

Smart City: The New Frontier of Innovation



- KL Converge! 2015
- Malaysia Joins Regional Community In Launching ICT Volunteer Programme
- How Retail Is Being Transformed By The Internet Of Things
- Mobile Payments As Standard Bearer For Digital Services
- Extending Postal Services In The Name Of Tourism And Country
- Kemaman Smart Community
- Communications And Multimedia Industry Landscape: Looking Ahead
- Raising Good Digital Citizens Through Klik Dengan Bijak® Programme
- Getting Ready For Digital Terrestrial TV
- Competition In Broadcasting Heats Up





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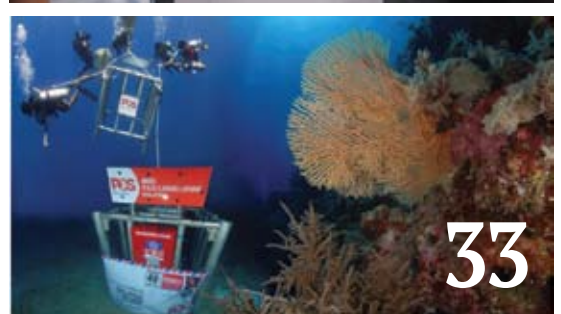
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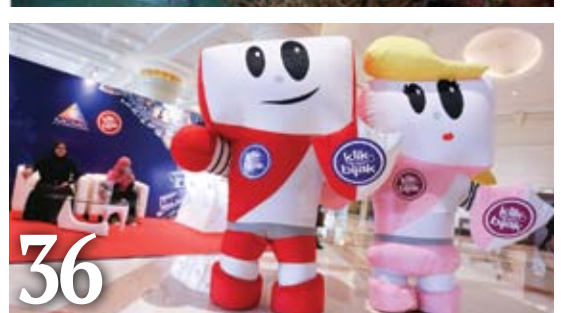
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From the Chairman's Desk

Warmest greetings.

It is my great pleasure to extend greetings to readers of .myConvergence.

The cover story on smart city is very apt for this magazine given that smart cities are created through the convergence of many technologies, services, applications and policies. All over the world planners are working towards turning cities into smart cities.

This is no small task as the benefits of implementing smart city technologies and services impact millions of residents of those cities. Immense resources are needed for implementation of any smart city framework, making it vital that the framework and implementation of such projects are done right. Quite a few cities in Malaysia are on the pathway of implementing smart city features and I am certain those involved in these undertakings will find this article useful.

While we work towards improving the nation's cities, smaller towns and rural areas will not be left behind. MCMC is mandated with advancing ICT adoption within all communities in Malaysia. A pilot programme to create an ICT ecosystem in such areas took off in 2015. The Kemaman Smart Community initiative is working towards the creation and adoption of applications and services that are useful to that area. As can be read in the article on this subject, the programme is quite impactful. MCMC looks forward to implementing the Smart Community programmes all over the nation progressively.

Our plans will be aided by another interesting initiative spearheaded by MCMC. The ICT Volunteer Programme aims to build corps of digital volunteers all over the nation. You can read about this venture in this issue. I hope that readers will come forward to volunteer their time for this important programme.

This issue also looks at industry trends and developments. There are interesting features on the industry landscape, broadband industry developments and Internet of Things. These articles coupled with the other equally appealing features in this issue will give readers a broad overview of the many activities and initiatives MCMC is engaged upon.

Thank you

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Smart City: The New Frontier of Innovation

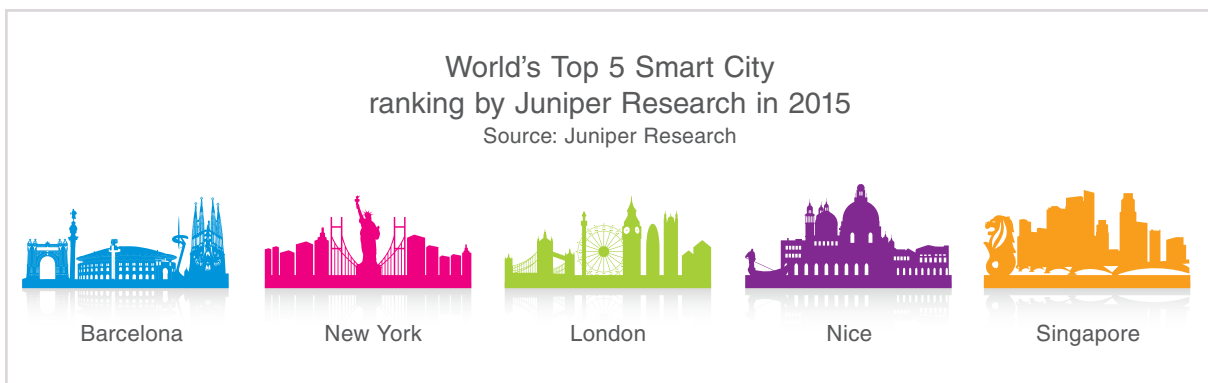


A transformation of how cities function is underway through innovations emerging from IoT, cloud computing, big data analytics, mobility and empowered citizens.

Toh Swee Hoe
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Of late, there has been a lot of news about the deployment of the smart city concept in many cities around the world that make them 'clever or smart'. The smart city approach is gaining momentum around the world, as local authorities look to manage their cities in a more efficient manner. This is often done through use of innovative technologies like sensors, smart meters, transport technology and better internet infrastructure and services. The increasing power and decreasing cost of ICT with big data analytics are at the heart of all this.

Smart cities come in many variants, sizes and types, depending on the policy, characteristics, approach, funding and scope. According to IHS (a global source of information and insight), there are currently 21 smart cities and the number will go up to 88 by 2025. Of these, 32 will be in Asia Pacific, 31 in Europe and 25 in Americas. A city is considered a smart city if at least three sectors or characteristics of a smart city are implemented. Prime examples of smart cities around the world are Nice, Amsterdam, Barcelona, Kyoto, Beijing, Singapore, Seoul and San Francisco.



WHY SMART CITIES

Smart cities have attracted much attention globally as they can potentially provide values and solutions to the many challenges and opportunities that urbanisation brings to society. Cities are primary drivers of economic growth and innovation for national and even regional economies. Cities are attractive to highly skilled and educated workers and gateways for new immigrants. They are important trade hubs for both goods and services, and the focal points of global commerce. Cities house substantial infrastructure assets and major institutions that power regional prosperity and the nation's quality of life. These critical characteristics make cities strategic leverage points and making them 'smart' will contribute to strengthen and sustain a nation's economy and competitiveness.

Commitment by Local Authorities to implement a Local Digital Agenda in their Territories:

- To work actively towards the development of our cities and regions, using Information and Communication Technologies as an instrument for sustainable development in all its dimensions, for each and every community, to bridge the North-South divide, and for all citizens, against marginalisation and social division;
- To implement in our cities and regions an e-local agenda (Digital Local Agenda), designed to promote the Information Society, taking into account in particular the socio-economic and cultural environment, and based on the broad participation of citizens and social actors, with the ultimate objective of fostering sustainable development;
- To strengthen the enabling role of local and regional authorities in guaranteeing adequate and secure technological infrastructure and in promoting ICT-based applications for inclusive services;
- To promote, in so far as it is possible, the use of free software and other tools that facilitate inclusion and digital solidarity;
- To facilitate the mobilisation of resources for digital inclusion, by engaging, if necessary, in new financing mechanisms;
- To prompt all local and regional organisations involved in the development of a more equitable information society to implement the commitments of this Declaration.

Source: 2nd World Summit of Cities and Local Authorities on the Information Society, Bilbao 2005

Future Cities - Challenges and Opportunities

- Climate change
- Population growth
- Globalisation of economy, demographics, risks and ecologies dependencies
- Technological developments
- Geo-political changes
- Human mobility
- Ageing populations
- Inequality and social tensions
- Insecurity (e.g. energy, food and water)
- Changing institutional and governance frameworks

Source: Foresight Future Cities Project, Future Cities Catapult, UK, June 2014

The attraction of cities has caused rapid urbanisation, creating cities and mega cities (usually defined as cities with population of over 10 million) and putting pressure on city services such as transport network, health services, emergency services and utilities. It is possible then to envision how the use of ICT or 'smartness' in city operations can help drive innovation to address or mitigate the negative impact to society from rapid rural to urban migration and its influence to the wider global environmental ecosystem.

WHAT IS A SMART CITY?

What makes a city 'smart'? There are many definitions of smart city, some focusing on ICT as a technology driver and enabler, whilst other broader definitions include socio-economic, governance and multi-stakeholder aspects such as the use of social participation to enhance sustainability, quality of life and urban welfare. A definition taken from the International Telecommunications Union ITU-T SG5 Focus group on Smart Sustainable Cities provides a good overall description:

"A Smart Sustainable City (SSC) is an innovative city that uses information and communication technologies (ICTs) and other means to improve quality of life, efficiency of urban operation and services, and competitiveness, while ensuring that it meets the needs of present and future generations with respect to economic, social and environmental aspects" ITU-T SG5 Focus Group on Smart Sustainable Cities

WHAT IS IT LIKE LIVING IN A SMART CITY?

The very concept of a smart city promises us that our quality of life will be better. In a smart city, ICT will be hard at work everywhere to support our 24-hour life, whether we are at home, at work or leisure. Security, weather, environmental and traffic sensors would be performing various functions in the city linked by an extensive telecommunication network. The network, wired and wireless, will be communicating information for processing and presentation to a control room (possibly also made available to the citizens) that takes care of or support the needs in the city. Things in a city - the electricity grid, the sewer pipes, roads, street lightings, traffic systems, buildings, cars and more - will be connected to the network in a smart city of the future. Buildings will turn off the lights for you. Street lighting is turned on or off depending on the presence of people or dimmed according to the brightness of the moon or its surrounding. Self-driving cars will find you the parking space that you wanted and rubbish bins will be smart, 'calling out' for collection when it is nearly full and many more.

Consumer would probably be able to see water or electricity consumption through smart meters and be able to compare those to other citizens via a community portal, encouraging us to use utilities efficiently.

We may not even have to travel to a physical office anymore as we will be in a connected team and office and could work practically anywhere. We will be living a connected digital lifestyle of the future. For a peek into that future, some YouTube videos about smart city living can be explored, including the one made by MCMC in 2013 during the launch of Digital Lifestyle Malaysia.

TRENDS DRIVING SMART CITY

People like to migrate to cities as it has always been places of opportunity and even more so now in a knowledge and innovation economy. Recent estimates (Roundtable report – Mobile World Congress 2015 – Smart Cities and Ultra-Connected Nations) say that 80% of global GDP is generated in cities. People are attracted to cities to find jobs, friends, culture and enjoy the excitement of urban life.

Cities are also the sites of tremendous innovation as they can be great proving grounds for technologies, providing opportunities for people to invent, test and to sell new things. Smart cities therefore present a growth opportunity for suppliers of smart technologies. Such smart technologies can help address some of the challenges of urbanisation by helping to optimise resource consumption and improve services through better management of demand and supply.

According to UN HABITAT, due to rapid urbanising trend, in 2007 for the first time in history, more than 50% (or 3.3 billion) of the world's population lived in cities. In 2014, there are 28 mega cities, which are home to 453 million people. It is expected that by 2050, city dwellers will make up 70% of the earth's population, or 6.4 billion. In Malaysia our urbanisation rate according to Department of Statistics Census 2010 is at 71:29 in 2010. We were at 50:50 in 1990 and 62:38 in 2000. We are expected to reach 75:25 in 2020 (World Bank - Malaysia Economic Monitor, Smart Cities 2011). Nearly 80% of Malaysians will live in cities in 2030 (Economic Planning Unit report, 2015) and the ratio is expected to touch 90% by 2050 (The 2009 UN revision database).

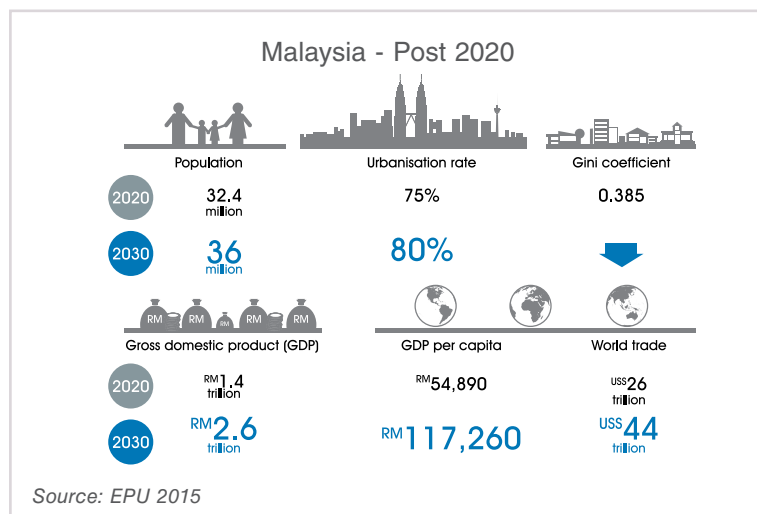
Academic research has sparingly discussed this phenomenon. More work in this area is needed to better understand it. For instance, issues like population growth, urbanisation, environment and climate change, available limited resources and its overuse, impact and challenges on the limit of sustainability and quality of life and the innovative use of ICT in addressing them need research. Due to climate change and other environmental pressures, cities are increasingly required to become 'smart' to enable them to take on key measures to meet targets imposed by commitments and legal obligations such as reduction of greenhouse gases, employment rate, inclusion and sustainable development.



THE MARKET FOR SMART CITY

Market size estimates for smart city vary widely from a number of data sources estimates but one thing is certain - it is large and growing. The market depending on the sources may include smart solutions, products and services in verticals - water, waste, energy, transport and assisted living. It may cover market segments such as smart homes, smart transportation, smart utilities, smart integration, smart healthcare, smart education, and smart energy management among others. Solutions could range from the end-user, application, product, solution, utilities and technology. For example, ABI research quotes a market size of USD39.5 billion by 2018, and Frost & Sullivan, USD3.3 trillion by 2025. Whatever the estimates, there is a substantial market opportunity indeed for Malaysian ICT industry. Today, over 300 smart city pilots are being conducted all over the world. It is used as a platform for business, technology and applications research and development and is seen as opportunities with future export potential.

The opportunities for businesses lie in addressing the current challenges facing cities and in developing



Data Source	Smart City Market Size/Number of Projects
ABI Research	Smart city technology market in 2013 is USD8.1 billion and will grow to reach USD39.5 billion by 2018.
Frost & Sullivan	Market Global opportunity in Smart City market to total USD3.3 trillion by 2025.
GSMA's Connected Living Tracker	In 2012, there were 257 trial or commercial mobile smart city projects in Americas (38), Europe (166), Asia (38) and Africa/Oceania (11).
International Data Corporation	Estimate mainland China's city market to be worth USD10.8 billion in 2013 and forecasts double-digit growth for the next five years.
Lee & Hancock's analysis of data from IBM, CISCO, ABI Research, Gartner (2012)	In 2012, there were 143 smart city projects on-going or completed in North America (35), South America (11), Europe (47), Asia (40) and Middle East & Africa (10).
Pike Research	Smart city technology market in 2012 is USD6.1 billion and will grow to USD20.2 billion in 2020.

