

## TECHNICOLOR STORES HOLLYWOOD HISTORY IN A BOTTLE

**LOS ANGELES:** A Technicolor scientist surrounded by the latest virtual reality technology inspects a vial containing a few droplets of water - and one million copies of an old movie encoded into DNA. The company has come a long way since the Hollywood golden age, when the world gazed in awe at the lush palette of "The Wizard of Oz" and "Gone with the Wind" provided by its three-strip cameras. Now celebrating its centenary year, Technicolor's laboratories are at the cutting

edge of the science of filmmaking, leading a worldwide revolution in immersive entertainment.

"We are bigger today in LA than we were 70 years ago or 50 years ago," Technicolor chief Frederic Rose said at a recent ceremony where he accepted a "star of recognition" from the Hollywood Chamber of Commerce. Rose used the occasion at Technicolor's Sunset Boulevard studios to showcase the company's latest jaw-dropping innovation - the encoding of movies

into artificial, "non-biological" DNA.

Jean Bolot, vice-president for research and innovation, held up a vial barely bigger than a bullet containing a million copies of 1902 French silent film "A Trip to the Moon," the first movie to use visual effects. DNA is almost unimaginably small - up to 90,000 molecules can fit into the width of one human hair - so even such a large library is totally invisible to the human eye. All you can see is the water in the tube. "This, we believe, is what the future of movie archiving will look like," Bolot said.

Scientists have been experimenting with DNA as a potential storage medium for years but recent advances in modern lab equipment have made projects like Technicolor's a reality. The company's work builds on research by scientists at Harvard University, who in 2012 successfully stored 5.5 petabits of data - around 700 terabytes - in a single gram of DNA, smashing the previous DNA data density record by a factor of one thousand.

### Oscars Glory

DNA is a long, coiled molecular "ladder" - the famous double helix structure - comprising four chemical rungs, adenine, cytosine, guanine and thymine, which team up in pairs. Bolot's team digitized the "A Trip to the Moon" into data in the form of zeros and 1s in computing's binary code, and transcribed it into DNA code, which was then turned into molecules, using lab-dish chemicals. The contents are "read" by sequencing the DNA - as is routinely done today in genetic fingerprinting - and turning it back into computer code.

Converting movies into man-made DNA

brings huge advantages, said Bolot, who points out that the archives of every Hollywood studio, currently taking up square kilometers of floor space, could fit into a Lego brick. Another problem overcome by DNA storage is that the format for reading it doesn't become obsolete every decade or so, unlike celluloid, VHS, DVD and every other medium in the history of filmmaking.

"If I gave you a movie in the form of these floppy discs from the beginning of the IBM PC, you would not even know how to read the movie because there are no more floppy disc readers," Bolot said. "The guys at Harvard told me if you left this (vial) on a hot Arizona pavement with trucks running over it, and you come back in 10,000 years, it will still be readable." "A Trip to the Moon" took six weeks and tens of thousands of dollars to convert, but Bolot's team is working on streamlining the technology into something that would be genuinely commercially viable. "We don't know yet if that's going to work but if it does - and we'll know, we expect, within a year - then this will really unlock a new age for archiving," he said.

Founded in Boston in 1915, Technicolor relocated to Hollywood in the early 1920s and has provided post-production on thousands of films across the world. Its first feature, "The Gulf Between," finished in 1917 in an old converted railroad car, used a two-color technique that photographed a single strip of black and white film with green and red filters. Spool forward to February this year and Alejandro Gonzalez Inarritu's "The Revenant" became the fifth straight "best cinematography" Oscar-winner

color-finished by Technicolor engineers. Richard Crudo, head of the American Society of Cinematographers and a director of photography on numerous features, has been working with the company's engineers since 1978 and describes them as "outstanding."

### Virtual Reality

"With the switchover to digital technology there have been a lot of changes and a lot of companies have fallen by the wayside," he told AFP. "But Technicolor has managed to make the transition very handily and maintain their standards." Perhaps the most exciting development in entertainment in recent years has been the emergence of sophisticated, hyper-realistic virtual and augmented reality, and Technicolor has been an early adopter, buying up industry-leading studios.

