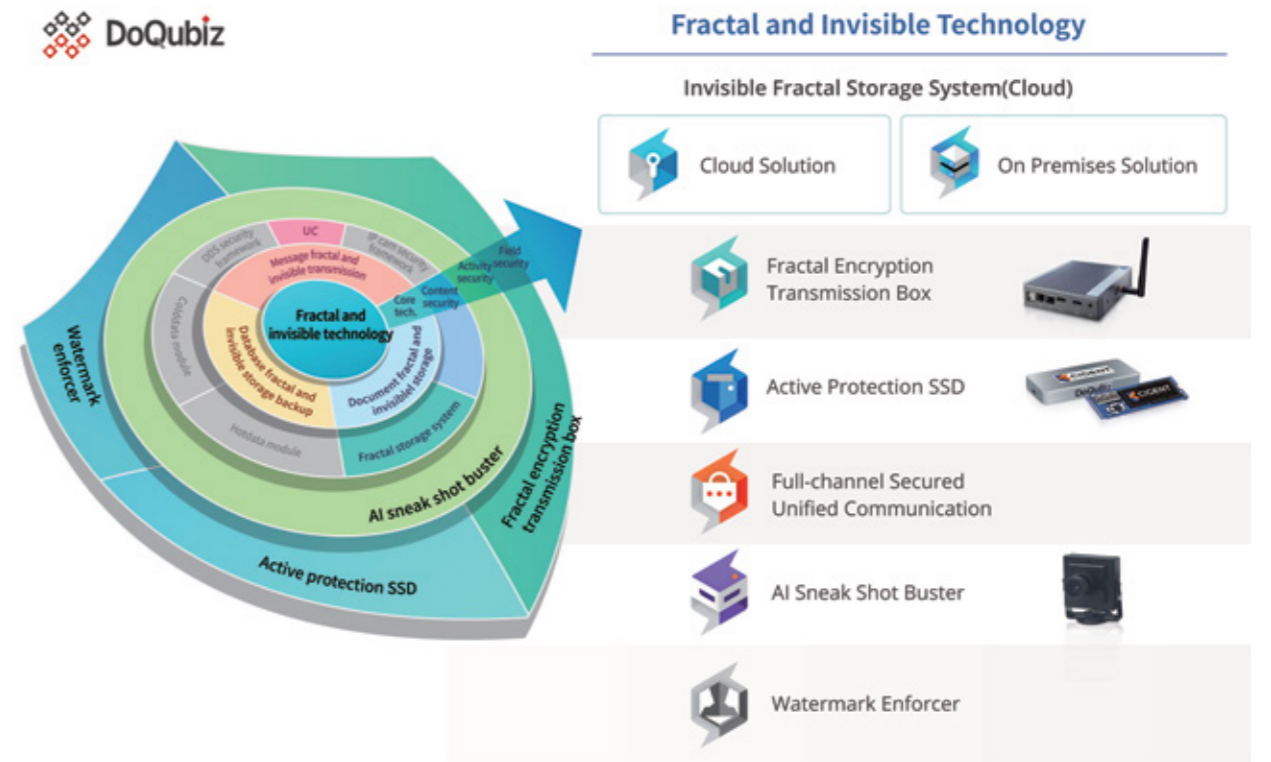
DoQubiz CEO Keng Lee points out that his company is using disruptive innovation to redefine traditional data security technology. Their encryption provides comprehensive data security for the entire life cycle of user data, starting from data generation, storage, transfer, access, tracking, all the way to data destruction (recycling). The company has entered international markets and its current customer base includes governments, enterprises, and individuals (through Fractal Security Cloud Storage).

Fractal Security Technology Prevents Unauthorized Access to Critical Data

Hackers have a variety of means to infiltrate enterprise security nets so they can gain access to critical company data or private information that can then be sold or ransomed for massive profit. With so many threat vectors available, it has become increasingly difficult to defend against all of them. DoQubiz, therefore,

believes that protecting the security of each individual document is the most viable solution to reduce loss for enterprises. The company started with four goals for document security: “preventing leaks, ransoms, or hijacks at the source”, “integrating software and hardware to protect terminal devices without computation power,” “creating a vision for comprehensive digital assets security,” and “developing defensive cloud applications.” With these objectives in mind, DoQubiz has developed a data protection protocol that far surpasses traditional file encryption.

“As zero-trust security models become more mainstream, simple password encryptions are becoming insufficient. Instead, DoQubiz’s proprietary Fractal Security Engine for documents divides the file into fractals. Each fractal is encrypted with a password that is derived from the previous one so that each fractal has a different encryption key. Next, each fractal is linked together via blockchain. Lastly, they are hidden and saved in non-formatted distributed storage.” Keng further explained, “Because every step of the encryption process is derived from the previous step, this nullifies brute force penetration possibilities. Therefore even if a hacker were to



gain access to one of the document pieces, they will not be able to decrypt and restore the whole document.”

Diverse Product Lines Satisfy Different User Scenarios

In response to diverging market needs, DoQubiz is using the Fractal Security Engine as the foundation to deploy a variety of products such as their Invisible Fractal Storage System (both on-premise and Cloud), Fractal Encryption Transmission Box, AI Sneak Shot Buster, Watermark Enforcer, Active Protection SSD, and Full-channel Secured Unified Communication (secured IM)

The on-premise Fractal Storage System uses both fractal transfer and invisible storage, overcoming the problem that isolated files tend to be easy to steal and decrypted. The system offers customers considerable security for their digital assets and is perfect for organizations that deal with highly sensitive data. The secured IM ensures that messages are encrypted and that attached files are stored in a fractally encrypted host to ensure that critical data is not stored locally, making the file non-printable, non-local, and protected against leakag-

es. The messaging system also supports up to 12-way encrypted simultaneous video conferencing with video playback function for critical remote conferences or remote classes. For customers that are security conscious, the cloud document safe allows secure storage and management of important data.