Source: MIIT, DG CNET, EU Commission - Comparative study of smart cities in EU and China, 2014

innovations. Low hanging fruits are in traffic management, energy, safety, health and learning. The most pressing challenges are energy use and transport eco-system.

Smart city projects are usually complex, long term and unique with many stakeholders (government, financiers, urban developers, technology and service providers, and inhabitants) and a variety of priorities and business models. It requires substantial financial investment and financing remains one of the greatest challenges to get smart city initiatives going.

The tables on the right show several examples of good practice, technology, financing and business models, the tools and techniques in the development of smart city. Across the globe, cities are exploring new emerging and innovative business models to fund projects. Also highlighted in the table is the trend of using an open and transparent or participative governance approach as opposed to the traditional closed and top down approach in building an innovative and inclusive smart city.

A COMMON STANDARDS BASED SMART CITY FRAMEWORK

There is a need for a common standards based smart city framework that stimulate mass market and growth by ensuring and deploying innovative, replicable and scalable solutions. It will enable widespread participation in service development and community engagement and increase competitiveness of businesses by avoiding vendor lock-in. These factors form the basis of a smart city framework that could be used as a guide or common reference to studies or research and smart city planning and development.

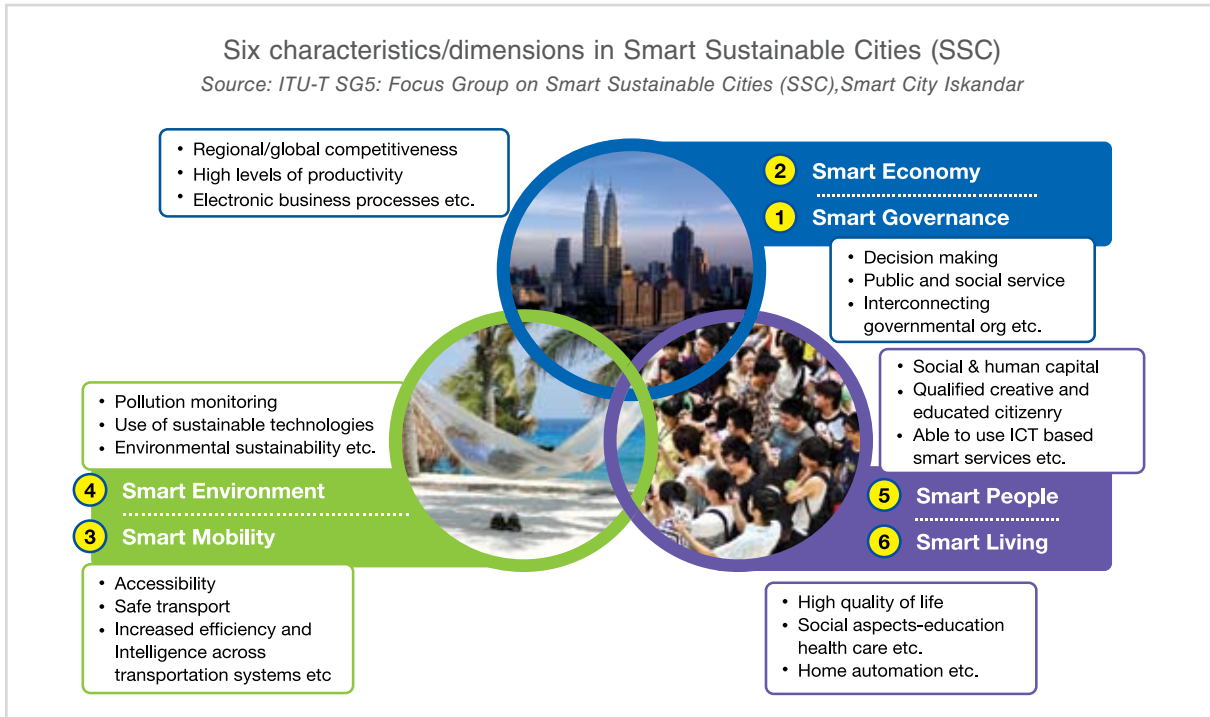
Source: MIIT, DG CNET, EU Commission - Comparative study of smart cities in EU and China, 2014

Participative Governance Model
• Open and inclusive networks
• Open data infrastructure
• Visualisation
• Simulation and gaming
• Citizen engagement
• Integrated management structures

Common Financial Instruments/Models
• Public Private Partnerships
• Green Bonds
• Energy Saving Performance Contracts
• Tax Increment Financing
• Crowd Funding
• Private Investment

Technologies Driving Smart Cities
• Broadband connectivity
• Internet of Things / Internet of Everything
• Smart personal devices
• Cloud computing
• Big data analytics

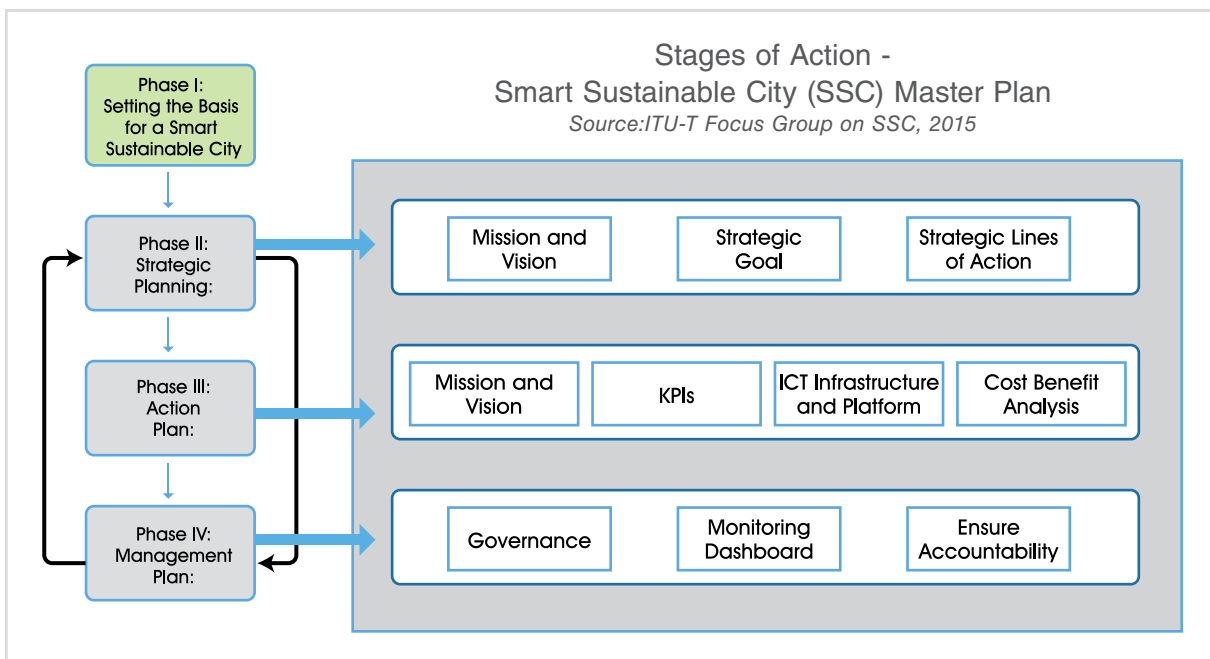
Emerging innovative Business Models To Fund Development
• Cloud-based, pay-as-you-go models
• Creating revenue from data
• Pilot projects
• Smarter procurement



The process of implementing smart city is an evolution of the institutional system and technical standards involving large-scale involvement of capital, technology, talents, authorities, cities and the community and industry. Common standards based smart city framework are being developed by a number of international standards groups. Key ones are International Telecommunication Union ITU-T-SG5 Focus Group on Smart Sustainable City, International Standardisation Organisation (ISO)/International Electrotechnical Commission (IEC) Joint Technical Committee 1/SG1 Smart City and Institute of Electrical and Electronics Engineers (IEEE) Smart Cities Initiatives.

Together, they are developing a comprehensive set of guideline and standards addressing the needs of smart city development.

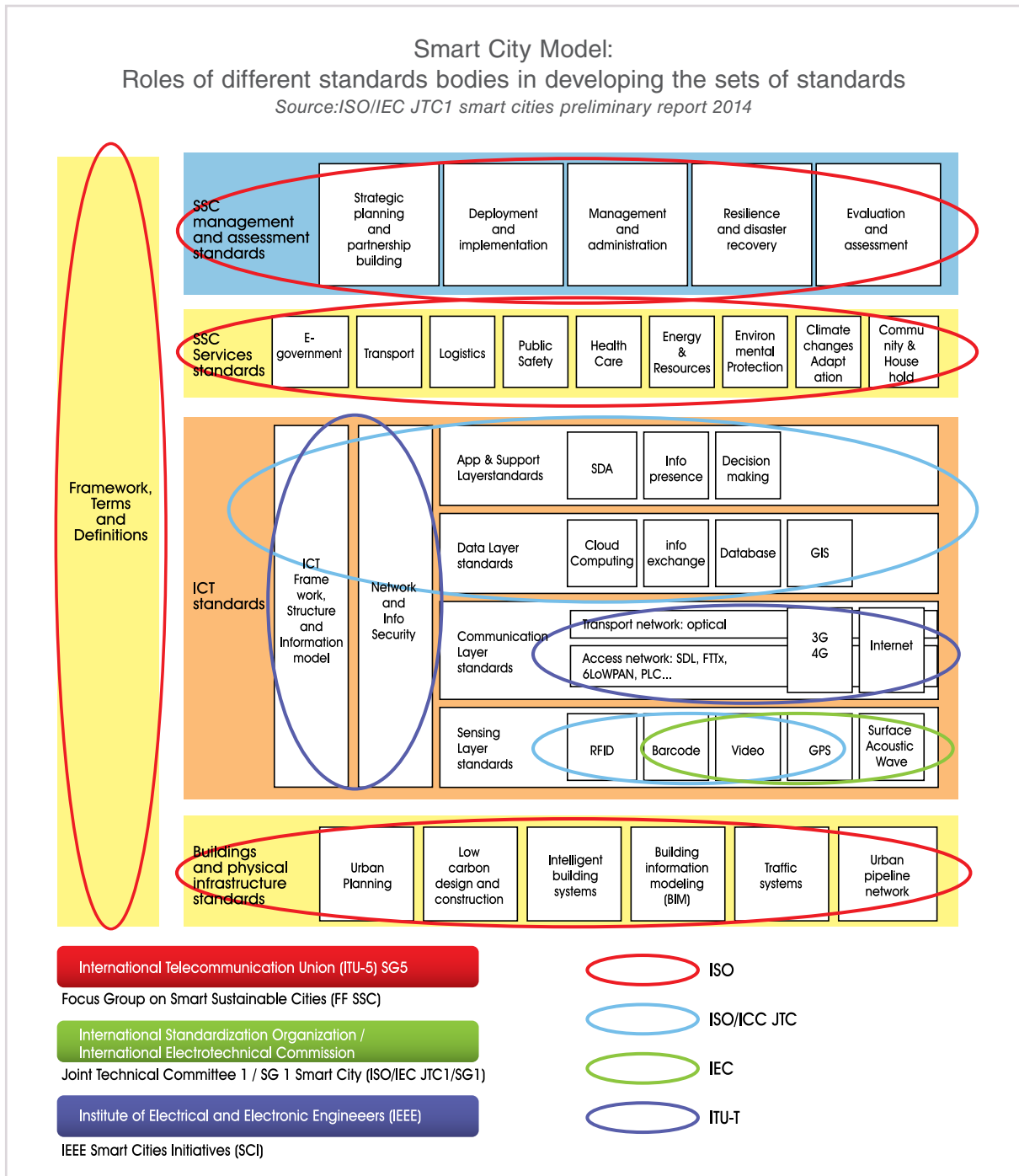
At the core is a set of standards for ICT infrastructure involving a large number of technologies: the Internet of Things (IoT), cloud computing, broadband communication infrastructure, 3G/4G mobile, Radio Frequency Identification (RFID), networking, geographic information system (GIS), satellite positioning, high performance computing, artificial intelligence, software engineering, system engineering, information security technology, modelling and simulation, analytics and so on.



The framework covers the sensing layer (IoT) that collects real-world object information through sensing equipment such as camera, environmental sensors, RFID and GIS installed in the city. The information collected is transmitted to a processing centre with the aid of the internet, wireless networks or optical fibre technologies that form the communications and data layer. After applying analytics to the huge amount of information, intelligent control and management are applied at the applications layer resulting in improvement and efficiency of urban operations. It can be noted that the sensing layer integrates the connected relationship of people-things and things-things. It makes them 'communicate' with each other,

thus allowing the whole city to display and utilise intelligent characteristics and in real time not only at the control centre but which could also be extended to people via their smart phones.

The use of standards approach for the development of smart cities is critical to ensure smart cities are built not as islands of information but as one integrated ecosystem. This will ensure that it will not become a headache to handle or lead to waste of funds or redundant implementation. Smart city involves large capital outlay and a future upgrade may become a big burden to bear if many technology schemes or systems are in play and are not well defined according to a common standard.