Last year it announced the \$295 million acquisition of The Mill, the world's largest visual effects and content creation studio for the advertising industry. Technicolor's portfolio also includes leading visual effects company MPC, which worked on Ridley Scott's "The Martian," and previewed the film with a 360-degree virtual reality flight onto the surface of Mars, via a headset. It's all a far cry from the two-color printing days, and quite what technologies Technicolor will be developing in another 100 years is anyone's guess. "You should always go back to the original Star Trek series as a source of inspiration for what's next," Rose, who has been at the helm of the company since 2008, told AFP. "And if you don't have access to it, you should read one of the Asimov novels for ideas." —AFP



**HOLLYWOOD:** A vial containing a few droplets of water - and one million copies of an old movie encoded onto DNA - is displayed during a media tour at Technicolor's Sunset Boulevard studios on March 30, 2016. —AFP

## LINE, KAKAO FLOURISHING AMONG YOUNG ASIANS

**SEOUL:** Forget Facebook and Twitter. Two of Asia's biggest social media players, Kakao Talk and Line, are growing by making mobile messaging apps an integral part of the lives of young Asians who prefer to communicate more privately instead of shouting out in virtual arenas and risking troubles with trolls - or disclosing aspects of their lives to their parents they'd rather not share. Kakao Talk is the top messenger app in South Korea, with more users than Facebook or Twitter. People use it to hail cabs and transfer money, advancing toward a cashless society. Even South Korean government officials prefer Kakao chat rooms for communicating with colleagues as opposed to email.

In Japan, where Line users outnumber those on Facebook or Twitter, people buy cute digital stickers to link to messages and use the app to search for music and jobs. In doing so, the apps are serving as test beds for digital services, demonstrating ways the latest trends in technology and communication can be integrated with daily life in the 21st century. Above all, they are making money, although some of their products, such as digital stickers, would be a hard sell in other markets. Silicon Valley investors and tech startups everywhere are watching closely.

Here's a look at Kakao Talk and Line, Asia's top messenger app companies.

**KAKAO TALK:** Headquartered on the southern island of Jeju, South Korea. The app was released in 2010.

**OWNED BY:** Kakao, South Korea's No. 2 Internet search engine, which counts former Naver CEO Kim Beom-su as the largest shareholder.

**NUMBERS:** 48 million active users globally, including 40 million in South Korea. Sales at the owner of Kakao Talk reached 932.2 billion won (\$808.5 million) last year.

**HITS:** Kakao Talk itself and its cute emoticon characters. The company was able to build on the success of Kakao Talk when it launched Kakao Story, an Instagram-like service which was at one point more popular than Facebook among South Koreans. But its user growth has been slowing. The latest big hit is Kakao Taxi, an Uber-like taxi hailing service.

**MAKING MONEY:** The 2012 launch of Kakao Game proved its first big jackpot. Many mobile games adopted a business model where users would have to either

invite Kakao Talk friends or pay to play more rounds or buy virtual items. This fueled huge growth in the mobile game market in South Korea, helping some game developers go public and amass cash. It also allowed advertisers like Uniqlo and mom-and-pop stores to interact with users one-on-one.

**CHALLENGES:** Game revenue has declined since peaking in 2014 as game developers began to distance themselves to save commission fees. Following a controversy in 2014 over South Korean authorities' seizure of Kakao Talk user data, many customers have migrated to Berlin-based competitor Telegram. Since then, South Koreans have become wary of what they say on the app, which has not severely dented its traffic but has hurt its reputation.

**EXPANSION:** Kakao Talk has unsuccessfully tried to expand in Japan and



**SEOUL:** Passengers use their smartphones on a subway train yesterday. —AP

Indonesia, both countries where Line is strong. Instead, the company has largely focused on developing new services for its huge Korean customer base.

**ANALYST TAKE:** "They have to get a momentum in the mobile advertisement market, but no messenger companies have established themselves as strong an advertisement platform as Facebook," said Justin Lee, an analyst at BNP Paribas in Seoul. Earlier expectations for monetizing messenger apps may have been overly optimistic, he said. "Because of the limitations of one-on-one services, its appeal as an ad platform is not as big as Facebook."

**LINE:** Headquartered in Tokyo. Founded in 2011.

**OWNED BY:** South Korea's No. 1 Internet search engine company Naver Corp.

**NUMBERS:** 215 million active users globally, 68 million in Japan. Recorded 120.7 billion yen (\$1.1 billion) in sales last year.