DoQubiz’s Active Protection solid state drive is equipped with three important features. The first being the built-in dynamic data defense engine (D3E). The engine uses machine learning to model the user’s behavior to continuously verify end-user identity in a zero-trust security model. Secondly, all onboard data access and storage are all safely encrypted while still retaining the same high-speed transfer bandwidth. Lastly, the drive is secured under the highest standard of protection environment to prevent potential data leakages in the event of device loss.

Owing to more relaxed venture capital regulations and TTA’s full support in terms of mentorship and connections with venture capital firms, local as well as overseas, DoQubiz has received fundings that have contributed to the company’s accelerated growth. In the future, not

only will DoQubiz continue to invest into R&D and expanding its market, the team also hopes that they can help elevate Taiwan cybersecurity brands to the global stage by combining its security expertise with the advantages of Taiwanese ICT industry to create a better cybersecurity service that comprehensively integrates hardware and software.



Asia Pathogenomics

Realizing Precision Medicine through Pathogen Genome Sequencing

Those familiar with the medical industry have undoubtedly heard the term “precision medicine” with great frequency. As a matter of fact, the development of genome sequencing technology in recent years has advanced the treatment of infections from unknown pathogens into the realm of precision medicine. The concept behind precision pathogen detection is to identify the pathogen through bioinformatics and data science, and then using drugs or treatments that can accurately target the pathogen. Back in 2015, the Obama administration proposed to invest US\$215 million to develop precision medicine in the U.S. More recently, the UK and China have also followed suit, demonstrating that the technology has become the focus of medical R&D in most countries, and genomic sequencing is a key technology in the application of precision medicine. As a leading player in the



global medical industry, Taiwan has also made considerable achievements in the field of genomic sequencing. In particular, Asia Pathogenomics’ metagenomic next-generation sequencing (mNGS) can accurately identify the pathogens from different types of patient samples to help doctors administer targeted treatment in an incredibly short amount of time.

Overcoming Traditional Diagnostic Difficulties for High Accuracy Pathogen-Specific Treatment

Although only recently established in 2020, Asia Pathogenomics already has a strong foundation in genomic sequencing technology. CEO Roger Liu stated that the company is a subsidiary of BIOTOOLS, which has been in the genomic sequencing market for many years. BIOTOOLS had hoped to use microbiology technology to optimize quality of care, “but next-generation sequencing technologies of the past were too expensive and could not be applied to regular patients. However, prices have come down to a commercially acceptable level in recent years, which is why the board has decided to invest into this area now.” Roger emphasized that despite this, Asia Pathogenomics and BIOTOOLS have

different business focuses. BIOTOOLS will continue its R&D on existing projects, while Asia Pathogenomics will primarily be clinically focused, promoting the use of metagenomic next-generation sequencing (mNGS) technology in the medical system.

Roger pointed out the reason they were interested in developing this particular technology was because “we wanted to find a way to solve the diagnosis problem of infectious diseases.” Quoting statistics from the Taiwan Centers for Disease Control, he highlighted that one out of every five patients of infectious diseases in Taiwan gets critically ill. These patients require immediate treatment to prevent their condition from worsening, but current medical practices tend not to rely on identifying pathogens for diagnosis of diseases like pneumonia, sepsis, encephalitis, and meningitis for three reasons. The first being the limited number of detectable pathogens using traditional methods as bacterial cultures are unable to detect viruses, while PCR tests have limited viral coverage, and neither methods are capable of detecting unknown pathogens. Secondly, the detection rate from traditional culture is



only 10%-30%, with factors like specimen collection time, collection technique, specimen volume, and antibiotic use all affecting the detection rate. The third issue is the lengthy processing time. Pathogens can range from being anaerobic bacteria, viruses, fungi, mycobacteria to many other microorganisms, with detection time ranging from as short as two days to as long as eight weeks, a timeframe that is completely impractical for patients that are critically ill.

If physicians are unable to accurately identify the pathogen, it can make choosing between using accurate antibiotics or other treatment options difficult. Therefore, Asia Pathogenomics’s mNGS technology is the perfect solution to the need for a more sensitive pathogen detection mechanism. mNGS is a clinically focused detection technology that does not require cultures and is not restricted to specific pathogens. It can be directly applied to a specimen, then sequence and identify the nucleic acids from multiple different taxa to find out the types and proportion of microorganisms within. The primary advantage of this technology is that it can quickly identify the

pathogens in the specimen in one run. “Our technology allows for the testing process to complete in just one to two days. If we factor in the additional time required for administrative processes like specimen transfer, the hospital can get back results in three to five days. This can help clinical physicians determine the disease in a shorter amount of time and achieve the goals of precision medicine,” Roger explained.

Building Competitive Advantage through Years of Dedication

Roger mentioned that countries like China, U.S., and the UK are also researching pathogen genome sequencing and pointed out that genome sequencing is heavily reliant upon specimen databases. Since specimen databases tend to vary by area and therefore cannot be shared across regions, genome sequencing technology is also heavily region-centric and is not easily replicated across different geographic locations. As for the Taiwanese market, both BIOTOOLS and Asia Pathogenomics have worked for years in the domestic medical world and have acquired long-term partnerships with various local medical institutions, solidifying its competitive advantage.