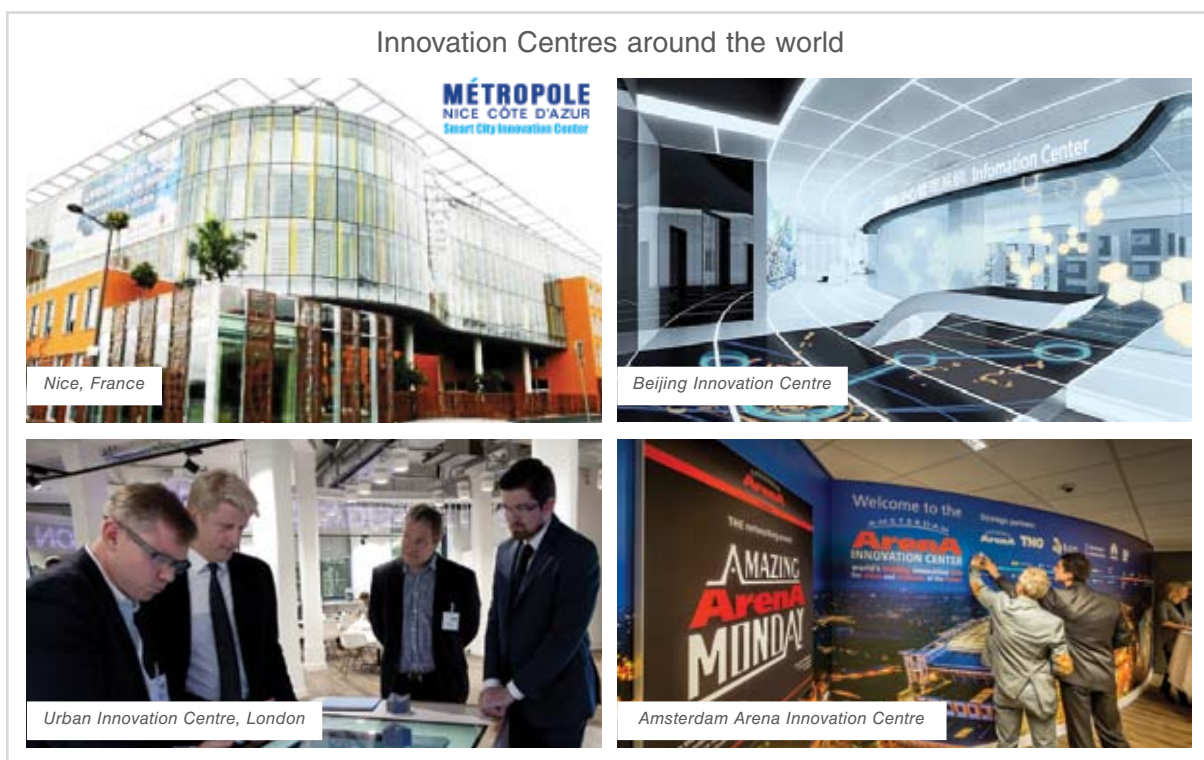


SMART CITY INNOVATION CENTRE

Another element in smart city development is a Smart City Innovation Centre. It is found in most of the highly ranked smart cities such as in Nice, France, London, Beijing and Amsterdam. The centre plays the role of showcasing projects, pilots from the latest research and applications by industry leaders to show how to cope with complex urban issues for the sustainable development of smart city.

The innovation centre provides a resource platform for projects and products in the smart industry and a hub for engagement, partnership or collaboration

between participating enterprises and R&D institutes, governments and the people of the city. It connects, accelerates and challenges parties to propose and execute innovative solutions, ideas and new business models in addressing urban issues. Through such exchanges, learning and collaboration as well as professional advisory and roadmap building for smart city pilot programmes, the development of new innovative solutions, services and markets can be advanced or accelerated and be promoted or replicated elsewhere via a network of cities, specialists and enterprises. An innovation centre further acts to promote smart city by presenting the latest solutions at forums, training, seminars and exhibitions.



TECHNOLOGY AND SOCIAL INNOVATION - SMART CITY THE CITIZEN CENTRIC WAY?

Cities bring people together to live, work and play. Together they intensify the ability to create wealth and ideas. If we can harness the collective power or wisdom of the citizens and get them involved in the process of improving cities, it may be possible to avoid or reduce the incidence of failure in smart city projects. We could achieve the ultimate goals of cities which are sustainable growth and making citizens happy and fulfilled.

“Perhaps if we can create a meeting of minds for local authority, government, city planners and citizen (who may have an idea, a business or just a desire) to collaboratively explore ways technology can improve cities and make their city more sustainable and a better quality of life?”

Facilitating ideas will promote social innovation through the combination of technology and people

and by catalysing cross-sector collaboration among government, civil society, industry and the academic community. New ways to make the most of their collective brain power – from telephone and smart phones, to broadband and online platforms, and open city data sets can bring them together to solve complex city problems. The city then becomes a living laboratory for smart technologies.

Some example results from social and technology innovation taken from Rethinking Smart Cities From The Ground Up, Nesta, June 2015 report:-

OpenStreetMap: Individuals and community groups can use low-cost environmental sensing kits like the Smart Citizen Kit from Intel to measure air pollution and upload the data to create crowdsourced maps. This data can supplement professional sensing networks in the near future.

Egg - An app compiling data about air quality by selling a cheap sensor which people put outside their homes

Emerging Methods In Harnessing The Power Of Citizens

The collaborative economy: Connecting distributed groups of people, using the internet and digital technologies, to make better use of goods, skills and space. This is important in cities where resources, particularly space, are limited.

Crowdsourcing data: People can use low-cost sensors to measure and create crowdsourced maps of their environments; city governments can crowdsourcing data from social media sites and sensors in mobile phones, as a supplement to citywide Internet of Things networks.

Collective intelligence: Decision making and problem solving are usually left to experts, yet citizens know a huge amount about their cities. New digital tools make it easier for people to get involved in policymaking, planning and budgeting, and this could help cities make smarter and more democratic decisions.

Crowdfunding: People can connect with each other online to collaboratively fund community projects and city governments can use crowdfunding to make spending decisions that more accurately reflect the needs and wishes of citizens.

Source: *Rethinking smart cities from the ground up*, Nesta, June 2015

where they collect readings of green gases, nitrogen oxide (NO₂) and carbon monoxide (CO). The data is sent to the internet where it is integrated on a map to show pollution levels around the world.

'I love Beijing' - an app to report issues such as broken streetlights and potholes to the city government. The app extends the features offered by successful issue reporting apps like FixMyStreet in the UK, by also including a map of the city's informal food markets. Residents can add a range of information to the map including opening times, new markets and what type of goods they sell.

Don't Flush Me - neat little DIY sensor and app which is single-handedly helping to solve one of New York's biggest water issues. Every time there is heavy rain in the city, raw sewage is pumped into the harbour, at a rate of 27 billion gallons each year. Using an Arduino processor, a sensor which measures water levels in the sewer overflows and the app lets people know when it is 'safe to flush'.

Sharing City Seoul initiative - In Seoul, the city government is helping residents make better use of the things they own. It has supported a range of projects from local car-sharing company SoCar to websites like Billiji that help people share things with their neighbours.

'Madame Mayor, I have an Idea' - is a crowdsourcing and participatory budgeting process that lets citizens propose and vote on ideas for projects in Paris. The process allocates 500m Euros between 2014 and 2020.

SUMMARY AND CONCLUSION

We discussed the urbanisation trends happening worldwide that create large cities, which have become major engines of innovation, economic growth and technological progress. With the growing population, they face important challenges of sustainability and quality of life. ICT and digital technologies can address many of them, making the city 'smart or clever'.


Smart city changes the way governments, enterprises and people interact, enabling quick and intelligent response to all kinds of demands of citizen's livelihood, environment protection, public security, urban services and industrial and commercial activities. It improves

urban efficiency, and outlines a vision for a better quality of life.

We have further explored a Common Standard Framework for smart city with its six characteristics/dimensions and the trends and market potential. Use of standards is crucial to promote mass market and interoperability.

We further took a look at harnessing the power of citizens in smart city development to ensure better outcomes in addressing complex city challenges. Tapping the power of citizens in smart city development will further enrich citizen's lives, uplifting their potential to partake in the prosperity that is generated. It rings in harmony with the theme for the 11th Malaysia Plan (2016-2020), 'anchoring growth on people' the final leg towards realising Vision 2020.

Malaysia has a number of smart city aspirants with cities like Malacca, Iskandar, Cyberjaya and Putrajaya already in the game. There is also the smart community project expansion plan by MCMC in collaboration with the state and local authorities in identifying a digital champion in at least one district in every state to work with following the successful pilot in Kemaman, Terengganu (<http://www.skmm.gov.my/Resources/Publications/Smart-Community/Smart-Community-@Kemaman.aspx>).

At the fundamental level, smart city market presents an important and attractive opportunity for telecommunications service providers to provide the anchor. Machine-to-machine (M2M) and IoT are the basis for many smart city services and smart metering too play an important part in the smart city infrastructure. Telecommunications service providers can gain from growth opportunities rendered. Collaborative partnerships will likely be required to enable telecommunications service providers access to smart city expertise. The Government has also placed a significant emphasis in the 11th Malaysia Plan on ICT as an enabler of the knowledge economy. Telecommunications service providers need to position themselves to take full advantage of it - nurturing innovation and opening up opportunities for future growth. 



Maszni Abdul Aziz

Keeping The Craft Of Making Beaded Shoes Alive

Maszni Abdul Aziz is an extraordinary lady in quite a few ways. She happens to be a Malay craftswoman who has mastered a craft customarily carried out by Chinese people. Then, instead of setting up shop in a city as one would expect she went back to her village and established her business.

[.myConvergence](#)

HOW DID YOU LEARN HOW TO MAKE BEADED SHOES?

Not too many years ago, I was a typical housewife struggling to make ends meet. Together with my husband, I had moved in search of work to Melaka city. I come from a village located on its outskirts. I worked in factories, did part time direct sales and even tried launching small businesses. The hours were long and the income meagre. My family, with young children, struggled to make ends meet.

Then, as fate would have it, I chanced upon the sight of beaded shoes being made by one of my neighbours. My interest was piqued with the beautiful designs and I set my heart on learning how to make these shoes.

WHAT EXACTLY ARE BEADED SHOES?

My neighbour was a Chinese as Peranakan beaded shoes is a heritage craft that grew and flourished among the

Baba Nyonyas who lived in the Straits Settlements. Baba Nyonyas are descended from Chinese immigrants who came to South East Asia between the 15th and 17th centuries and who over time adopted the language, dress style and other local customs of the region. They lived mainly in the Straits Settlements of Penang, Melaka and Singapore.

WAS IT EASY TO LEARN?

I persevered until I learned the craft. The process of making beaded shoes is incredibly complex. It is very intricate work. Small beads are used to create patterns on shoes. A single pair of shoes with an intricate design can take over a month to make. The simplest designs take between 8 to 10 days. Everything is hand made. The needles used are very fine and the maker's eyesight has to be good.

HOW DID YOU BECOME FAMOUS?

My creations began to attract interest. After all, very few people are still making beaded shoes. The fact that I am a Malay lady who had mastered this difficult craft added to my fame. People began to order my shoes and I realised that there was potential in doing this as a full time business.

WHY DID YOU CHOOSE TO START YOUR BUSINESS IN YOUR VILLAGE?

I learned to make beaded shoes in Melaka. But I also knew that to grow the business I would need to build a team of people. The only way I could expand my business was by gathering together a skilled workforce. Sewing is a dying trade in cities. Hardly anyone can use a needle and thread. On the other hand, people who live in villages still learn and master it.

My family returned to my village in Umbai, Melaka to set up our cottage industry. Today I have my own workshop cum display centre, located in my kampong and I provide income opportunities to other ladies in my village.

IS IT DIFFICULT TO OPERATE YOUR BUSINESS FROM A VILLAGE?

As said, my village is an ideal base for production of the shoes. There is ample space to set up the shoe making area. Skilled labour is readily available as my fellow villagers already knew how to sew clothes and were eager to earn extra income. That took care of the production process.

I still had to figure out how to handle sales and marketing from my village home. Providentially, another key tool had arrived by then. Internet services had reached my village and these services enabled me to easily stay in touch with my suppliers and customers.

The internet is a powerful ally in my twin quests to become a successful businesswoman and keep an old craft alive. I have to order my beads which come from countries like Japan and Taiwan. There are many other supplies and parts for shoes that have to be sourced.

WHAT ABOUT SALES AND MARKETING?

I could not have achieved what I did without the Internet. If I had just a physical shop, I would have to wait for customers to walk in. Instead, customers find me on the Internet or they see my shoes at exhibitions and trade shows and reach out to me online.

I had a blog site in the beginning but these days I find it is best to use social media sites like Facebook to promote and draw in my customers. I don't do any hard selling on Facebook. Instead I focus on genuinely promoting a slowly dying craft.



Beads are sewn onto cloth before the patterns are cut and used on shoes



People look for me and quickly become friends and supporters. They in turn help to spread the word. My online presence has been instrumental in taking my designs to an international market. Because of that I feel like I am an ambassador for Malaysia. Every time someone from overseas admires my work or orders my creations, I feel that I have been able to make our culture and heritage appreciated overseas.

HOW ELSE ARE YOU KEEPING THIS CRAFT ALIVE?

Having learned the craft, I am happy to do my bit to keep this craft alive. I conduct regular workshops at the Melaka Museum and at requests, in other places throughout Malaysia. I am invited to trade fairs including overseas. Many ladies in my village have learned how to make these shoes. My daughters, who are in college, have also mastered the art of beading shoes.

I am also grateful that I came up the hard way, from working in a factory to heading a business that has brought prosperity not only to my family but in the same time, raised the incomes of my fellow villagers. And from being non savvy digitally, I have learned to use technology to spread my products far and wide. [smv](#)



KL Converge! 2015

Bigger and better!

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KL Converge!, an annual conference and exhibition organised to demonstrate how converged communications advance the digital lifestyle for all Malaysians, has been a relative success.

The 2nd edition of KL Converge! was widely seen to be a success. The event took place just a few days shy of the country's Independence Day celebration from 27-29 August 2015 at the prestigious Kuala Lumpur Convention Centre.

This three day event brought together leading industry executives from the fields of multimedia, application, Internet and creative content to discuss, showcase and celebrate opportunities and successes in digital space.

The KL Converge! 2015 event witnessed strong participation from nine ASEAN countries and its dialogue partners namely China, India, Korea and Japan. The strong presence of ASEAN countries in this event is a testament of their faith in Malaysia as the current ASEAN chair and the country's full potential in digital industry.

The ever strong participation and support from the various telecommunication companies such as Maxis, Digi, Celcom, U Mobile, Altel and other multinational companies like Google, Huawei, to name a few also made the 2nd edition of KL Converge! truly a memorable one.

The event theme this time around was Convergence and Digital Inclusion. The event featured various activities including talks on Internet of Things (IoT), a series of workshops and master classes by famous personalities, technology showcases such as Digital Lifestyle Malaysia and myMaker. Andrew Mason known for his work on Scooby Doo and The Matrix Trilogy shared his experience on how to produce cinematic stories for a global audience. Titled 'Can Malaysia create cinematic stories for a global audience?' the session highlighted the changing landscape in producing cinematic stories, thanks to the emergence of digital media. No longer are celebrities created from the conventional mediums of movie, television or radio BUT via social media platforms such as YouTube.

Mason's session wasn't the only one to feature an impressive personality. Brian Brushwood – the American magician, podcaster, author cum lecturer and comedian – was also at KL Converge! too. During one of his master class session, he spoke on the importance of succeeding in a multi-channel environment.

Aside from the wizardry and digital showcase highlighted above, The Mega Startup Weekend session brought together a diverse group of business managers, start-up fans, marketing experts and graphic artists who generated new ideas for emerging companies. One of the key highlight of The Mega Startup Weekend was the session with the BFM89.9 founder Malek Ali where he gave vital tips on how to launch a successful startup ventures. Teams competed with each other and the winners with the most attractive ideas received funding for their startup.

