

HOOQ™

[a·mo·bee]

DataSpark



Group Digital Life

MARKET TRENDS

We live in an increasingly interconnected world. More than ever, consumers, businesses, governments and even objects are communicating and relaying information through the internet. The number of smartphone connections alone is set to reach six billion globally by 2020, according to a GSMA Intelligence report.

Rapid advances in technology and content, and better and more intelligent devices are also accelerating and shaping this trend.

We are seeing customer behaviour and expectations change dramatically, and the transformation of many aspects of our personal and work lives. These changes are opening up new frontiers for telcos, even as they threaten telcos' traditional sources of revenues. We believe they open up vast opportunities for telcos beyond the traditional connections and access services. In 2012, we created Group Digital Life to explore these opportunities and ensure we stay ahead of the curve.

STRATEGIC PRIORITIES

Group Digital Life is developing services that have the potential to go global. Our focus is on three areas:

- Premium over-the-top (OTT) video
- Digital marketing
- Advanced analytics and intelligence capabilities

These are areas where new technologies are rapidly supplanting traditional methods. Our telco assets and customer knowledge also give us a strategic advantage over other players.

We will double our efforts to build these businesses – under the respective brands of HOOQ, Amobee and DataSpark – to become significant players.

Beyond these areas, our corporate venture fund, Singtel Innov8, identifies the latest innovations and enables the Singtel Group to gain access to these technologies.

OUR ASSETS/ STRENGTHS

We want our customers to enjoy access to the best content and most relevant information. We also want to empower businesses and governments to make more informed decisions. Our strengths include unique locational data from our networks that can improve services and inform decision making. We also have aggregated demographic data that help brands better reach their target audiences.

Singtel has relationships with more than 550 million mobile customers in Asia, Australia and Africa. This large customer base allows us to scale our services quickly, which is vital in the highly competitive digital world. We also have extensive customer touch points through physical and online stores and customer helpdesks.

In emerging markets where credit card payment is limited, our established billing relationships give customers an easy way to transact electronically.



Group Digital Life



Singtel Group CEO Chua Sock Koong and Singtel Group Chief Corporate Officer Jeann Low visit the Amobee San Diego office with Amobee CEO Mark Strecker and Amobee President Kim Perell

Group Digital Life is responsible for generating new ideas that will allow us to compete in a global market defined by fast and constant changes. It focuses its efforts on premium OTT video, digital marketing, as well as advanced analytics and intelligence.

To succeed in today's world, businesses have to be open-minded, flexible and yet decisive. Through constant and well-defined experimentation in the past three years, we have picked up invaluable lessons about important shifts in technology, customer preferences and competition. We know where we can leverage our unique telco assets and play to win.

Our objective is to use new technologies and our customer knowledge to improve people's lives across the globe, whether it is by simplifying their personal lives or increasing their productivity at work.

Our products will also help our regional mobile associates better serve customers and achieve sustainable advantages over their competitors.

INVESTING IN INNOVATION

Innovation gives us our competitive edge. We adopt an iterative process

of experimentation and improvement to innovation. We collaborate with innovative start-ups to get early access to tomorrow's technologies. Our US\$250 million corporate venture fund, Singtel Innov8 (Innov8), complements our in-house efforts by plugging Singtel into the bold and dynamic technology world.

Innov8 is headquartered in Singapore and operates out of thriving innovation hubs in Silicon Valley, Tel Aviv and Beijing. Its mandate is to watch the market closely and scout for the "next big thing". Innov8 believes as new customer needs arise, so should new products that efficiently satisfy these needs.

Innov8 works with a range of partners: developers, investors, government agencies, research bodies and higher-learning institutions. This has enabled it to foster a creative approach to innovation in Singapore, Southeast Asia and beyond.

In January 2015, Innov8 teamed up with National University of Singapore (NUS) Enterprise and Infocomm Investments to open a branch of Singapore's successful Blk71 start-up co-working space in San Francisco, to strengthen ties between the US and Singapore tech ecosystems.