Asia Pathogenomics is already in collaboration with more than ten medical centers in Taiwan. Thanks to the precision of their technology, mNGS can accurately detect the disease-causing pathogen even from small-volume specimens. The technology currently employed by the company is still considered second-generation, however, R&D is already underway for third-generation mNGS. This long term goal, once completed, will reduce testing time to just 8-10 hours. Asia Pathogenomics has also laid out its short and medium-term goals as they continue their research. “Our short-term goal is to acquire certification for our laboratory-developed test (LDTS), while the medium-term goal is to promote our revolutionary pathogen detection option to the Taiwanese medical system so that the company can start breaking even. Ultimately, we want to insert this product to the NHI system, so that we can use our technology to help improve survival rates for infectious diseases in the country, contributing to better public health.”

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EPED

Renowned RETINA Surgical Navigation System to Enter the Global Smart Medical Devices Market

Improving medical technology and better quality of life have led to longer average life expectancies around the world. According to a U.N. estimate, the average life expectancy of the global population in 2019 was 72.3 years, but may soon grow to 74.3 years in 2030. This positive trend however is an increasing strain to the healthcare systems of many countries. To maximize the utilization of progressively limited medical resources, development towards smart and precision medicine is inevitable, subsequently driving up demands for surgical navigation systems. Furthermore, even though minimally invasive surgeries are safer, require smaller incisions, and allow patients to recover in shorter period of time, its usage is limited to just some cases in neurosurgery, craniofacial surgery or ENT surgery, because

the areas to operate are not accessible to the naked eye. In these cases, doctors still have to rely on traditional surgeries which require larger incisions. With the latest technology, nonetheless, it is now possible to perform minimally invasive surgeries using surgical navigation systems, which allow the surgeons to see 3D radiology images in real-time while their surgical instruments are guided by the system into the surgical site.

Dr. Douglas Huang, president of EPED Inc., mentioned that even though international surgical navigation system brands like Medtronic, Brainlab, and Stryker have dominated the market over the past years, RETINA, the first fully made in Taiwan surgical navigation system developed by EPED is starting to receive recognitions beyond local medical device industry. Owing to its quick and precise tracking, great instrument compatibility, and high price-performance value, RETINA is becoming a rising star in the global medical device market. Dr. Huang emphasized that their graphical user interface was designed with user-friendly operation in mind and was therefore made to be

as intuitive and accessible as possible. Surgical staff can simply use the system's laser scanner to register the patient after which the surgeon will not have to touch the software interface at all, ensuring that the surgery can be performed quickly, precisely, and safely.

Critical Optical Space Location Technology Provides Quick and Precise Tracking

Founded in 2007, EPED has been engaged in optical navigation technology research for many years. The team has a solid foundation and experience in the design and development of optical tracking unit, including optical tracking and positioning algorithms as well as medical software and related hardware. The company has already acquired many patents for its technology in several countries. Seeing the strong demand for surgical navigation systems in the global medical device market, EPED decided to use 3D optical positioning technology and professional medical software as their core technology. Building it up with medical imaging technologies like 3D computed tomography (CT) and magnetic resonance imaging (MRI) then combining them with



image interpretation and 3D model data reconstruction, EPED then followed up by developing a software-user interface, establishing a surgical instrument database, implementing adaptable design for different instruments, and preoperative surgical path planning to create their RETINA surgical navigation system.

RETINA is a stereotactic surgery navigation system suitable to convey neurosurgery, craniofacial, ENT, oral & maxillofacial as well as plastic surgery and other types of minimally invasive surgical procedures. It can be combined with surgical instruments of major brands to allow for minimally invasive treatment at various surgical sites in a fast and safe manner, meeting the needs of surgeons in different specialties. Not only is the RETINA system more precise than those of major international brands, but the low cost of the consumables used for the system also gives it a higher price-performance value. RETINA has acquired certification from the Taiwan Ministry of Health and Welfare since October 2017, and has also obtained CE Marking Certification since November 2018 which opened the doors of the Euro-

pean markets for EPED; 510k registration from the US FDA is currently underway.

Dr. Huang points out that even though surgical navigation systems have very high precision requirements, the RETINA surgical navigation system is not only capable of completing registration in less than 90 seconds, but the system can also operate at fine precisions within 2.0mm when used in combination with higher resolution medical image, offering superior care quality to patients.

Starting from Southern and Eastern Europe to Eventual Global Expansion

Ever since RETINA surgical navigation system entered the market, it has won a series of awards such as the 2019 Taiwan Excellence Award and the 2021 COM-PUTEX d&i Awards. EPED hopes that they will be able to acquire more market exposure by working with TTA, leading to more sales both domestically and abroad.

In terms of actual market presence, EPED has already attained many clinical successes under its belt thanks to its long-term partnership with Kaohsiung Medical

University, the Chung-Ho Memorial Hospital, and Show Chwan Memorial Hospital. EPED also hopes to be supported by Taiwan's IRCAD to further promote its products in the global market. Having obtained the CE Marking Certification, the company is first targeting markets in Southern and Eastern Europe before entering western markets which are currently dominated by prominent international brands. EPED has already established its sales systems and exhibition centers in Greece, Turkey, and Malaysia by working with local partners and expects that it will be able to penetrate into Spain, Italy, France, Ukraine, and Georgia markets as well as expand south into West Asia and the Arab world in the near future. As for the company's medium and long-term plan, it has already started to establish a presence in Southeast Asian countries like Vietnam and Thailand. With brand awareness established in the aforementioned markets, EPED will finally move on to the Americas and take on the global surgical navigation system market.