For those who were keen on gaining insight on the digital economy, the KL Converge! Symposium was the place to be. Themed 'Empowering A Smart Digital





The national pavilion

Nation' and jointly organised by MCMC, the Multimedia University of Malaysia (MMU) and GSMA, the symposium highlighted the issues on convergence and digital inclusion. This session was conducted with experts, decision-makers and professionals from the Government and private sector, industry and academia from around the world.

Visitors who thronged the event certainly did not leave the venue disappointed. Instead, they were treated to a variety of events especially in the field of mobile application. Among them The Malaysia Developers' Day (MDD), an event jointly organised by MCMC and AT&T. This event, held on the sidelines of KL Converge!, saw innovators and entrepreneurs from all walks of life battling it out to build marketable and viable mobile apps based on a specific theme over the course of 24 hours.

Winners of the three categories at the developer event received their prizes at a ceremony. Team Lopee took home the USD10,000 grand prize for their smart toilet management cleaning system app.

As for the Liga Remaja Kreatif video competition, five selected teams from secondary schools pitched their entries. The Game Jam session meanwhile saw applications developed by creative Malaysian youths from 12 secondary schools. The 60 students from the 12 schools also participated in a unique Lego Education Workshop focused on programming and proactive solving skills using Legos.



A panel session

Movie buffs had the opportunity to watch selected titles at the special ASEAN Film Screening marathon. A total of 15 movies were screened for five times daily at TGV Cinema halls in KLCC and GSC Pavilion. Among the movies screened were the 2014 Malaysian comedy drama 'Cuak', the 2014 Indonesian biopic 'Soekarno', the 2014 Bruneian martial arts drama 'Yasmine' and the 2013 Singaporean drama 'Sayang Disayang'.

Apart from the film screenings, a panel of ASEAN filmmakers from the Southeast Asian Audio-Visual Association or better known as SAAVA conducted two sessions on the ASEAN film market and co-production opportunities.

Last but not least, two of the most popular YouTubers in Malaysia, JinnyBoy TV and The Ming Thing, were

also present to share their tips on how to create good YouTube videos with engaging stories.

Credit for the content and knowledge filled 2nd edition of KL Converge! 2015 was due to the change in approach taken by the organisers. In the inaugural edition of the event in 2014, the main focus centred on the notion of 'see', 'touch', 'feel', 'hear', 'show' and 'speak'. This time around, the emphasis on participation and knowledge sharing was translated into various thought-provoking sessions as well as pavilions from a number of countries and corporations. It was also estimated that the number of visitors thronging the event this year has exceeded the previous edition.

Indeed, KL Converge! has become a focal meeting point for creative industry, content and multimedia players to share ideas and create new opportunities. As MCMC Chairman, Dato' Sri Dr. Halim Shafie rightly pointed out, "KL Converge! has become a successful platform to bridge the gap between Malaysia's innovation and creativity and also the global multimedia content supply chain."

He added that, "This (KL Converge!) is a sure way to empower the industry to realise its potential as an engine for creation of high-income jobs and national growth. Indeed, the opportunities are undeniable as are the multitudes of our local talent. The time has never been more apt to seize the opportunities that the industry offers and push through in making Malaysia a smart digital nation and an innovation-based economy".

Meanwhile, the Minister of Communications and Multimedia, Datuk Seri Dr. Salleh Said Keruak in his opening speech at the launch of KL Converge! 2015, said he believes that with robust ICT infrastructure in place, the agenda to propel Malaysia as a digital nation takes on greater significance.

According to Dr. Salleh, the time has come to push through with creation and adoption of applications and services. He added that the industry should be nurtured as it offered lucrative returns which are estimated at between USD2 trillion to USD3 trillion annually. The creative digital industries, according to the minister, are also expected to generate a Gross National Income or GNI of RM51.5 billion by the year 2020.

A question often asked is if Malaysia has the advantage to become a regional hub for content creators. This event proves that it is possible. Many countries have created market environments for telecommunications, broadcasting, films and television but no one has really worked on converging all of these under one roof. KL Converge! has become the perfect platform to realise this convergence. Malaysia has an advantage as it has converged regulatory framework and converged industry in place.

Although the KL Converge! Gala Dinner was postponed as a result of the Bersih 4.0 rally; the event generally received positive reviews from the industry and visitors alike. This was not a surprise in any way as the decision taken in 2014 to embark on the KL Converge! event was after taking into consideration its long-term impact on the creative industry specifically, and the nation's economy, generally. This decision has proven to be a wise one.

Preparations are already underway for the 3rd edition of KL Converge! scheduled to be held at the same venue sometime in the 4th quarter of 2016. The signs are there that an annual event of such magnitude will continue to prosper and serve as a useful platform to produce more local talents in the creative industry and ultimately propel Malaysia as a centre of excellence. [my](#)



Malaysia Developer Day



MALAYSIA ICT VOLUNTEER

Malaysia Joins Regional Community In Launching ICT Volunteer Programme

MCMC has launched a new platform that promotes digital volunteerism. The Malaysia ICT Volunteer programme empowers Malaysians to become Digital Citizens who will do their part in the nation's move towards becoming a Smart Digital Nation.

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The concept of a Smart Digital Nation is characterised by its six key elements namely smart people, governance, living, economy, mobility and environment. Improving these elements bring about the transformation of a nation. Increasing the digital literacy of the people and thereby creating ICT empowered communities is a key component of this strategy.

Digitally literate people are able to make the best use of and maximise the benefits of digital services and technologies. They bridge existing divides and grow as competent citizens who have control over their lives and surroundings. These citizens will not only consume but also become content creators in the information society.

This initiative is in line with the 11th Malaysia Plan - Strategy Paper 15: Driving ICT in the Knowledge Economy - in which ICT has been emphasised as the driver to innovation in the knowledge economy, capacity building in developing high quality ICT talent, improvement of infrastructure and the pursuit of digital inclusion.

Digital inclusion has been articulated specifically to address issues of opportunity, access, knowledge and skill. It has three broad facets: access, adoption and application that enable the formation of digitally inclusive communities. Digital literacy is a requirement for digital inclusion as it accelerates participation in the digital world and global information society.

In this regard, MCMC has been continuously improving public access to technology. Since the launch of the National Broadband Initiative in 2010, many infrastructure projects have been implemented including those in rural areas under the Universal Service Provision programme. MCMC statistics show that the household broadband penetration has increased significantly in the last five years from 31.7% in 2009 to reach 72.2 % in 2015.

With improved service coverage and facilities, internet users in Malaysia have reached more than 20 million and the number is anticipated to continue to grow as quality of speed improves in line with the many infrastructure projects such as HSBB 2, 4G-LTE and Cellular Expansion Programme that are already in the pipeline. The promise of internet access available almost anywhere, any time, any place and on any device is just about there for Malaysia.

The Malaysia ICT Volunteer Programme (MIV) has thus been formulated to harness the maximum benefit and capitalise on ICT infrastructure and service availability. It engages and empowers Malaysians to become digital citizens. The programme inculcates the culture of being safe and responsible online. It builds capability to utilise technology to improve daily activities in social or business as well as contribute to the information society at large.

INTERNATIONAL ICT VOLUNTEER PROGRAMME

Malaysia participated for the first time in the International ICT Volunteer Programme in 2015 when it hosted a boot camp for 100 ICT volunteers. These

volunteers comprised students from various universities in South Korea. The boot camp was held in Sabah from 9-11 July 2015. Malaysia committed to develop its own ICT Volunteer Programme at the First Country Delegates Meeting of IIV Programme which Malaysia hosted in Sabah prior to the boot camp.

Malaysia was also one of the receiving countries volunteers were sent to after the boot camp. Malaysia took in 8 volunteers. They were divided into 2 groups, with one group sent to Gong Cengal, Kemaman in Terengganu while the other group went to Tenom in Sabah. They completed two months of volunteering activities in August 2015. At the end of the volunteering period, all volunteers were evaluated and assessed based on the activities and projects that they carried out during their period of service in the participating countries.

ICT VOLUNTEERISM IN THE REGION

ICT Volunteer programmes are not an alien culture in our neighbouring countries. The International Telecommunication Union (ITU) has implemented since 2012 an international ICT volunteer programme in collaboration with the National Information Society Agency of the Republic of Korea (NIA) known as NIA/ITU International ICT Volunteers Programme. To date, the programme has dispatched over 300 volunteers to more than 10 countries in the Asia-Pacific region, mainly to ASEAN countries. The programme first started in Korea about 10 years ago as a domestic Korea IT volunteer programme funded by the Korean Government and implemented by the National Information Society Agency (NIA).



YB Datu Haji Len Talif Salleh, Assistant Minister at Chief Minister's Office (Promotion of Technical Education) launched the MIV Initiative in Lundu, Sarawak recently. Also present was MCMC Chairman, Dato' Sri Dr. Halim Shafie.

Since 2014, the NIA/ITU International ICT Volunteer Programme was continued under the umbrella framework of ITU International ICT Volunteer Programme or IIV Programme.

The International ICT Volunteers programme (IIV) is an open platform for multi-stakeholders including governments, NGOs, academia, private sector, international organisations, and others to mobilise human and various resources aimed at empowering people at all levels including youth, professional, women and girls, and retired people; and providing them an opportunity to work towards promoting ICT for development at national and international levels.

The IIV framework enables national and international ICT volunteer programmes whereby volunteers come from different backgrounds with various skills and expertise. The framework also provides an opportunity for volunteers to network with each other thereby exchanging their knowledge, experience, creativities and innovations amongst them.

Community Access Point), Warmasif (Information Society Cafe), Rumah Pintar (Smart Home), Desa Pintar (Smart Village) and Desa Berdering (Ringing Village).

ASEAN countries that have participated in the International ICT Volunteer Programme include Malaysia, Thailand, Indonesia, Laos, Vietnam, Cambodia and the Philippines.

The MIV volunteers are the nucleus for change within the community. They will engage, impart knowledge and train the community to leverage on digital technologies to promote and enhance local products and services.

VOLUNTEERISM AROUND THE WORLD

Similar ICT volunteer programmes exist around the globe.

In the United Kingdom it is known as 'Digital Champions' where trained volunteers can volunteer their time at online centres. In countries such as Australia and New Zealand, the Infoxchange non-profit organisation offers an ICT Volunteer Programme to help the community to leverage information communication technology to meet communities' needs and ensure equal access to technology for all members of the society. New Zealand also has another ICT Volunteer Programme known as Wellington ICT Volunteer.

Meanwhile, in the USA, two prominent organisations that offer volunteering opportunities inclusive of

ICT related activities are Allforgood and Peace Corps. The United States Department of Labor Volunteering declares that there are 60 million volunteers in the US out of its 326 million population as of 2015. That is about 18.5% of the total population in the US.

THE MIV PROGRAMME

The MIV Programme is tailored to build an ecosystem or platform that continuously interact and empower Malaysians, to promote sustainable digital literacy development and offers continuous nurturing to support Smart Digital Nation initiative.

MIV programme strongly believes in creating a community of practice (COP) and nurture a network of ICT volunteers who will impart digital literacy knowledge



The nearby community from Kg. Pandan, Lundu who were interested to know more about the newly launched MIV Initiative

The IIV Programme has also inspired ICT volunteering in Thailand. The Thai programme called NBTC-ITU is a joint collaboration between an independent regulatory body of Thailand, the Office of National Broadcasting and Telecommunications Commission (NBTC) and ITU. It was established in 2006 and has organised several workshops and training programmes that benefits NBTC staff, other stakeholders in Thailand, as well as participants from ITU-D Members from the Asia and the Pacific region.

Relawan TIK ('relawan' is a Malay word which means volunteer) is another ICT volunteering organisation based in Indonesia. It was launched on 5 July, 2011. Relawan TIK are expected to work together with the communities to utilise the government provided support for facilities such as PLIK (Community Access Point), M-PLIK (Mobile

to their community and work with the community on ICT projects. It will be an intense engagement to teach, learn and share. This leads to the development of human and institutional capacity building in research and development on areas of information and communication technologies. Another crucial element of the MIV Programme's objectives is to provide opportunities for volunteers (including youth, women and girls, and retired professionals) to gain and share knowledge and hands-on experience with other people at various levels.

The MIV Programme will initially be implemented within communities surrounding selected MCMC supported internet centres known as 'Pusat Internet 1 Malaysia' (PI1M) throughout the nation. There are a total number of 628 PI1M nationwide as of Q2 2016. This initiative is branded as Malaysia ICT Volunteer Programme with the community (MIV with the Community).

The MIV volunteers are the nucleus for change within the community. They will engage, impart knowledge and train the community to leverage on digital technologies to promote and enhance local products and services. The increased ability to reach out and market to more customers will subsequently increase the sales of the local products and services. This will in turn boost the economy and improve the standards of living of the community.

The ICT volunteer programme is expected to enhance recognition, facilitation, networking and promotion of volunteerism worldwide.

Furthermore, the establishment of the ASEAN Economic Community is opening up a huge new market. Producers of local products and services could take advantage of this to expand their businesses and reach out to potential consumers from ASEAN countries with a total population of over 622 million people. With this population, ASEAN's potential market is larger than the European Union or North America. Next to the People's Republic of China and India, ASEAN has the world's third largest labour force and which remains relatively young.* (*ASEAN Economic Community Blueprint 2025).

MIV with the community volunteers are expected to come from various groups of people with diverse backgrounds. They can be selected within the same community or comprise people who have access or a connection to the community. For instance, the volunteers could be residing elsewhere but count that community as their hometown. Other criteria are the volunteers must be at least 18 years old with a minimum qualification of Diploma or its equivalent.

Malaysia ICT Volunteer Programme will not just be limited to the communities surrounding the PI1Ms. The programme will also be extended and implemented with various focus groups nationwide. More information on the Malaysia ICT Volunteer Programme will be available soon through the MIV Portal which is currently under development.

THE BENEFITS

MIV Programme will encourage local communities to be able to fully utilise ICT to improve their quality of living. Businesses have more opportunities to expand their business to a larger audience resulting in an increased participation in the global socio-economic sphere. Small and medium enterprises in the rural areas will be able to keep pace with current technologies.

Students will be able to access information and knowledge from any part of the world, anywhere, any place, any time and on any device. This will assist them in accelerating their learning ability and improving their skills. Online information and entertainment will provide students with options that would make their learning fun and interesting.

The MIV programme is truly community development at the roots. Locals are involved at every aspect of the programme at the community level. Participating youth utilise their time wisely in helping their own communities. Relationships between locals are strengthened with more trust and closer engagement and better communication among the community.

Family, friends and communities will be easily connected. There are numerous applications that are free to use and designed to be as simple as possible. Communities would also be able to learn how to develop their own applications that suit their needs and further improve their lives.

Volunteers will gain the opportunity to have hands on good learning experiences. Those without work experience will benefit from the valuable exposure, which could be added to their resumes. They will also have increased awareness and understanding of the problem faced by the local businesses, which will hold them in good stead when they start working.