In April 2014, Innov8 founded Innov8 Sparks, a start-up support initiative that taps on the Group's scale. Founding members of Innov8 Sparks include Singtel Innov8, AIS The Startup, Globe's Kickstart Ventures, Optus-Innov8 and Telkom's Teman Dev group. Through these members, start-ups can expand outside their home markets into Australia, Indonesia, the Philippines, Singapore and Thailand.

MAKING RICH MEDIA ACCESSIBLE

People crave visual information and, with the proliferation of mobile devices, they have more ways to consume it than ever. Globally, the average internet user spends over six hours a day on online media with 30% of it on mobile devices, according to GlobalWebIndex. Online videos are particularly popular among internet users and, between 2012 and 2014, the time spent watching online videos increased significantly in almost every country.

In the emerging markets, the demand for online videos is spreading, due to increasing smartphone adoption and a burgeoning middle class with spending power. The market for OTT video in India, Indonesia, the Philippines and Thailand is forecast to be worth US\$1 billion by 2018, according to Business Monitor



CASE STUDY:
**SINGTEL INNOV8 – CREATING
SUCCESSFUL PARTNERSHIPS WITH
THE INNOVATION ECOSYSTEM**

Our corporate venture fund, Innov8, is a key enabler of successful partnerships between the Group's members and Innov8's investments across the globe. One such Innov8 investment is Jasper.

Jasper's industry-leading, cloud-based Internet of Things (IoT) platform enables enterprises in any industry to transform from product businesses to service businesses, capable of delivering increased customer value and unlocking new sources of revenue.

More than 2,000 companies in over 20 industries, including many of the world's top brands, choose Jasper to fast-track their IoT services. The automotive industry is one industry that is rapidly adopting Jasper's platform. Thirteen of the world's leading manufacturers – including Ford, Nissan and GM – rely on Jasper to manage vehicle connectivity, which enables them to relay important information to vehicle owners, such as emergency support, stolen vehicle tracking, infotainment and remote diagnostics.

Since Innov8's investment in 2012, Innov8 supported Jasper's growth by providing strategic advice on Asia and introducing Jasper to other members of the Singtel Group. These introductions expanded Jasper's network of global operators. Singtel, Optus and Telkomsel's customers can now deploy IoT services on Jasper's platform. This collaboration creates a win-win relationship for everyone.



"Jasper enables companies across industries to rapidly and cost-effectively launch, manage and monetise IoT services on a global scale. The investment and support from Innov8, alongside the broader strategic partnership with the Singtel Group, has made it possible for enterprises throughout Singapore, Indonesia and Australia, to embed connectivity into their products, to deliver increased customer value and to generate new sources of revenue. Singtel and Jasper share a deep commitment to the expansion of the IoT market for the benefit of enterprises worldwide."

JAHANGIR MOHAMMED
Founder and CEO
Jasper

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Amobee Brand Intelligence analyses and cross-correlates consumption trends from different platforms, including:



videos



websites



images



tweets

to provide insights and analytics on:



internet
topics



products



celebrities



places

International and Global Insights. Despite the enormous amount of entertainment on the internet, options for enjoying online videos are often illegal, expensive or inconvenient. Across Singtel's footprint, access to quality streamed content remains limited.

We took advantage of these developments with the launch of HOOQ in the Philippines and subsequently in Thailand and India.

HOOQ is a joint venture start-up between Singtel, Sony Pictures Television and Warner Bros. Entertainment.

It is a gateway to a world of Hollywood and local movies and TV series. An interactive app lets customers stream their favourite videos on any connected device, while the download option ensures customers can still enjoy the content uninterrupted when they do not have access to high-speed mobile internet.

HOOQ delivers on Group Digital Life's strategy to develop new revenue streams and helps our

associates encourage mobile adoption in their markets.

RE-INVENTING MARKETING

Advertising must follow its audience, and more and more people are choosing to consume media online rather than via traditional channels like TV and radio. At the end of 2014, digital advertising accounted for about 30% of global ad spending. Experts predict that this will grow over the next decade and supersede TV advertising, which has been the dominant advertising format for more than a decade.