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dp smart

Creating a Brand New Video Experience & Making 360° Panoramic Live Streams Easy

Live streaming has become a common practice in the current internet era. However, no matter how diverse the topics are or how interesting the content is, most of the videos are still limited by shooting angles. Conventional type of shooting method cannot fully represent the richness of the image and capture the essence of any cultural events, sporting events, or scenic beauties. "This problem can be solved through 360° panoramic filming. Nowadays, this feature is included in most phones and cameras but because of the complex settings, not a lot of people use it," said dp smart technology founder Kevin Chiang.

In order to transform 360° panoramic live streaming into the most commonly used tool for internet celebrities and everyday users, dp smart technology has recently introduced the "Rogy 360° 6 Lens Live Streaming Camera". With a press of a button, Rogy can automatically connect to the internet and begin 360° filming and live stream the contents to the video platform. It is simple to use, even for those who are completely unfamiliar with electronics

interfaces. The launch of the "Rogy 360° 6 Lens Live Streaming Camera" has attracted the attention of many online content creators and companies. The ease of use is the main selling point for the majority of customers. Furthermore, the feature of this product is backed by over 2 decades of experience and dedication of Kevin Chiang, who is also the company CEO.

Managing Taiwanese Brands, Kevin Founded His Second Company without Looking Back

dp smart technology is not Kevin's first company. He has been investing in the digital image & video industry since more than 20 years ago. "However, I was working for others as a designer and OEM. Although I had the capability, I was not creating much value for myself." In 2019, he decided to start his second company. When he established dp smart technology, he decided to find his own path and become one of the few hardware startups in Taiwan to manage its own brand.

Kevin's reason for entering the 360° live streaming market comes from his experience accumulated through many

years in the video industry. He realized that various cameras on the market are all single lens and lack much differentiations. Moreover, mobile phones have taken over most of the market. So, if he develops the same product, he is just repeating things that have been done. Cloud monitoring camera market, on the other hand, has been cornered by Chinese companies and the only way to compete is through price. "In the 5G era, video technology must be diverse. 360° live streaming will definitely be a key technology in the future." He discovered the fast growing live stream market and decided to move out of his comfort zone and invest all his resources and efforts in the 360° video market.

360° Filming is not a new technology. However, in the past, setting up the cam-



eras has been too complicated, deterring customers from buying. Kevin explained that dp smart technology has actively been trying to solve this problem since its establishment. He has gathered a team of experts to create a solution together. Using the latest image-stitching chip developed by industry expert ASPEED Technology, dp smart technology was able to create the "Rogy 360° 6 Lens Live Streaming Camera", which is equipped with 6 wide angle glass lenses and 5 megapixel CMOS sensors. The camera is capable of recording 4K video and is also equipped with 3D image stabilization functions. "Even if you are not a professional photographer, you can easily take 8K 360° pictures or 4K 360° videos."

Rogy 360° 6 Lens Live Streaming Camera Provides a New Perspective for Images

Rogy 360° aims to change the narrow angle shooting methods of the past, not only by creating innovative images through the camera for online content creators, but also to provide diverse applications for organizations and companies in other areas. Kevin used the Matsu Pilgrimage, known throughout the

religious world in Taiwan, as an example. "Cameras now are only able to film what is in front of it, but the Rogy 360° 6 Lens Live Streaming Camera is capable of showing the audience the entire spectacle. It is an entirely different experience." Besides cultural events, concerts, baseball games, and other scenarios where the atmosphere of the venue is important, viewers can feel as if they are there in person through the 360° live stream.

In terms of non-commercial applications, law enforcement and education are two major focuses. The police can use the 360° video to capture crimes and maintain social order. In terms of education, remote teaching can be greatly enhanced using this tool. "Currently, over 50 schools in Taiwan have purchased our product, thereby improving the quality of education," said Kevin.

For the future, Kevin pointed out that 360° live streaming has very diverse applications. The current strategy is to place equal importance on vertical applications and branded product sales. The end goal is for Rogy to be a part of

every family and becoming an essential electronic device in every home just like smartphones and computers.

In order to achieve this goal, the responsibility cannot fall on just one company. The power of the masses must be utilized. Therefore, dp smart technology is working towards two major directions. The first is the creation of an industrial ecosystem that connects all links of the supply chain. The second is to implement cross-industry integration of different tech domains such as AR/VR and smart glasses. With the dawn of the media age, business opportunities of video content continue to grow. Kevin cited that in order to seize the opportunities, related technologies must be simultaneously developed. "dp smart technology will continue to invest in R&D and come up with innovative approaches as well as technologies to face market challenges alongside companies in various industries in Taiwan."

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GliaCloud

Creating a New Marketing Paradigm with AI Video Generation

Advancements in media and communication technology have greatly increased the reach and influence of videos. Now more than ever, people are making and watching videos in unprecedented numbers. However, Agnes Peng, co-founder of GliaCloud, pointed out that the apparent prosperity has also presented the industry with difficult challenges. Existing production pace and procedures are no longer feasible as companies and media organizations are suffering from the crippling effects of the increasing demands for more videos. “The market needs a way to quickly and cheaply produce high-quality videos. GliaStudio, our AI-powered video creation platform for content automation, is the solution to that problem,” Agnes added.