Tourists benefit as the MIV programme will lead to more information on local attractions being placed online. They will have a glimpse of what the communities have to offer and a chance to enjoy local lifestyles.

Malaysians who have not yet stepped into the digital world will begin to recognise the value of ICT through the MIV programme. Communities will have first-hand experience on what the volunteers are able to do and how they may be of assistance. It will also broaden the mindsets of communities by offering experiences out of the norm.

For the nation, MIV acts as a strategic partner to support Government initiatives in utilising ICT. There will also be enhanced interactions with other nations and international organisations. Through MIV, Malaysia will be participating in the ASEAN Smart Community



The crowd gathered at the MIV booth to participate in the activities held by the MIV Secretariat

Since volunteers are unpaid helpers dedicating their time to help the communities, it is expected that it will be a challenge to keep them interested to continue and finish the projects they started. Constant involvement in providing advice and guidance by all parties involved will be able to keep the volunteers motivated and ensure the volunteering period is exciting and enriching. The volunteers will need to feel appreciated and enjoy their time helping and assisting the community.

Initiative which is an inter-ASEAN Network of ICT Volunteers. It will also collaborate with international organisations such as ITU, NIA, UNICEF and UNESCO.

THE CHALLENGES

The biggest challenge in organising the MIV Programme is the lack of manpower to oversee the project. Projects need to be monitored to ensure smooth implementation. Tasks that need to be done include compilation of data, incorporating the data into the Dashboard Monitoring System for the MIV online portal and preparing reports.

Then, there are the different semester schedules for the many Institutions of Higher Education (IHE) in Malaysia. With so many academic calendars, MCMC is unable to organise participation for all the IHE students at the same time. MCMC has to organise different programmes under the MIV platform to accommodate and suit their different time breaks.

Some areas have fewer volunteers compared to other areas whereas in other localities the number of volunteers exceed the project capacity requirement. The programme coordinators have to find ways to balance the distribution of volunteers.

Depending on the community's requirement, expert trainers may be needed to train specialised technical skills to the community. Skills such as developing mobile apps, website development, pictures and videos editing, computer application trainings and so on need properly trained volunteers. Certified trainers cost money. To overcome this challenge, the programme owners are planning to take the 'Train The Trainers' approach where the expert trainers will only train selected representatives who will then impart the knowledge to the other volunteers.


The tasks of keeping the positive feeling in people's heart should not be taken for granted. An appropriate appreciation programme is crucial in order to motivate and keep the volunteers happy and cheerful.

Despite the challenges, the organisers are hopeful that the MIV Programme will be successfully implemented. This is because the spirit of volunteerism among Malaysians is high, according to the World Giving Index that is based on data from Gallup World Poll. Malaysia stands at number 10 in 2015. The Gallup World Poll is an on-going research project carried out in more than 140 countries that together represent around 95% of the world's adult population (around 5 billion people).

Therefore, the MIV Programme when fully implemented is expected to generate many volunteers located in all homes, villages, districts, cities, states and regions in Malaysia. With the large network of volunteers, it is anticipated that they will be the ones that will lend support to our smart digital nation initiatives by engaging and working with the community everywhere in Malaysia.

The ICT volunteer programme is expected to enhance recognition, facilitation, networking and promotion of volunteerism worldwide. It will expand the critical role of ICT volunteer as an organisation that sets standards in volunteerism practices that will affect the perception of volunteerism in the future.

Through their voluntary actions, millions of people from many communities in Malaysia could make significant contributions to economic and social development, especially in meeting the goals of the 11th Malaysia Plan (RMK-11), building a better Malaysia for all Malaysians and achieving a Smart Nation status by 2020. my.gov.my



Competition in Broadcasting Heats Up

Satellite, Fiber and now Digital Terrestrial services are in an almighty tussle for viewers

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The landscape for the broadcasting sector has been undergoing a seismic transformation and this in turn has given consumers unprecedented choice and access to content services.

Less than two decades ago not many in the world could fathom the internet's potential and reach, let alone imagine that it could be the mainstream platform for viewing content. Today, viewers are able to access content anytime, anywhere and anyhow they like it, thanks to convergence, advances in portable devices and the advent of new delivery platforms.

It is a fact that viewer patterns and demands around the world are changing. Data analytics will be used by companies to 'get to know them better' and in the process adapt to them and engage with them across platforms, including providing personalised, niche content offerings.

From a rigid distribution model which dictated content and scheduling, it has now evolved into a more personalised experience for the viewer. Viewers can now access content on multiple platforms and broadcasters can establish a more direct relationship with the viewer thereby leading to a long-term fragmentation of the audience, which splits the time they devote to media among a plethora of channels and platforms.

Convergence in delivering content takes place at a different pace in different countries, hinging on broadband availability and its speed. It has definitely changed the way in which consumers access broadcasting content, as content is increasingly available over the internet and on wireless portable devices.

This has enabled triple play, with telecommunications, cable TV and the Internet, or even quadruple play, with telecommunications, cable TV, Internet and

mobile industry. There has also been an impact on the mushrooming of devices used to watch video and TV services, like tablets, smart phones or computers. All this has seen traditional TV losing its position as video's first screen of choice for consumers, with mobile devices fast taking its place.

Broadcasting is now moving at great speed into a more competitive and market-driven environment, bringing with it multiple challenges for the policy makers, business owners and regulators alike.

THE PRESENT DAY CONSUMER

What do consumers want? Viewers throughout the world are driving changes by demanding control of how, when and where they consume content. They are unabashed in stating their choices on how they receive and pay for content, and sharing their preferences for what types of content they want. The power that the consumers currently have over their content experience is unprecedented.

Broadcasting is now moving at great speed into a more competitive and market-driven environment, bringing with it multiple challenges for the policy makers, business owners and regulators alike.

“The overriding impact we see as programmers is that there is an almost unstoppable trend for technology to facilitate consumer discretion and choice,” said Josh Sapan, president-CEO of AMC Networks. “Because of that, you have to be certain to have something that has deep appeal for the people you're trying to reach.”

Broadcasters now have to cater for fragmented and niche audiences, viewing from many places, on multiple devices, at various points in time, and these audiences are increasingly only interested in watching programmes tailored just for them. This is especially so for Gen Y and Z viewers who clamour for content personalization and content sharing besides having the ability to personally curate their content library.

TECHNOLOGICAL EVOLUTION

The impact of new technologies in terms of the expansion of broadcasting channels is dramatic. All over the world, countries who once had only a few channels now find themselves having a few hundred channels. Meanwhile, appearing up alongside all this is the offering of interactive television and the capacity to order whatever

program one wants, whenever one wants, wherever one wants.

We now have multiple platforms to choose from for content delivery be it analogue/ digital terrestrial broadcasts, satellite, cable and Internet Protocol (IP) / Over-the-Top (OTT) television.

Here are brief descriptions of the technologies which are currently most prevalent throughout the world:

Analogue terrestrial broadcast works through signals sent through radio waves from a network of masts and antennae, received by the end users by way of an aerial. This was the de facto way used to broadcast since television first came to light. Many countries, including Malaysia, have or are now in the process of transitioning from analogue terrestrial television broadcasting to digital television broadcasting. In some countries, such as United States, France and Ireland, there are no longer analogue television broadcasters.

Digital terrestrial broadcast or digital terrestrial television (DTT) is also transmitted by way of radio waves, albeit requiring a set top box at the viewer's end. How it differs with analogue TV broadcast is by the utilisation of multiplex transmitters which allow multiple channels to be received in the same space used by just one analogue frequency channel.

Direct-to-home satellite broadcast or satellite television is delivered via satellite signal to the viewer's satellite dish and set-top box.

Cable television is where the television signal is delivered via optical fibre and/or fixed coaxial cables and has been deployed extensively predominantly in the

Americas, Asia and the Pacific and Europe regions.

Internet Protocol is yet another option for multichannel television. It is delivered by broadband operators via high-speed ADSL or fibre-optic connection. In addition, viewers can also resort to Over-the-top television (OTT TV), the most recent and potentially disruptive development in the broadcasting industry.

PLATFORM COMPETITION

Today, all the platforms compete to provide television broadcast, trying to increase their appeal in order to gain wider audiences. The popularity and market share of each platform will of course vary throughout the world.

One step to understand the extent to which a given market is competitive is by way of examining the potential substitution between the available platforms. In some countries, deployment of cable networks that reached near-universal penetration has caused the marginalization of terrestrial technologies. Some countries on the other hand - such as the UK, France and Italy - continue to rely predominantly on terrestrial platforms.



An abundance of content is available to viewers

Certainly, the provision of television services via new technologies (i.e. Internet Protocol, fixed and wireless broadband) will complement terrestrial broadcasting, and render provision of television broadcasting more competitive. While the provision of television services via new technologies could complement terrestrial broadcasting, the European Broadcasting Union (EBU) is of the view that the terrestrial broadcast platform will continue to play a major role at least for the next 5-10 years as new technologies may not provide a viable alternative for distribution to a mass audience, in particular in the sparsely populated areas.

Moreover, in terms of substitutability with other modes of transmission, for now the quality offered through one platform to the other may vary. It is yet to be seen how this will impact consumer acceptance, more so if the difference in quality is not too obvious to the man on the street.

Technological developments also affect the conditions of competition as they impact the range and quality of services, the costs, the extent of barriers to entry, the ability of customers to switch suppliers and pricing mechanisms. Even though digitalisation, convergence and technological changes have lowered barriers to

entry, there are still significant challenges that restrict market access particularly governmental policy, access to content, audience behaviour and capital requirements.

Even though digitalisation, convergence and technological changes have lowered barriers to entry, there are still significant challenges that restrict market access particularly governmental policy, access to content, audience behaviour and capital requirements.

Despite greater platform competition and transmission capacity to satisfy current and future needs, challenges with regard to competition still persists. Examples would include barriers to gain access to transmission facilities and also the tough proposition to secure access to premium content. In the case of premium content, there is a limited supply of universally appealing

premium content examples of which are Olympics, Fifa World Cup and so on therefore creating a bottleneck in the broadcasting market.

CONCLUSION

In the past, communications services were largely defined by the technology used for their delivery. However, technological advancements allow the delivery of multiple communications services through multiple technologies using converged digital platforms.

Technological convergence also means that an increasing range of audio visual content is becoming available on multiple devices and delivered across multiple broadcasting platforms. At the same time, ubiquitous high-speed broadband services and digitalisation have created competition with traditional broadcasting platforms. However, access to the premium content is still a challenge and this equation has not changed.

Competitive companies will seek to engage the viewer and shall be willing to change and adapt their service offerings besides utilising data analytics to remain relevant. Data mining and analytics will be used to better capture personal preferences and to tap into individual consumer habits.

Besides business considerations, policy decisions should also come into play so that citizens are not deprived of broadcast services. Television broadcasting is still a major source of information and constitutes the principal source of information for citizens in some jurisdictions. When Kenya planned to introduce digital broadcasting with switchover slated for 2012, a ruling was

issued by the High Court for the switchover process to be delayed as the prohibitive cost of acquiring a set-top box would deprive a large percentage of its population from receiving services.

Besides business considerations, policy decisions should also come into play so that citizens are not deprived of broadcast services.

THESE ARE EXCITING TIMES BUT THERE WILL ALSO BE CHALLENGES GALORE

The impact on policy makers, regulators and businesses alike would stem from the increasing levels of uncertainty in relation to rapid technological change and its market consequences. Perhaps a technology neutral and soft touch regulatory approach could encourage some flexibility for the industry to pursue business models which could thrive based on all these changes. From the business perspective, there will be uncertainty in terms of planning for the future and rolling out new products. Business models will need to be nimble and flexible and it is envisaged that data analytics will be a prominent feature in the service provider's toolbox. [my](#)



Broadcasters have multiple ways to reach consumers

Mobile Payments As Standard Bearer For Digital Services

A look at how the spread of cashless mobile payment services plays a major role in bringing digital services to every nook and corner of the country.

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As digital services spread out locally and worldwide, there has been a virtual revolution in how services are delivered. This has been especially evident in the transformation of the government delivery service.

All over the world, initiatives have been launched to develop strategies and frameworks to implement digital services that suit the need of citizens, organisations and country. A good example of such an initiative is Deloitte's issuance of a report entitled 'Defining the Digital Services Landscape for the Middle East' that successfully identified the digital services landscape across three layers - firstly Consumer Needs, followed by Digital Services and the last one - Digital Ecosystem¹.

According to the Digital Government Strategy of the White House that delivers the US Presidential agenda, 'digital services' refers to 'the delivery of digital information (data or content) and transactional services (e.g., online forms, benefits applications) across a variety



of platforms, devices, and delivery mechanisms (e.g. websites, mobile applications, and social media)' where digital services may be delivered to internal customers, external customers, or both².

The publication of the UK Government Digital Strategy (GDS) blueprint in 2012 has guided the government there on the principles and pathway towards realisation of the UK government's vision of 'digital-by-default' service delivery. GDS is a result of the study undertaken in 2011 that explored the state of the use of information technology in the UK government. It pushed the government to renew its focus on digitally-enabled public services and saw the use of the term 'digital' that carries a more specific meaning than earlier terms such as 'online' and 'e-Government' that have been widely used years before³.

There is no doubt nowadays that the introduction of digital services is important to any organisation, contributing to the competitive edge of the organisation.

1. Defining Digital Services Landscape for the Middle East. Retrieved from https://www2.deloitte.com/content/dam/Deloitte/xs/Documents/technology-media-telecommunications/dtme_tmt_defining_the_digital_services.pdf

2. Digital Services Governance Recommendations. Retrieved from <https://www.whitehouse.gov/digitalgov/digital-services-governance-recommendations>

3. Brown, Alan W., Fishenden, Jerry & Thompson, Mark. Revolutionising digital public service delivery: A UK government perspective. Retrieved from http://docs.media.bitpipe.com/io_10x/io_102267/item_1040452/Digitising%20Government.pdf

Analysys Mason, an IT consultant firm that focuses on the telecommunication industry in its report entitled 'The Digital Economy: what it is, why it matters and how to succeed', reported that nearly all businesses will need to become digital economy participants, whether they provide online digital services, digital substitutes for traditional goods and services, or physical goods marketed and sold by digital means⁴.

The European Commission notes the correlation between the digital economy and digital services when it stated that digital economy is the result of the transformational effects of new General-Purpose Technologies (GPT) in the fields of information and communication. These GPTs impact all the sectors of the economy and social activities, for instance: retail, transport, financial services, manufacturing, education, healthcare, media and so on. These transformational effects bring out various kind of digital services, solves many challenges and according to the European Commission, "the digitisation of a growing number of goods, services and processes, accompanied by a huge access to information (often crowd-sourced) is quickly removing barriers. As a result, the economic rents of previous incumbents in many local markets are quickly disappearing and giving huge advantages to the best product, service or process in the market"⁵.