In 2015 alone, Magna Global estimates that US\$163 billion will be spent on digital advertising. Asia shows the largest potential for growth, with newly connected markets in China, India and Southeast Asia already consuming enormous amounts of media on portable devices. Significant growth is also expected in the US and Europe.

Our digital marketing arm, Amobee, is poised to seize these opportunities. Amobee helps brands and their agencies navigate the increasingly



about 30%

AT THE END OF 2014, DIGITAL ADVERTISING ACCOUNTED FOR ABOUT 30% OF GLOBAL AD SPENDING



US\$1 billion

THE MARKET FOR OTT VIDEO IS EXPECTED TO BE WORTH US\$1 BILLION BY 2018



CASE STUDY: DATASPARK – USING DATA SCIENCE TO IMPROVE TRANSPORT PLANNING

The major roads and highways of large cities are often described as arteries and, as in a heart, there can be dire consequences when they become congested.

In Singapore, billions of dollars have been spent on public transport and more will be spent as the country continues to expand its Mass Rapid Transit (MRT) network. The nation is also expecting its population to reach 6.9 million people by 2030. With the stakes so high for the government and would-be commuters, it is essential city planners can predict when people travel, where they go and what transport they use.

DataSpark gathers location data from the Singtel network and analyses this information to gain comprehensive, but anonymous insights into commuters' travel patterns and profiles. These insights help the government in its complex task of city planning by evaluating the potential impact of the MRT on traffic flow around the city. Data analytics strengthens the government's ability to plan for the future, and help Singapore become a Smart Nation.

DataSpark

complex digital advertising landscape, enabling them to target and engage consumers at scale and on a global basis.

In 2014, we took a significant step to deepen Amobee's reach and capabilities when we acquired Adconion and Kontera. With Adconion, Amobee's newly unified digital marketing platform allows advertisers to identify and authentically connect with their audience across multiple channels – display, video, email, mobile and social – on all devices.

Amobee Brand Intelligence, a proprietary and patented technology created by Kontera, has a unique way of analysing digital content consumption and consumer sentiment both historically and in real time. The analysis produces useful insights that help Amobee's clients to efficiently activate media and deliver powerful results.

GENERATING INSIGHTS FROM BIG DATA

DataSpark's advanced analytics intelligently interprets data from the Singtel network to generate insights that explain and predict market

developments. These insights help governments and businesses make smarter, better-informed decisions.

Our analytics tool, DataSpark, provides detailed meta-information while protecting individual customer privacy. All data used by DataSpark is encrypted, anonymised and aggregated to be compliant with Singtel's data governance framework and with Singapore's Personal Data Privacy Act.

DataSpark has access to extensive locational data repositories, allowing us to look below the surface, telling us where people are and when. For example, in 2014, we developed the capability to anonymously map crowd movements in malls. This revealed potentially profitable insights for retailers and mall managers alike, such as the most visited locations in each mall.

During the first year of DataSpark's operations, we have focused on the following challenges:

- How telcos can gather intelligence to generate customer profiles and improve operations and planning

- How government agencies can use spatial data to support urban planning initiatives
- How businesses can use location data to improve marketing campaigns, such as by concentrating their efforts in areas with heavy pedestrian traffic

In all three areas, we have been able to deliver credible and relevant insights. For example, using location data, we were able to develop an accurate model of pedestrian traffic flows during peak hours in Singapore. We then patented technologies for profiling large population segments based on their movements and other mobility-related signatures. Our research has been published at high-profile data science conferences⁽¹⁾.

Moving ahead, we plan to invest significant resources into developing new approaches to big data analysis. These will allow us to explore even deeper than before.

Note:

⁽¹⁾ Conferences include 2015 IEEE International Conference on Pervasive Computing and Communications and 2015 ACM SIGKDD Conference on Knowledge Discovery and Data Mining.