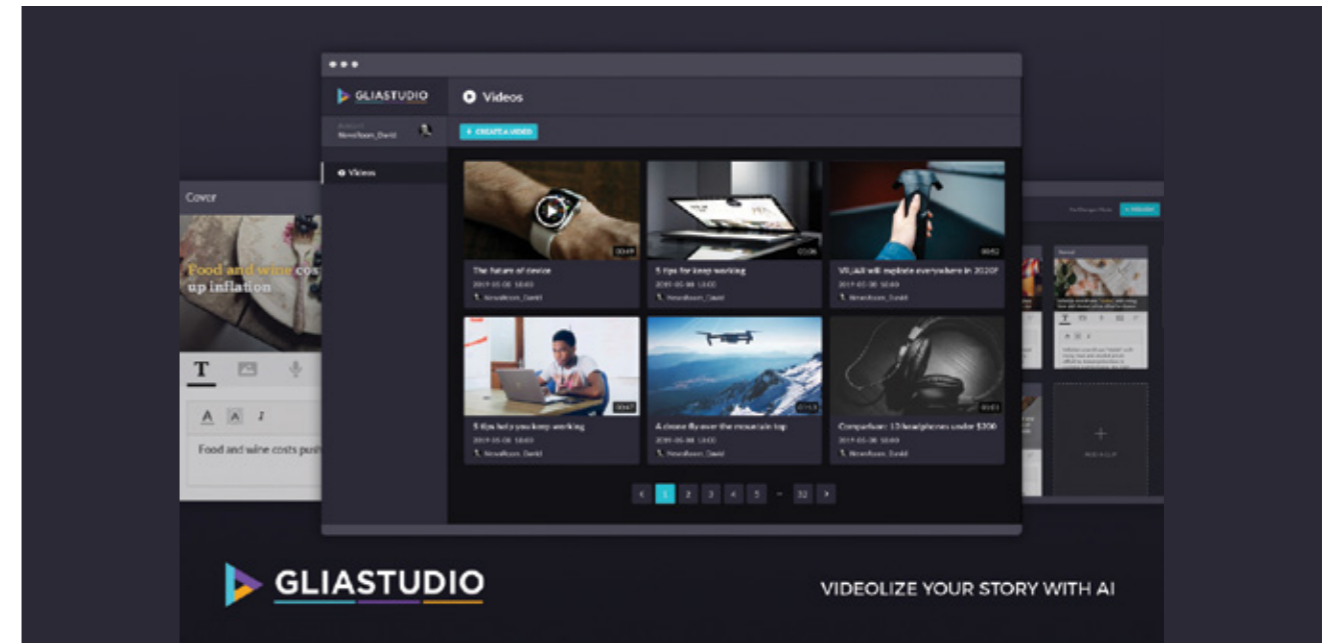
AI-Based Video Production Maximizes Creative Manpower

Nowadays, video production processes are more or less the same everywhere. One first starts with a theme, then writes a script for the video, finds the right archive, stock VDO footage or shoots a new footage, after that edits the video manually with music and voiceover before it is ready for rendering. “Even a short 30-second clip can take up to several hours in preparation due to laborious scriptwriting or editing,” said Agnes. The traditional method of production is time-consuming, difficult to scale up, and requires extensive manpower to output quality content. “Content creators are basically forced to spend large amounts of time and money on finding/creating the footage and editing video, stripping them of valuable time that could have otherwise gone towards creative endeavors like writing a script or choosing a theme.”

GliaCloud is a company with team members spanning the fields of data science, cloud computing, artificial intelligence, and more. The company has a lot of real-world experience working with big data thanks to industry-academia

collaboration projects. It is also a Google Cloud Technology Partner. Besides having a competent team behind the wheel, GliaCloud also has a very clear marketing strategy: “We have defined ourselves as a digital marketing accelerator.” To date, the company has served hundreds of media and advertising firms as well as having assisted thousands of traditional enterprises undergo digital transformation, the process which typically takes less than a year. “Using AI, we can help our customers save manpower and more efficiently create high-quality content.” Agnes explained that this is why she started GliaCloud in the first place. She wanted to use artificial intelligence to simplify the tedious and standardized steps in traditional digital marketing.

GliaStudio’s AI-powered video creation platform for content automation uses natural language processing, computer vision, cloud computing, and big data to analyze the script and find matching photo and video automatically. The platform then analyzes user statistics to optimize video content, automatically assembling relevant news articles, social media posts, sports news, and statistical data to form



high-quality clips of appropriate length. Simply copy the link to the article and paste it to the AI video editor, and a new video will be ready in the blink of an eye.

A Winning Marketing Formula with 25% Lower Production Costs

Agnes further pointed out that GliaStudio platform is based on AI technology which allows advertisers to use the platform’s text-to-video technology to easily create professional-looking clips for social media. Textual media and streaming media platforms can also enjoy tailored services like AI-powered auto-captioning, sports highlights auto-clipping, content distribution, and ad matching. The videos can then be combined with the GliaStar animation system, which can create a customized virtual avatar to narrate the generated content with a lively and highly expressive mascot or AI host.

According to Agnes, GliaStudio’s AI technology is already capable of handling the main video production process. Their experience has also shown that the AI automation system can lower costs by 25 to 40 percent. Additionally, internet video advertising is also becoming a major selling

point of their system. Not only can the AI-automated system be able to meet mass content demands, it can also analyze advertisement effectiveness in real-time and adjust contents to meet client expectations. By constantly adjusting the output video and content according to feedback, the system enables targeted advertisements to be more efficient and precise.

GliaStudio’s AI-powered video creation platform can now produce up to 20,000 videos per day, and it has accumulated 2 billion views across generated content. Automated content generation systems like this will undoubtedly set a new milestone for the marketing and media industries. And as leading brands come to realize the effectiveness of using video-based content to attract customer attention, they are increasingly shifting towards using videos as their primary means of advertisement. AI-powered video automation systems will be the winning formula to reduce cost and execute effective marketing in the digital-dominated world of the future.