Mobile payment addresses bureaucracy challenges at government service counters

The deployment of digital services in Malaysia has been gradually changing the way our public perform transactions and carry out other counter services. Broadband services have been largely responsible for digital services being accessible not only to people in urban areas but also to disadvantaged groups at the most rural of areas.

Digital services development in Malaysia is thus critical and becomes a pillar that ensures the success of the digital economy, as aspired by the Malaysian Government. Malaysia has targeted digital services to contribute 17% to the gross national income (GNI)

in 2020⁶. The Prime Minister, Dato' Sri Mohd. Najib Tun Abdul Razak acknowledged that the next wave of economic growth would come from the knowledge-based economy, with digital technologies as a key driver of progress. He noted that Malaysia was placed 36th out of 70 countries in the 'Digital Economy Ranking 2010' by the Economist Intelligence Unit, up two places from the 38th spot previously with the main contributors being a steady improvement in broadband, mobile and internet connectivity, as well as government support.

HOW MCMC SUPPORTS DIGITAL SERVICES

The primary role of Malaysian Communications and Multimedia Commission (MCMC) is to implement and promote the Government's national policy objectives for the communications and multimedia sector. MCMC is thus in a position to promote the development of a Malaysian digital economy supported by world class ICT talents and smooth digital infrastructure connectivity as aspired by the Prime Minister⁶. MCMC can impact these efforts through its role of overseeing the new regulatory framework for the converging industries of telecommunications, broadcasting and online activities, in accordance with the mandate given and the national policy objectives set out in the Communications and Multimedia Act 1998 (CMA 98).

This role of promoting digital services has been a significant turning point for MCMC in working together with the public and private sector in Malaysia. A new division, the Digital Services and Data Platform Division (DSDPD) has been established in MCMC. This division has been assigned to promote interoperable and secure public ICT platforms and applications through digital services to further the pervasive use of public ICT services and the public service delivery initiative.

MCMC's commitment to support the national digital economy agenda and the acceleration of public sector service delivery transformation through DSDPD has seen initial moves taken for a smart collaboration within digital services between the public and private sectors in three major areas, namely Digital Identity, Open Data and Mobile Payment (Digital Financial Services).

To begin with, DSDPD is currently looking into the cashless payment gateway undertaken through mobile payment services especially in the retail and commercial sectors that see high participation by the Malaysian public leveraging on their mobile phone subscriptions.

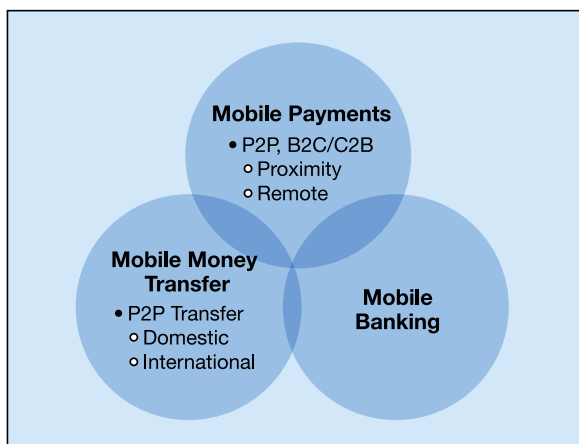
4. Digital Economy: what it is, why it matters and how to succeed (October 2014). Retrieved from http://www.analysismason.com/Documents/1/Analysys_Mason_digital_economy_Oct2014.pdf

5. European Commission- Directorate General Taxation and Customs Union (2014). Working Paper : Digital Economy – Facts and Figures. Retrieved from http://ec.europa.eu/taxation_customs/resources/documents/taxation/gen_info/good_governance_matters/digital/2014-03-13_fact_figures.pdf

6. Malaysia's Digital Economy Target On Track, Says Najib. The Star. Retrieved from <http://www.thestar.com.my/news/nation/2015/10/15/najib-digital-economy/>

DIGITAL FINANCIAL SERVICES (MOBILE PAYMENT)

There are quite a few definitions and concepts for 'mobile payment' issued by various organisations that reflect how payments are transacted electronically. International Telecommunication Union (ITU) through its report 'The Mobile Money Revolution - Part 1: NFC Mobile Payments, ITU-T Technology Watch Report May 2013; describes mobile payment as 'P2P (peer-to-peer payment) and consumer-to-business (C2B) transactions for physical goods and services that are made using a mobile phone'. ITU-T also identified the 3 components of mobile financial services which are mobile payments, mobile money transfer and mobile banking as reflected in the following diagram.



Components of Mobile Financial Services By ITU-T

The Alliance for Financial Inclusion (AFI) defines mobile money (m-money) as a mobile-based transactional service that can be transferred electronically using mobile networks. A mobile money issuer may, depending on local law and the business model, be a mobile network operator (MNO) or a third party such as a bank. It is often used synonymously with 'mobile financial services'.

There is no specific definition of Mobile Payment in Malaysia yet. However Bank Negara Malaysia (BNM) has issued a definition for 'Electronic Wallet' (e-wallet) or Electronic Money (e-money) as "a payment instrument that contains monetary value that is paid in advance by the user to the e-money issuer⁷. The user of e-money can make payments for purchases of goods and services to merchants who accept e-money as payment" (Guideline on Electronic Money (E-Money), Bank Negara Malaysia)⁷.

GLOBAL MOBILE PAYMENT READINESS LANDSCAPE

There has been substantial momentum towards making mobile payments services available to consumers worldwide in 2014. There were 43 launches of commercial NFC mobile payments services during 2014, which

brought the total number of commercial and pilot mobile payment services to more than 300 in 2015⁸. International Data Corporation (IDC) predicts worldwide mobile payments will account for USD1 trillion in value in 2017, up 124% from the less than USD500 billion expected in 2015. Whilst for the Asia Pacific market, it will rise from USD200 billion in 2015 to nearly USD500 billion in 2017. Driven by a high number of initiatives and diverse mobile payments maturity level, Asia Pacific is expected to lead the world in mobile payment developments.

The low numbers of credit/debit card adoption in Asia Pacific will force potential mobile payments behaviour to shift into using bank account linked mobile wallets. NFC-based proximity solutions such as Apple Pay and Android Pay will only cover a few mature Asian markets as their adoption is constrained by the low penetration of NFC in smartphones and readers. (Mobile Payments are Poised for Explosive Growth in Asia Pacific, IDC Reports, Aug 2015).

SUCCESS STORIES OF MOBILE PAYMENT TRANSACTIONS IN THE RETAIL INDUSTRY

Mobile phones and smart devices with many features have created IT trends and digital lifestyles worldwide. Starbucks for example, to great success, offers a mobile app that allows consumers to assign their credit card number and then simply scan the phone to pay. The company announced in its latest results that 15% of its US transactions, or around seven million mobile payments per week, took place via a mobile device⁸.

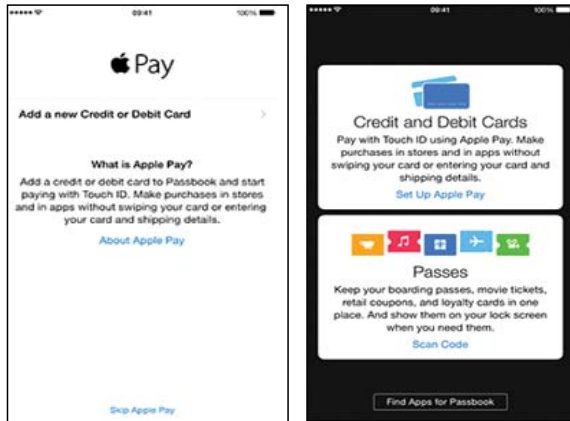


Starbucks Mobile Apps

Apple Pay allows customers to pay via NFC by holding their iPhones near a contactless reader, with their thumb on a built-in fingerprint scanner. Available since October 20, 2014, Apple Pay allows iPhone 6, 6s, and 6 Plus, and 6s Plus users in USA to make payments for goods and services in retail stores using an NFC chip built into their mobile devices. The Apple Watch smartwatch extends this capability to older iPhone models.

7. Bank Negara Malaysia. Guideline on Electronic Money.

8. GSMA. The Mobile Economy 2015



Apple Pay

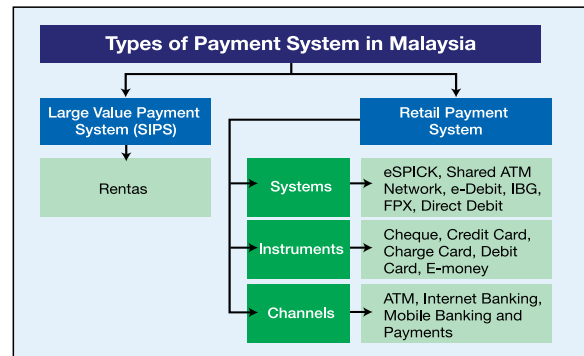
To keep transactions secure, Apple uses a method known as ‘tokenization’, preventing actual credit card numbers from being sent over the air. Apple also secures payments using Touch ID and continual skin contact to ensure payments are secure. As at 2015, over 55 merchants accept Apple Pay at 700,000 stores in USA. 244 Banks also support this payment service. There are 80 Million iPhones in the USA and 2.25% (1.8 million) of them use Apple Pay when possible to perform transactions. (Penser Consulting, May 2015)

POSITIONING OF MOBILE PAYMENT REGULATION IN MALAYSIA

E-money falls under ‘retail payment system’ which is defined by the Financial Services Act 2010 (FSA) as ‘any instrument, whether tangible or intangible, that enables a person to obtain money, goods or services to make any payment’. The FSA empowers BNM to designate such payment instruments as a designated payment instrument (DPI). E-money, debit cards and credit cards are already among the list of such approved DPIs. There are two types of e-money schemes namely small scheme

and large scheme, which is determined by the wallet size and the outstanding e-money liabilities.

BNM indicates mobile payment will allow the user to make payments to selected merchants by using mobile phones. Bill payments and purchase of goods and services are among the cashless transactions that can be made. Users need to register and open accounts with mobile payment service providers. Non-bank mobile payment services through telecommunication companies are then enabled using e-money accounts.



Payment systems in Malaysia

E-MONEY ISSUERS IN MALAYSIA: CHAMPIONING THE CASHLESS GATEWAY FOR THE MALAYSIAN SOCIETY

An e-money issuer refers to any person that is responsible for the payment obligation and assumes the liabilities for e-money being issued. There are 6 Banks and 18 non-banks approved to be e-money issuers in Malaysia including Touch n’ Go, Tune Money and telecommunication companies. Malaysian telecommunication companies that hold the E-money licence under Non-banks category with the services they offer are listed in Table 1. The full list is shown in Table 2.

Table 1: E-money Issuers, Mobile Service Providers

No.	E-money Issuers	Existing Product	Services Offered
1.	Celcom Multimedia (Malaysia) Sdn. Bhd	Celcom AirCash	i. Deposit and withdraw money through online banking channels, Celcom branches and kiosks, and selected partner reload terminals and kiosks ii. Transfer money instantly to other Celcom AirCash users iii. Reload or transfer airtime between customers’ own or other Celcom prepaid numbers iv. Reload foreign prepaid numbers from selected operators in 10 countries v. Perform international money remittance to XL Tunai (Indonesia) or GCash (Philippines) users vi. Pay utility or Celcom bills instantly with no additional service fees
2.	Maxis Mobile Services Sdn. Bhd	M-Money	i. Bill Payment ii. P2P Transfer (domestic) iii. International Remittances iv. Airtime Top up
3.	Digi Telecommunications Sdn. Bhd	Insurance	i. Digi Travel Protection(domestic and international) ii. Digi Personal Accident

Table 2: The full list of e-money issuers in Malaysia.

Banks	Non-Banks	
1. Alliance Bank Malaysia Berhad	1. AEON Credit Services (M) Berhad	10. MOL Access Portal Berhad
2. AmBank (M) Berhad	2. Bandar Utama City Centre Sdn. Bhd.	11. MRuncit Commerce Sdn. Bhd.
3. Bank of China (M) Berhad	3. Celcom Multimedia (Malaysia) Sdn. Bhd.	12. PayPal Pte. Ltd.
4. CIMB Bank Berhad	4. Chevron Malaysia Limited	13. Raffcomm Sdn. Bhd.
5. Malayan Banking Berhad	5. Com2U Sdn. Bhd.	14. Silverlake Global Payments Sdn. Bhd.
6. RHB Bank Berhad	6. Digi Telecommunications Sdn. Bhd.	15. Touch 'n Go Sdn. Bhd.
	7. Maxis Mobile Services Sdn. Bhd.	16. Tune Money Sdn. Bhd.
	8. Mobile Money International Sdn. Bhd.	17. Webonline Dot Com Sdn. Bhd.
	9. MAA Cards Sdn Bhd	18. Merchantrade Asia Sdn Bhd

MEASURING MOBILE PAYMENT PERFORMANCE THROUGH INDICES

There are multiple indices available to measure the performance of countries worldwide in the area of mobile payment services. One of them is MasterCard's Mobile Payment Readiness Index (MPRI).

The MPRI is an analysis of 34 countries and their readiness to use mobile payment services. Singapore, the most advanced market, attained a score of 45.6 followed by Canada, the United States, Kenya and South Korea. The MPRI gives each country a number identifying its readiness for mobile payments based on person to person, mobile commerce and mobile payments at the point of sale. On a scale of zero to 100, the 34 countries achieved an average mobile readiness score of 33.2. No market reached a

score of 50 indicating there is still work to be done before mobile payments become mainstream. It is believed that a score of 60 on the MPRI will indicate that a market has reached the inflection point.