**HITS:** Line has leveraged businesses such as merchandising of dolls and other goods featuring mascot-like characters such as Brown the bear. It also rakes in revenue from the sale of emoticon stickers, called "stamps" in Japan, to use with Line messages. Many stamps are free or cost very little, and Line has opened stamp designing to the public, enhancing their appeal. Cab drivers, for instance, use special stamps with their industry jargon handy for quick communication with other drivers in their team. Some 2.4 billion

around that problem, Line has come up with its own prepaid cards that can be charged at convenience-store chains.

**CHALLENGES:** Line is entering the mobile operator service in Japan, to be launched in a few months, starting at an affordable 500 yen (\$4.40) a month, using the telecommunications infrastructure of major Japanese carrier NTT DoCoMo. Nearly half of mobile phone users in Japan haven't yet switched to smartphones, and Line hopes to attract those users when they finally make the switch.

**EXPANSION:** Line has also been focusing on expanding to Thailand, Taiwan and Indonesia. To appeal to such markets, it has created locally oriented serial dramas to watch. It also offers music and job-search services and is branching into online news.

**ANALYST TAKE:** "It is important for Line to continue focusing on its localization strategy," said Jun Wen Woo, an analyst at IHS. "Users from Japan and Taiwan may have similar interests in Japanese comics, but users from Thailand and Indonesia might be more interested in other content such as games." Line users have been dropping outside the four main countries, Japan, Taiwan, Thailand and Indonesia, she said.

### FACEBOOK AND TWITTER:

Facebook, which boasts 1.6 billion users globally, has about 16 million monthly active users in South Korea and 25 million in Japan. Instagram, the photo-sharing mobile app owned by Facebook, has 6 million users in South Korea and 8.1 million in Japan. Globally, Instagram has 400 million users. Facebook has been gaining traction along with Instagram in South Korea. Facebook's users there jumped nearly 50 percent from 2013 to 2015.

Twitter, meanwhile, has 320 million users around the world and 35 million in Japan, one of its largest markets. It is popular in Japan for its quick, newsy feel and the option for anonymity that Japanese tend to favor. Koreans tend to view Twitter as a niche, alternative platform for people seeking to voice opinion anonymously. Twitter does not disclose a country-specific user number for South Korea. Seoul-based market research firm RankEye.com estimates that there are 1.2 million Twitter users in the country, but its estimate is based on a survey of 60,000 Android phone owners and does not include iPhone users. —AP



**NEW YORK:** This Feb 19, 2014 file photo shows the Facebook app icon on an iPhone. —AP

## FACEBOOK TESTS TECH TO HELP BLIND PEOPLE ENJOY PHOTOS

**MENLO PARK, California:** Facebook on Monday began using artificial intelligence to help people with visual impairments enjoy photos posted at the leading social network. Facebook introduced machine learning technology trained to recognize objects in pictures and then describe photos aloud. "As Facebook becomes an increasingly visual experience, we hope our new automatic alternative text technology will help the blind community experience Facebook the same way others enjoy it," said accessibility specialist Matt King.

The feature was being tested on mobile devices powered by Apple iOS software and which have screen readers set to English. Facebook planned to expand the capability to devices with other kinds of operating systems and add more languages, according to King, who lost his vision as a US college student studying electrical engineering. The technology works across Facebook's family of applications and is based on a "neural network" taught to recognize things in pictures using millions of examples.

More than two billion pictures are shared daily across Facebook, Instagram, Messenger and WhatsApp, King said.

"While this technology is still nascent, tapping its current capabilities to describe photos is a huge step toward providing our visually impaired community the same benefits and enjoyment that everyone else gets from photos," King said. The Silicon Valley-based social network said that it was moving slowly with the feature to avoid potentially offensive or embarrassing gaffes when it comes to automatically describing what is in pictures.