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JGB Smart Property

A Comprehensive Rental Platform that Greatly Reduces Operating Costs of Rental Management Companies

Southeast Asia, which has been experiencing rapid economic growth in recent years, has become a popular real estate investment target for foreign investors. With the high housing prices of today and changes to personal finance concepts, the number of renters in various countries is increasing every day. JGB Smart Property Co., Ltd. is focused on the high demand for long-term housing rentals in Southeast Asia and has developed a comprehensive rental SaaS management platform to provide automated management for real-estate rental companies.

In Taiwan, the Rental Housing Market Development and Regulation Act has been implemented since 2017 in order to provide a stable housing environment for renters and to avoid rental disputes by borrowing complete housing rental systems from other countries. Through the application of new technologies, the Taiwan rental market is gradually implementing professional corporate management like the Japanese, European, and American markets. It is predicted that within 3 years, long-term housing rentals in Taiwan will develop brands and define the image of the Taiwanese rental market.

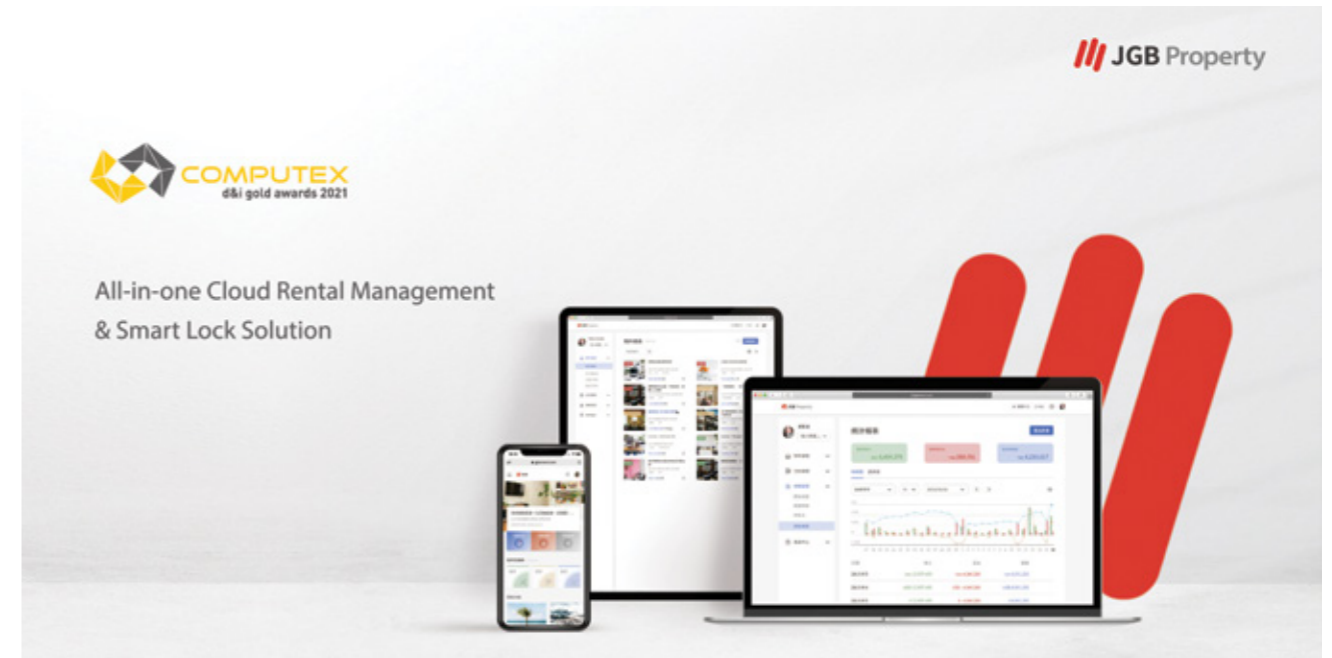
Furthermore, new branded apartments with specialized units and high-quality services will attract the younger demographic and lead new trends in real-estate technologies. In the contactless economy during the COVID-19 pandemic, JGB Smart has provided a cloud property management system in order to reduce face to face contact between renters and landlords and help renters find suitable housing. Through digital transformation technologies and the strengthening of rental party relationship protection, JGB Smart has rapidly grown its customer base since its establishment.

Joanna Tien, co-founder of JGB Smart, pointed out that rental management companies typically need to manage dozens of properties, and more than half use paper or MS excel to record contracts, property information, etc. Only some large companies use property asset management tools. With the introduction of rental specific laws by the Taiwan government, it is expected that the number of properties managed by rental management companies will greatly increase. With management efficiency and labor costs in mind, these

companies must rely on the assistance of a comprehensive property management system. This trend has allowed JGB Smart to develop the JGB Smart Property Management System designed for the real-estate industry based on in-depth industry experience and mature cloud technology of the JGB Smart team. Traditional rental property management companies can subscribe to the system and utilize the most advanced and efficient management platform for a monthly fee.

Reducing 75% of the Steps, Saving 70% of the Time

The members of the JGB Smart team have extensive international real-estate investment as well as property and facility management experience. By mirroring the rental management industries of Europe, United States, and Japan, which are much more developed, the team has acquired a deep understanding of the traditional processes of rental property management companies and the troubles of property management. On average, property management involves more than 60 steps every month for each property from property devel-



opment, marketing, moving in renters, current renters, moving out renters, etc. Therefore, the team started with the idea of comprehensive management since the beginning of the JGB Smart Property Management System development cycle. The main focus was to include all property management processes through highly automated mechanisms, and with cloud service payment model, reduce the operating costs of property management companies. JGB Smart analyzed companies who introduced the JGB Smart Property Management System and found that work processes were reduced by 45 steps, and processing time was reduced by 70%.