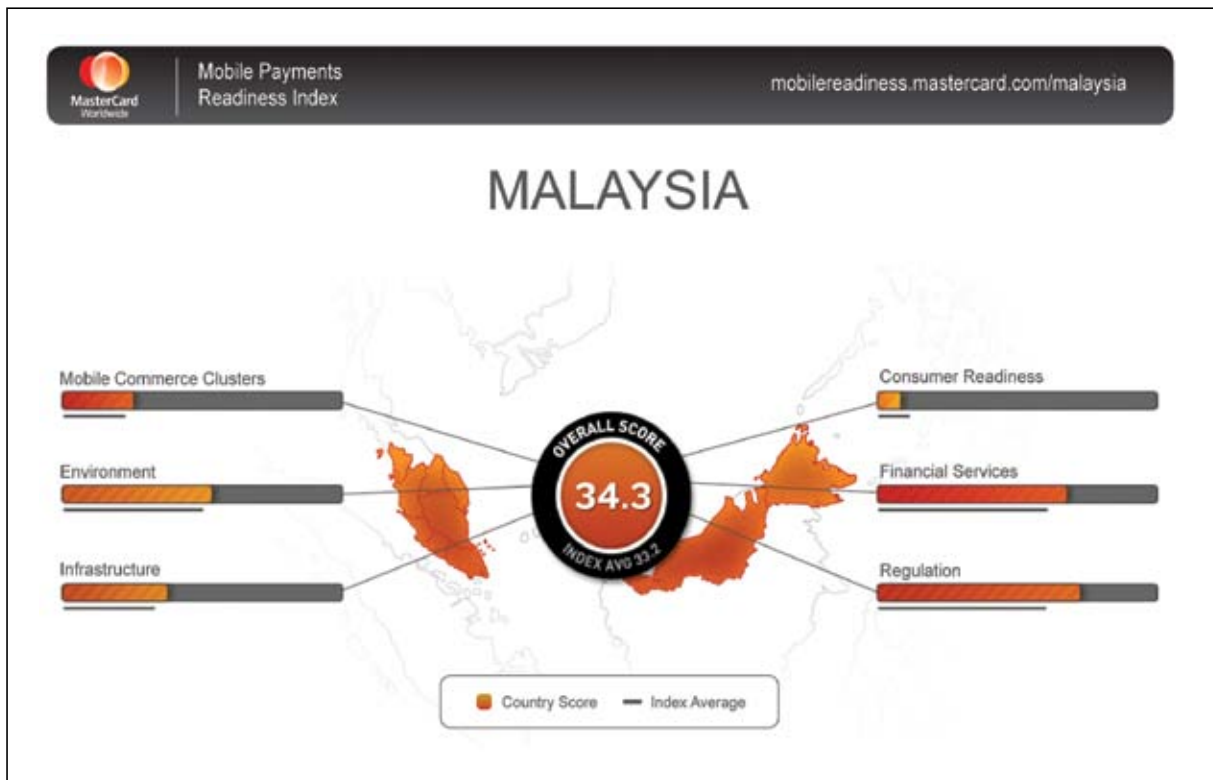


Global Mobile Payment Readiness Index (MPRI)

Table 3: The 6 Components of Mobile Payments Readiness Index (MPRI)

No.	Components	Measures
1.	Consumer Readiness	MasterCard surveyed an average of 1,000 consumers in each of the 34 markets regarding their familiarity with, willingness to use, and current usage of each of the three types of mobile payments.
2.	Environment	Measures economic, technological, and demographic elements such as a market's per capita income, consumer access to the Internet, and how well businesses adapt to new technologies.
3.	Financial Services	Measures the level of development of consumer financial services, such as how well consumers are treated by the industry, the accessibility and affordability of financial services, and the penetration rate of payment cards.
4.	Infrastructure	Measures the breadth and sophistication of the mobile phone industry by calibrating variables such as mobile phone penetration, network coverage, and levels of NFC terminalisation.
5.	Mobile Commerce Clusters	Analyses partnerships or joint ventures among financial service companies, telcos, governments, and other members of the mobile payments ecosystem. As no one entity can develop and promote mobile payments by itself, partnerships generally ensure smoother and more successful product introductions.
6.	Regulation	Assesses the structure and efficiency of a market's legal and governmental bodies in terms of how they interact with business, particularly the communication and technology businesses.

Mobile Payment Readiness Index for Malaysia



Malaysia was at 14th position in the MasterCard Mobile Payments Readiness Index (MPRI) with a score of 34.3. Malaysia scores well on regulation and infrastructure. It also has a few bank-telco partnerships - such as the M-money partnership between Maybank and Maxis - in place to drive mobile payments adoption. However, overall consumer readiness is weak and will be a barrier to adoption if not addressed.

The regulatory framework is favourable for mobile payments because regulations are not burdensome for businesses. The legal environment is efficient and communication and technology laws are well established. The infrastructure is conducive for mobile payments, with high mobile phone subscriptions and wide cellular network coverage across Malaysia. However, Malaysia’s household consumption per capita lags the Index average considerably (10% versus 27%).

Consumer readiness for mobile payments in Malaysia is not as high as in other countries. Malaysian consumers most familiar with and willing to use mobile payments skew towards high-income males between the ages of 18 and 34. Consumers do show some willingness however to use their mobile devices for Peer to Peer (P2P) payments and m-commerce. 7% of consumers are using their mobile devices for m-commerce and 6% are making P2P payments. Consumer adoption will be a key factor in making this a reality. For now, marketing efforts should focus on high-income males, as this group appears to be the early adopters. Malaysia should continue to foster collaboration among the necessary partners in the region and start educating the consumer

base on the benefits of mobile payments in the near term.

BENEFITS OF MOBILE PAYMENT TO THE GOVERNMENT AND CITIZENS

Mobile payment improves the Government’s service delivery to citizens and business communities. The provision of a cashless payment gateway to horizontal types of services that cuts across multiple channels and transforms conventional payment methods is resulting in more broadband takeup. It cuts bureaucracy, supports the ‘Green Initiative’, facilitates centralised monitoring of services and enhances information sharing amongst agencies.

Citizens have a convenient alternative delivery channel when transacting with Government agencies. Citizens can now make several online payments to agencies from within Malaysia or from anywhere around the globe with just a single click of their mobile devices or computers. Citizens are also able to access their account statements, transaction histories, print payment receipts and check the statuses of their applications from their mobile devices. The mobile payment gateway enables citizens to make payments to more than one bank using the same website. Citizens can select as many payment services as desired in a single transaction. In conclusion, mobile payment will open up many opportunities that benefits the people and contribute to the positive image of Government services. [my](#)



Extending Postal Services In The Name Of Tourism And Country

Going beyond their traditional roles as collection points of mail; two post boxes have been installed at very strategic locations as ambassadors of tourism as well as markers of national sovereignty.

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The familiar Malaysian post box recently found its way to two rather unusual spots. These post boxes were placed at the highest point of Malaysia as well as in the ocean at a very popular dive spot off the coast of Sabah. No, the peak of Kinabalu has not been settled by anyone nor have people put up homes at the bottom of the sea. These post boxes were installed in the name of tourism and also, in the case of the one in the ocean, to make the point that that part of the ocean belongs to the nation.

POST BOX ON THE HIGHEST ALTITUDE (MOUNT KINABALU)

After Switzerland and Japan, Malaysia can be rightfully proud to also have a post box at a high altitude. At 3,289m above sea level, the country's highest post box at Mount Kinabalu's Pendant Hut is the popular mountain's newest tourist attraction.

This delightful project was initiated by Pos Malaysia Berhad with the support of MCMC. The mountain top

post box was launched on 14 February 2015 by Deputy Communications and Multimedia Minister, YB Dato' Jailani Johari, and was entered into The Malaysia Book Of Records (MBOR) as being the highest altitude post box in the country.

With about 50,000 climbers scaling Mount Kinabalu annually, it is hoped the attraction will further promote and increase the popularity of the 4,095m-high peak among people from all over the world.

Climbers can now commemorate their Mount Kinabalu climb by posting letters and postcards at the Pendant Hut post box. These tourists can obtain a special postmark featuring the paintings of Mount Kinabalu and which list the height of Pendant Hut.

The post box functions like any other post box. Postmen from Pos Malaysia's licensing agent, Mountain Torq, are assigned to collect postal items from the post box at noon daily on weekdays. These items are then sent to the Ranau Post Office the next morning for processing.

The Mount Kinabalu post box has been a hit with climbers. More than 100 postcards were put into the post box on the first day of launch. The opportunity to create memories by sending these post cards resonates well with tourists. Furthermore, specially designed post cards are likely to become collectors' items.

SPRATLY ISLAND CONNECTED WITH POSTAL SERVICES

Spurred by the successful installation of the highest post box at Mount Kinabalu in February 2015, installing a post box in the depths of the ocean was an obvious new target. And that is just what the authorities did when

they placed a post box 40 metres down the ocean at a very famous diving spot.

Layang-Layang Island is among the world's best dive spots. The island is located in the South China Sea, 158 nautical miles or 300 kilometres northwest of Kota Kinabalu, within the country's Exclusive Economic Zone (EEZ).

This postbox project was done for two reasons. Like the Mount Kinabalu initiative, one aim was to promote tourism. But beyond that, there was a very strategic reason behind this initiative, namely the 'Pulau Layang-Layang Sovereignty Programme'. The island is a strategic national territory under the purview of the National Security Council which controls the movements of people and goods into the island. This initiative was part of the Government's efforts to strengthen the national sovereignty in the South China Sea through the presence of postal infrastructure and services.

Not only was a post box installed there. The initiative extends postal services on the island by introducing a dedicated 88005 postcode, an accompanying special postmark, underwater postmen and the appointment of a Stamp Agent at the island.

Many parties came together to make this project a reality. MCMC and Pos Malaysia Berhad worked together with full support and cooperation from the National Security Council (NSC), Royal Malaysia Navy and Avillion Layang-Layang Resort. Other agencies who were involved were Department of Fisheries and National Film Development Corporation Malaysia (FINAS).

The 40 metres underwater post box is expected to become a unique attraction worldwide particularly among avid divers, ultimately increasing tourist arrivals to the island and to Sabah.



Malaysia's highest mountain has a post box

Divers installing the post box



The post box at the seabed near Layang-Layang Island

Special Postmark



Divers will be able to post letters/postcards and take photos at this underwater spot as one of their diving activities. The waterproof postcards will be collected by divers from Avillion Resort, who have been appointed as Pos Malaysia's representatives.

The postcards will be stamped with a postmark depicting Layang-Layang's Island signature marine life, the hammerhead shark. The mail will then be sent by air to Kota Kinabalu for onward processing.

At a depth of 40m, the Layang-Layang Island underwater post box is a record holder. It beats the current Guinness record held by the underwater post box in Susami, Japan.

We know what would definitely be valuable collector's items – travelling to both Mount Kinabalu and Layang Layang and sending postcards from these postboxes. Now that's something to put on a bucket list. [.my](#)



Raising Good Digital Citizens Through Klik Dengan Bijak® Programme

The Klik Dengan Bijak initiative is spearheading the nation's push for netizens to be well informed and smart.

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Malaysia has enjoyed a huge leap in internet connectivity and take-up in the last 5 years. This can be attributed to the success of the National Broadband Initiative which puts in place a national strategy that will bring broadband to the whole nation. The initial target of 50% household penetration by the end of 2010 has been surpassed (from 31.7% in 2009) and as at June 2015, Malaysia's household penetration stood at 72.2%.

Through the Universal Service Programme (USP) by the Malaysian Communications and Multimedia Commission (MCMC), more and more Malaysians, whether in urban or rural areas, are now connected through multiple initiatives aimed at bridging the digital divide. As at 30 November 2015, 628 1Malaysia Internet Centres and an additional 1000 telecommunications towers has been built throughout the country, along with 312km of fibre optic network as well as expansion of 3G and 4G networks.

With more and more Malaysians going online, it is to be expected that their exposure to online risks will also increase. Indeed, the number of complaints received by

MCMC on new media content has been on an increasing trend. The threat of cybercrime is real and has become more aggressive in recent years.

As such, the Klik Dengan Bijak® (KDB) or 'Click Wisely' Programme (www.klikdenganbijak.com) that was launched on 1 July 2012 was born out of the realisation of the importance of creating awareness and to educate the public about risks arising from internet use and how it can be mitigated or avoided. It also seeks to create a culture of positive use of the internet amongst all users in Malaysia.

OUR OBJECTIVES

The programme has clear objectives encompassing three equally important areas, as outlined below:-

- **Safety** – To educate the public to use the internet in a safe manner.
- **Security** – To remind the public to be careful in all their online interactions.
- **Responsibility** – To promote positive use of the internet to and by the public.

In a nutshell, it is hoped that through the KDB Programme, we are able to create 'digital citizens' in all its facets; who are resilient in the face of online challenges, are media literate and responsible users able to contribute positively in the digital environment that they live in.

OUR MISSION

The KDB Programme therefore aims to educate everyone, particularly children, youth, parents and caregivers, about the key steps to observe and practice online – from issues relating to privacy, security as well as to mind one's words and practice ethical language and manners during one's interactions.

Based on MCMC's Internet User Survey 2014¹, as much as 72.1% of internet users in Malaysia are on the younger side of 35 and that overall, the mean age of the user is 31.1 years old. As such, the target audience and messages of the KDB Programme are children and teenagers and youths who are most vulnerable to online threats. The programme also targets parents, guardians and other caregivers with the necessary information to keep the online experience of those under their care, safe.

Specific messages to be relayed although by no means exhaustive are intentionally kept simple and straightforward. Generally, it is intended to help reduce the number of people becoming victims of cybercrimes by understanding risks and taking the necessary precautions.

Implementation of this programme at a national scale requires an integrated approach as there are many stakeholders involved.

Notwithstanding this, it is important to balance the need to be aware of the potential risks with opportunities that the internet has to offer. Not all risks will result in harm; what is important is to build resilience, that is, the ability to recover from or circumvent those risks in order to maximise the benefits one can gain from the internet.

In protecting children online, parents and caregivers play an important role, and they are ultimately responsible for their children's internet use. Therefore, they must be equipped with the necessary skills and knowledge regarding internet use and potential risks. In relation to this, what is even more important is that parents understand what internet means to their children and how they can better relate and engage with them as they lead their digital lives.

Rapid development and use of broadband will result in tangible economic benefits and if harnessed positively, will lead to other social benefits as well. Positive use of the internet will lead to enhanced communications between citizens of different countries and can seek to promote greater understanding of diversified culture and traditions of not just among Malaysians but with the rest of the world as well.

In relation to this, the programme seeks to educate all Malaysians about using the internet in a way that is consistent with Malaysia's National Principles (Rukun Negara). The Rukun Negara is a set of principles that encompasses all the values and virtues to be upheld in the lives of all Malaysians, regardless of age, creed or background. Such principles remain relevant online.

IMPLEMENTATION STRATEGY

In the face of increasing internet use by Malaysians, rapid deployment of the KDB Programme is essential. As such, a multi-pronged strategy is adopted comprising strategic engagement with multiple stakeholders, on-ground activation with key target audience nationwide and media campaigns.

These activities are supported by KDB brand assets and collaterals, modules and teaching kits containing key messages for the respective target audience. In relation to this, development of such materials must be evidence-based hence the importance of the findings of the research conducted through MCMC's Networked Media Research Collaboration Programme (NMRCP)².

Brand assets and collaterals also help to promote brand recognition and recall. The very term 'Klik Dengan Bijak' or 'Click Wisely' is a reminder to all users, and as such, such recognition and recall is important.

STRATEGIC ENGAGEMENT

Implementation of this programme at a national scale requires an integrated approach as there are many stakeholders involved. In this regard, endorsement by and cooperation with the relevant ministries and agencies are mission critical so as to ensure that our key messages reach the intended audience. Additionally, it is also important for MCMC to be involved in developing policies and action plans that can effect real change especially in the area of child online protection.

Accordingly, in determining the stakeholders involved, there are certain considerations i.e. whether the organisation has oversight over the KDB target audience comprising children, youth, parents or caregivers; and if they are involved in formulating policies or implementing laws relating to internet safety and security.