Words used in descriptions included those related to transportation, outdoors settings, sports, food, and people's appearances. The Facebook technology made its debut less than a week after Microsoft enticed software developers with a suite of offerings that let them tap into the power of cloud computing, big data, and machine learning. The Cortana Intelligence Suite boasted the ability to let applications see, hear, speak, understand and interpret people's needs. Microsoft said that a "Seeing AI" research project was underway to show how those capabilities could be woven into applications to help people who are visually impaired or blind better learn what is around them, say by scanning scenes with smartphone cameras or specially equipped eyewear. —AFP

## LEICA CLOCKS UP RECORD SALES AHEAD OF HUAWEI PARTNERSHIP

**FRANKFURT:** Leica, the top-of-the-range camera maker, clocked up record sales last year, its chief revealed in a newspaper interview yesterday ahead of the expected unveiling of a new smartphone built in collaboration with China's Huawei group. "We are pleased to announce that we booked record sales of more than 365 million euros (\$415 million)," chief executive Oliver Kaufmann told the business daily Handelsblatt in an interview. "That represents an increase of 12 percent over the previous year. In view of the transformations our industry is currently undergoing, that's remarkable for a medium-sized company such as Leica," he said.

Leica's reputation dates back to the pioneers of photo-journalism Robert Capa and Henri Cartier-Bresson. The firm, with its trademark red-button logo, has undergone a difficult period over the last decade after being slow to catch on to digital photography and also in the face of ferocious competition from Asian rivals. Bought in 2005 by Austrian entrepreneur Andreas Kaufmann, the investment fund Blackstone acquired a stake in 2011. And Leica is "the only company of our size" in the sector which is still headquartered in Europe, Kaufmann said. "All other camera makers are based in Asia."

But Leica has succeeded in rejuvenating its brand without losing its luxury image. After collaborating with Japan's Panasonic, Leica announced at the end of February a



**Andreas Kaufmann**

partnership with China's Huawei. The partners are shortly to reveal a joint smartphone. "Lots of companies, including mobile phone and computer makers, enquired" about possible cooperations, Kaufmann said. "But no-one else aside from Huawei recognized and acknowledged Leica's technical expertise and is also bringing lots of know-how with it, too," he said. Huawei has rapidly emerged as the world's third-biggest maker of mobile phones after Samsung and Apple and is targeting the high-end market. —AFP

## QUALITYNET LAUNCHES NEW WEBSITE

**KUWAIT:** Qualitynet, Kuwait's no. 1 provider of ICT, enterprise, data communication and Internet solutions, announced the launch of their new and improved website (www.qualitynet.net), taking inspiration from global design trends and popular customer requests. The fully responsive site will offer a smooth and interactive experience over multiple platforms and devices. The launch marks an important milestone in the brand's strategic journey to enhancing the overall Customer Experience.

Ali E AlEsmail, GM - Customer Services and Information Service, Qualitynet, stated: "Our new site is the result of the combined efforts of many people, both internally and externally, brought together towards the single goal of creating a more flexible, friendly and interactive website. The site is fully responsive, offering a similar experience over laptops, tablets and mobiles among others. We have placed special emphasis on providing rich content on all our services catering to multiple sectors, supported by audiovisual media, which will also help in presenting the latest in industry news and services in an easy manner."

"The portal is designed with customer priorities in mind," said Ali. "To add to the fast and friendly web experience, we have incorporated easy links to QStore, our Online Store and to Testahel, our rewards program. While QStore provides the easiest way to subscribe or renew your subscription through a few clicks, the Testahel site



**Ali E AlEsmail**

lets you find out what awaits you in the form of reward points, valuable gifts and other benefits" he added.

Another highlight of the new site is the special emphasis given to corporate and enterprise sector, not just through the extensive information on services, but

also via QBusiness, the online portal for corporate customers. Ali stated: "Through QBusiness, our corporate customers can securely access their complete list of services, charges, dues and technical details. QBusiness also provides the option to make online payments and service requests, track service tickets and even communicate one-on-one with their account managers, thereby making the whole service experience much more convenient and transparent."

The new website also makes it easier for the brand to interact with its customers and fans. In addition to linking to its popular social media channels, the website also sees the introduction of a blog, which will focus on technology news, the latest from global technology events such as World Mobile Congress (WMC), International Telecoms Week (ITW) and Gitex Technology Week, industry updates and much more. Customers and blog readers can interact with the brand via the blog and subscribe to receive the latest blog updates to their email.

Ali concluded by saying: "We are proud to launch the new site, as it offers one more opportunity to serve our customers better. Our core importance lies in providing the best grade of service and support to our customers. This has been our focus from the day we started, and this will continue to be our focus as the leading total solutions provider in Kuwait."