Joanna stated that traditional property management tools are based on the properties and may not be integrated



with the company's work processes. The JGB Smart Property Management System pre-integrates the functions needed by the property management companies, investors, third party service providers, and renters to vertically integrate the real-estate rental industry, offering a wide scope of applications. Besides the basic functions of property sources, rental contracts, rent, and repair management, as well as delivery and return, the management system also provides smart door lock functions, smart electricity meters, and an overview dashboard to help companies manage properties with ease. Furthermore, the system supports multiple languages. When a foreigner needs to rent a property, they can also easily understand the content of the rental agreement, reducing the barrier of communication between both parties. Local and international investors can also use the system tool to understand the status of their investments.

TTA Connects International Resources to Enter the Southeast Asia Markets

In the next two years, JGB Smart plans to expand the Taiwan market from the greater Taipei area to the whole of

Taiwan, in order to attract rental property management companies of different sizes. In terms of the overseas markets, the company will focus on major cities in Southeast Asia, such as Ho Chi Minh City, Manila, Kuala Lumpur, and Bangkok, then expand its services to surrounding cities.

With the help of Taiwan Tech Arena, JGB Smart has successfully secured investments from the National Development Fund and gained access to international markets. Members of the JGB Smart team have also utilized the connections they made in the past when investing in international real estate to successfully enter the markets of Southeast Asian countries, such as Singapore, Vietnam, the Philippines, and Malaysia. Moreover, JGB Smart has partnered with several technology companies in Taiwan to use software and hardware to further solve the real issues of users. And by integrating AIoT, 5G, big data analyses, and more, create smart cities of the future for the Taiwan market and seize new opportunities in the overseas markets.

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Uniigym

Combining AI, Cloud, and Motion Capture to Create a Low-cost High-Interactivity Audio-Visual Fitness Platform

In 2006, the Nintendo Wii started a new era of home fitness. And more recently with the advent of cloud and AI technology, home fitness is once again raised to new heights as professional online fitness services are becoming mainstream. While the COVID-19 pandemic continues to rage on across the globe, the world has seen virtual fitness programs become both a new reality for fitness enthusiasts and a new income source for fitness centers. Unsurprisingly, CES 2021 saw many businesses unveil their virtual fitness programs targeting this new market. Among them is Uniigym, a TTA-assisted startup with its own in-house developed AI cloud interactive fitness technology service. Uniigym boasts professionally designed fitness

entertainment with a much lower barrier to entry and has attracted the interest of companies around the globe.

Uniigym CEO Jye Lin pointed out that startups oftentimes have difficulty getting investment or exposure at international events. But because of assistance from TTA, their company was able to participate in CES 2021 and received mentorship from reputable startup accelerators in Taiwan, connecting them with valuable international resources. Currently, Uniigym has acquired funding from Tex-Ray Industrial and Dyaco International as well as having established partnerships with French sporting goods company Decathlon. As for international markets, Uniigym has expanded from Taiwan to Japan, Thailand, and other Southeast Asian countries.

Combining AI and Cloud Technology to Create the Uniigym Interactive Fitness Platform

Founded in 2019, Uniigym combines AI, Cloud, and their proprietary developed OptiStream, OptiCardi, and OptiCatch technology to create the Uniigym sys-

tem. The system can be used with any regular heart rate devices and cameras to create a highly immersive audio-visual smart fitness environment. One of the most defining features of the Uniigym system is the Opticatch module which supports phone camera or an external USB camera of up to 720p resolution to simultaneously detect 10 human body parts and 20 skeletal points, using these data to provide real-time motion feedback and motion correction. At the same time, the OptiCardi module works with bluetooth heart rate devices to detect the user's real-time heart rate then uses the data to analyze the physical changes and energy consumption happening to the body during exercise.

"Over the past two years, we are seeing an increasing amount of cloud fitness services hit the market. However, most of these services require the end-user to purchase an expensive device or game software, which has greatly deterred many buyers." Jye further explained, "When we came up with the Uniigym cloud fitness service, we were very conscious in avoiding a scenario in which



the end-users had to purchase a device to use the service. With Uniigym, users could enjoy the same convenient fitness experience whether they are at home, at work, on a business trip, or on vacation. Simply by using their cell phone camera and paying an affordable monthly subscription fee, users can enjoy all the content on the platform with no restrictions to the number of accessible courses. This makes our service much more economical and much more convenient."

Four Different Models for Different Consumer Markets

To better adapt to needs from different markets, Uniigym is working with partners to promote its subscription fitness services across different platforms. For example, the Uniicube solution targets franchise gyms, sports centers, hotels, and enterprises. The solution features impressive audio-visual effects and multi-user heart rate detection to entice users into a highly immersive fitness experience. The Unihome system, on the other hand, works with cable television and telecommunication service providers to turn ordinary living rooms

into a home gym by using existing cable boxes and an external camera, allowing consumers to enjoy the convenience of exercising at home at any time.

The company is also offering the Unicare system as a health management solution that works with individuals, groups, and organizations. The system collects and analyzes user health information through cameras and heart rate devices during exercise then uses the data to help users manage their health.

Jye added that their team has also designed an app for individual users so that they can just install the Uniicell App on their mobile device to start enjoying the thousands of fitness courses on the platform wherever they are, all without having to purchase any extra equipment. The Uniicell system can truly liberate its users, enabling them to exercise at anytime and anywhere simply with their mobile phone. The new live functions also help to connect people together and enhance their social binding. Uniigym is currently in collaboration with over 100 fitness professionals and

has over 1,600 fitness courses on its platform, which is still being continuously updated every month to allow consumers to maintain good exercise habits at home during the pandemic.

The rise of the zero-touch economy under the pandemic and the maturing of 5G, AR, and VR technologies have all been a part of Uniigym's plan. As the company expands its reach in the four markets listed above and gain more users as well as partners, it will also continue to develop other interactive fitness modes and collaborate with more fitness professionals worldwide to further enrich its platform content in preparation of entering the Western markets, allowing the company to tap into the lucrative global cloud fitness market.

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TAIWAN TECH ARENA Event Summary

TTA to Lead 100 Startups to CES 2022

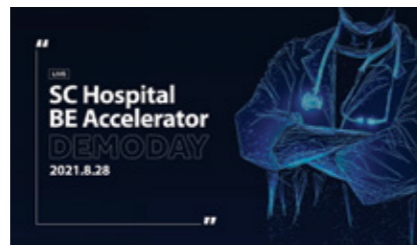
CES, the world's most influential tech event, will be held on 5 - 8 January 2022 in person at Las Vegas and through a digital platform. TTA looks forward to leading 100 top-notch startups in various verticals including 5G IoT, autonomous vehicle, blockchain, smart wearables, AR/VR, AI robotics, and more to CES early next year. Startups nationwide applied to be selected to join the exhibition at Eureka Park where startups are given the unique opportunity to launch their new product, service or idea and be funded!



BE Demo Days with TMU & SC Hospital

On July 20, BE Accelerator and Taipei Medical University Biomed Accelerator co-hosted a virtual TMUxBE Demo Day showcasing 9 Taiwanese and international startups in the fields of Digital Health, Medical Devices and AI Healthcare.

Show Chwan Memorial Hospital & IRCAD Taiwan x BE Accelerator hosted an online live demo day on August 28 to celebrate the 12 startups that graduated from their 24-week POC program in the fields of minimally invasive surgery, medical devices and AI healthcare.



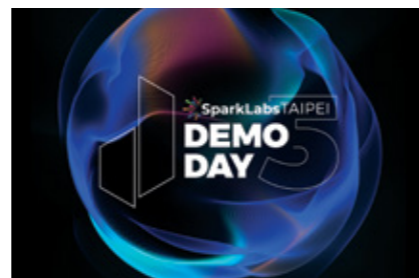
Foodland Ventures 1st Ever Demo Day!

Foodland Ventures hosted its first ever demo day on July 22 showcasing its first cohort of 6 food tech startups including: Tsai Tung Agriculture, DOTDOT, 3T GDS Technology, Yo-Kai Express, KABOB, and 3 SQUARE. Foodland Ventures also invited Rohit Agarwal, Vice President of Sequoia Capital India, William Bao Bean, General Partner of SOSV, and Ryo Hayashima, Managing Director of Food Tech Studio - Bites! to join the event's fireside chat.



Sparklabs Taipei Batch 5 DemoDay

SparkLabs Taipei DemoDay is a celebration of an entrepreneur's journey. On Aug 5, eight startups of SparkLabs Taipei Batch 5 including GRAID Technology, Knowtions Research, PowerArena, Slasify, Smart Tag, Spaceship, Tsaitung Agriculture, and Yall-vend showcased what they have worked hard to achieve during the intense months of the accelerator program. Five brilliant speakers were also invited to share their insights on innovation in B2B software and Trends in beauty tech fireside chats.



TTA X Berkeley SkyDeck Global Innovation Showcase

TTA in partnership with Berkeley SkyDeck proudly invited audience especially accredited VC's/angel investors, corporate partners, and entrepreneurs from around the world to join TTA Global Innovation Pitch Showcase on August 20 to learn more about 10 of Taiwan promising startups - AVMapping, AESOP, AHEAD, Anbogen Therapeutics, Avalanche-Computing, FamousBiotech, ioNetworks, LearningPal, SYNCELL, and TFT.



MOX 11 Demo Day

SOSV MOX hosted MOX 11 Demo Day, an investor-exclusive virtual networking event, with watch parties in Taipei at TTA and in Shanghai on August 25. Six startups from Egypt, India, Pakistan, and Singapore pitched live to investors online. The event also features fireside chats with Kevin Lin, Co-founder of Twitch, and Peng T. Ong, Co-founder and Managing Partner of Monk's Hill Ventures.

TTA Tech Goodies Unboxing Series

To help our startups promote their products and increase sales, TTA has launched a series of monthly "TTA Tech Goodies Unboxing" livestream VDOs where teams of B2C products come on the air and introduce their products as well as offer special discounts for the livestream audience. So far we have introduced several best selling products including iWEECARE Temp Pal body temperature remote monitoring patch, Purus air purifier, and Uniigym interactive fitness in July; iTemp smart mug & bowl and Be-seye AI security camera in August; Cubo Ai Plus Smart Baby Monitor and ezOxygen Portable Spirometer in September.



Empowering Borderless Brand Power

For TTA Entrepreneurial Investor Salon #6, we are privileged to have Kevin Lin, co-founder of Twitch, along with Jessie Sun, president of Blusense Diagnostics, and Caroline Hsu from the Hoffman Agency come share their insights on the importance of brand power and how to create a cross-border brand for startups. Hosted by JR Lee, the virtual event was held on August 12 and attracted record breaking number of viewers.



The Future of Sports Tech

On August 18, TTA had the honor to welcome a very special guest - Jason Hsu, an entrepreneur, investor, basketball executive for Hsinchu Lions, and Chief Secretary of Monte Jade Science & Technology Association of Taiwan to TTA Meetup Day #2 in person at TTA. We were equally excited to have Phil Chen, general partner of Race Capital join the event virtually to discuss the future of Sports Tech. The hybrid event drew the attention of TTA members on-site as well as viewers online.





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