In this regard, the Ministry of Women, Family and Community Development is an important stakeholder as they are the policy making body responsible for child protection generally and child online protection

1. Available for download at <http://www.skmm.gov.my/Resources/Statistics/Internet-users-survey.aspx>

2. <http://www.skmm.gov.my/Networked-Media-Content-Research/Overview/Publications.aspx>



On ground activities to educate the public

specifically. As such, the formulation of a National Action Plan on Child Online Protection is an important initiative that involves multi-stakeholder participation and agreement to ensure safety of children from online harms.

To ensure rapid national deployment of the KDB programme, MCMC's six Regional Offices and seven State or City Offices are trained and mobilised to execute the programme.

Since the commencement of the programme, we have received the support and endorsement of the Ministry of Communications and Multimedia, Ministry of Education, Ministry of Women, Family and Community Development, Ministry of Science, Innovation and Technology, Ministry of Youth and Sports, Royal Malaysia Police and the National Service Training Department of the Ministry of Defence. Other non-governmental organisations include the Scouts Association of Malaysia, Communications and Multimedia Content Forum of Malaysia and Communications and Multimedia Consumer Forum of Malaysia.

On the international front, Malaysia through MCMC has held the Vice Chairmanship of the Council Working Group on Child Online Protection of the International Telecommunications Union (ITU) and has been involved in developing best practice notes and guidelines. The Council Working Group meetings provide an ideal platform to share experiences and learn from other member states and stakeholders on issues relating to Child Online Protection.

MCMC is also an active participant in several inter-governmental organisations in the region such as Asia Pacific Telecommunity and APECTEL in the area of cybersecurity capacity building and awareness.

Realising that Child Online Protection is a component of a bigger agenda of child protection, MCMC works closely with UNICEF Malaysia in its Digital Citizenship and Safety Project³. A Report on "Exploring the Digital Landscape in Malaysia"⁴ was jointly launched on 3 November 2014. The report is a desk review which maps out Malaysia's investments in digital connectivity, including laws, policies and infrastructure; as well as the country's digital growth, access and development. This initiative fits in well with MCMC's own NMRCPP which provides grants to local institutions of higher learning on issues and challenges relating to networked content.

It is hoped that the observations on future research priorities in the Report will provide academicians on areas of research that will contribute to evidence-based recommendations for policy makers to maximise digital

3. More details at www.unicef.org/malaysia

4. http://www.unicef.org/malaysia/UNICEF_Digital_Landscape_in_Malaysia-FINAL-lowres.pdf

media opportunities and minimise its risks for children and youth in Malaysia.

MCMC has also collaborated with UNICEF Malaysia to organise a Voices of Youth Session with local university students as well as the Annual Networked Media Research Collaboration Programme themed 'Digital Citizens of the Future' in 2014. Such initiatives provide important inputs in further enhancing the KDB programme especially its relevance and appeal to younger audiences.



Children are engaged in activities and road shows

GROUND ACTIVATION AND ENGAGEMENT

Direct engagement with the target audience enables MCMC to obtain immediate feedback on the relevancy of the activities conducted and effectiveness of the KDB programme to the relevant audience. In relation to this, each engagement activity is usually custom-made to suit the type of event and target audience.

Each engagement is supported by a module and/or teaching kits comprising presentations and activities as well as learning tools like the 'Wheel of Knowledge' and a mobile game application 'Klik Hunter' to name a few. Such tools are important not just to capture the audience's attention but also make learning more fun and engaging. Local celebrities are often invited to ground events to reach out to their legion of fans on the importance of staying safe online and using the internet positively. These celebrities who are active social media users are positive role models for the young to emulate.

To ensure rapid national deployment of the KDB programme, MCMC's six Regional Offices and seven State or City Offices are trained and mobilised to execute the programme, with the Advocacy & Outreach Division at MCMC Headquarters providing the necessary strategy and direction. Managers and Supervisors of all 1Malaysia Internet Centres throughout the country have also been trained to execute the programme to the community.

Regular workshops are also held to improve the execution of the activities based on experiences and challenges faced on the ground.

While most of the activities were held based on invitation from interested parties, a number were organised with strategic partners. Through collaborations with strategic partners, it was possible to further extend the reach of the KDB programme to newer audiences.

In partnership with the Scouts Association of Malaysia, customised annual camps were held in Melaka (2013), Sandakan (2014) and Perak (2015) with close to 1,000 youth scouts. Recognising the need to not just create awareness of risks and threats but to also encourage young people to be effective contributors in the online world, the sessions conducted at the camps included video production training which is part of MCMC's League of Creative Teens initiative. More recently, a robotics competition was also organised at the camp.



The Klik Dengan Bijak mascot

The KDB Programme is also conducted through the KidZania Go! Programme which is a 'mobile KidZania theme park' conducted in over 100 selected schools at urban centres throughout the country. Students have the opportunity to get a taste of the KidZania experience, role-playing different professions similar to real-life situations.

MEDIA CAMPAIGN

A media campaign was also initiated, with Phase 1 in 2013 focusing on youths aged 18-24 years old. This age group was selected as they form the majority of internet users in the country. Electronic and print public service messages were developed to address specific issues relating to privacy, safety and cause and effect or consequences of one's actions online. The media content developed also became teaching tools that are used during talks and lectures with the relevant target audiences.

The Phase 2 campaign in 2014/2015 addressed a wider group comprising younger children and their parents and caregivers. It also covered more specific topics that are relevant to the target groups.

Both campaigns employ multiple approaches to get the messages across to its intended audience, using a combination of traditional and digital media as well as public relations opportunities with the local press. Local celebrities invited to ground events to share their online experiences and lessons with their fans have also helped

to promote the programme through their social media networks to great success. To date our public service videos published on YouTube has garnered over 1 million viewers.

Based on MCMC's Internet Users Survey 2012⁵, 86.8% of respondents are Facebook subscribers and as such, it is important that the KDB Programme has an active social networking presence. Our Facebook followers have increased substantially from 13,296 likes on 31 December 2014 to 76,796 in December 2015, while our Instagram followers rose from 767 on the same date to 4124 by year end. This is largely attributed not just to the digital campaign but also internal efforts to promote it through regular postings and pushing growth organically through our various engagements. These platforms are used not only to share events and activities conducted but also provide self-help tips and information on the 3 main themes of safety, security and responsibility. The KDB website (www.klikdenganbijak.my) also provides guidance on the three themes in simple and approachable language.

CONCLUSION

Klik Dengan Bijak® has now become an established brand among younger audiences. More work still needs to be done to raise public awareness especially in a fast changing digital environment that we are in. High on the priority list is to expand KDB's presence to aged users in Malaysia.

In the meantime, it remains important to continuously update and enhance available kits and tools based on research and findings available and through the NMRC. To further understand the effectiveness of the programme thus far and for the purpose of improvements, the MCMC has approved funding for a longitudinal study on the KDB Programme to be conducted by a local university, over a 2-year period.

Building rapport with the media through public relations initiatives will continue to be important so that media conversations on the internet and new media also focuses on the opportunities this medium has to offer. Discussions on risks and harms should be constructive, providing appropriate guidance to those who may be affected.

It is evident that building digital citizens is beyond awareness of risks and harms, but encompasses a wider role of increasing media literacy, building resilience amidst an environment where regulations are effective and development-focused. Therefore a multi-stakeholder collaborative approach, involving policy makers, regulators, civil society and the public, especially the youth, is important. [.my](http://www.klikdenganbijak.my)



Figure 1: Key Target Audience in 2014 and 2015

5. <http://www.mcmc.gov.my/Resources/Statistics/Internet-users-survey/Hand-Phone-Users-Survey-2012.aspx>



Getting Ready For Digital Terrestrial TV

Together with other ASEAN countries, Malaysia is migrating to digital terrestrial TV (DTT) technology. The switchover to DTT is currently in progress, with Malaysians being prepared for the change.

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Analogue Terrestrial TV, which has been around since 1963 in Malaysia, is being progressively replaced with much advanced digital terrestrial TV service which promises a richer and more interactive viewing experience.

The process has already started and not too long from now, the nation will have migrated to the new broadcasting technology.

TERRESTRIAL TELEVISION HISTORY

Terrestrial TV which can be received free of charge began in December 1963 when Government broadcaster RTM launched its black and white TV channel with limited viewing hours. A second channel was added 6 years later and RTM began broadcasting in colour for both its channels in 1978 in Peninsular Malaysia and 1980 in Sabah and Sarawak.

The first Malaysian private television station, owned and operated at that time by Sistem Televisyen Malaysia Berhad (STMB), began broadcasting with competitive programming for the mass Malay audience in 1984. STMB later evolved into Media Prima Berhad.

More private broadcasters eventually arrived. 8TV was launched in July 1995 as MetroVision Channel 8. It was first available only in the Klang Valley, Seremban and parts of Malacca, but later expanded to Kedah and Johor. MetroVision ceased operations in 1999 but was re-launched in 2004 as a Mandarin language station by Media Prima Berhad.

Channel 9, the third private TV station, began its on-air broadcast in 2003 and provided English, Chinese, Malay and Tamil programmes. It halted its operations in 2005 to restructure its debts and undergo corporate organisation. It was acquired by Media Prima Berhad on the same day. Channel 9 was rebranded as TV9 and began broadcasts in April 2006.

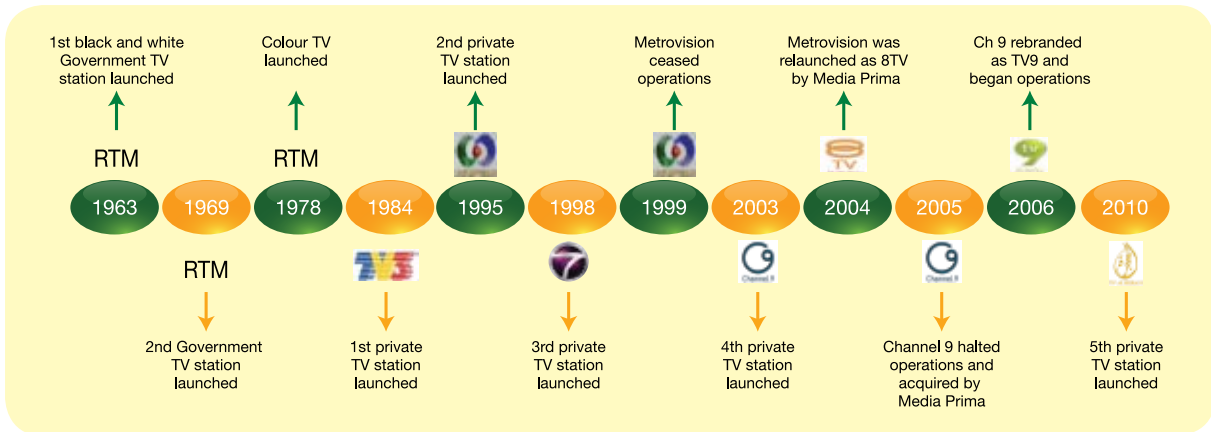


Figure 1. History of Free-to-Air Terrestrial TV since 1963

ntv7 began broadcasting nationwide in 1998 and became the next private TV station in Malaysia. It targeted the urban market, working on an appointment-based programming concept to provide wholesome entertainment. ntv7 was acquired by Media Prima Berhad in 2005.

TV Al-Hijrah, a free-to-air television network operated by Al Hijrah Media Corporation began broadcasting nationwide in 2010. It broadcasts from its headquarters in Islamic Centre, Kuala Lumpur and became the first free-to-air television station in Malaysia to broadcast in High Definition format.

To date, there are 7 free-to-air terrestrial television stations broadcasting TV programming in a variety of content genre to the different audience in Malaysia.

EVOLUTION TO DIGITAL

All this while, terrestrial television has been using decades old analog technology to deliver TV programming via land based terrestrial platform and received through roof top antennas. For both consumers and broadcasters, newer Digital Terrestrial Television (DTT) technology offers much more benefits. Globally, there has been a shift to DTT, with analog broadcasts progressively switched off and DTT services rolled out.

Many countries around the world such as United Kingdom, Germany, Australia, Japan, Korea, New Zealand, Italy, Sweden and Finland have migrated to digital terrestrial TV.

16 European Union countries signed the International Telecommunication Union (ITU) GEO6 Agreement for Digital Broadcasting towards Analog Switch Off (ASO) by 2015. Regionally, ASEAN member countries have decided to join the bandwagon and are collectively aiming for ASO in structured phases between 2015 and 2020.

This migration from analogue to Digital Terrestrial Television (DTT) will ensure that Malaysia remains abreast with global technological developments.

WHAT IS DIGITAL TERRESTRIAL TV?

Digital terrestrial television (DTT) broadcasting is a technological evolution of broadcast television and an advancement of analogue television (Source: Wikipedia). DTT transmits terrestrial or land-based TV program channels that are compressed using highly efficient coding methods. As such DTT uses spectrum efficiently and provide more capacity than analog.

DTT signals are carried from a broadcaster's studio to a terrestrial TV transmitter located either on a hill site or at a strategic ground site. DTT signals are received by viewers using either a decoder or a Set Top Box coupled with a conventional television roof top antenna or a portable indoor antenna. Alternatively DTT signals can be received via an integrated digital TV (iDTV) that has a built-in decoder.

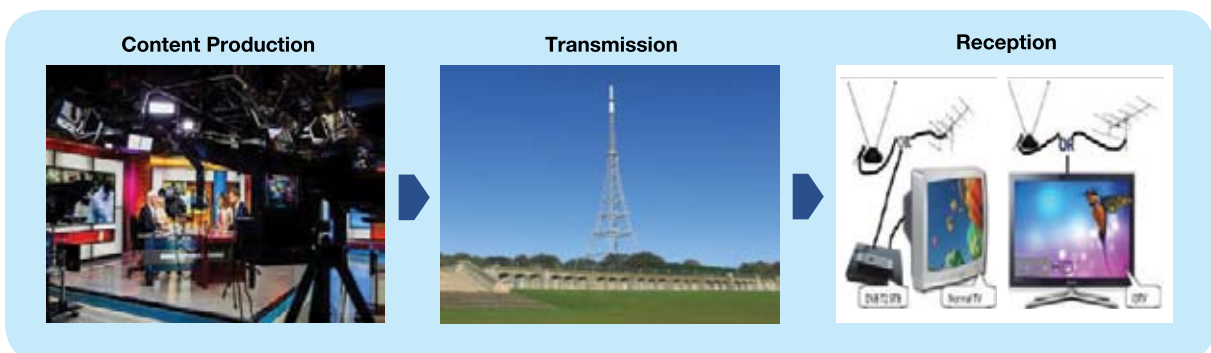


Figure 1: DTT broadcasts

BENEFITS OF DTT

DTT delivers a richer audio-visual experience and opportunities for interactive services as compared with analogue. This technology supports Standard Definition TV (SDTV) and High Definition TV (HDTV) that provide sharper and clearer pictures; eliminating those fuzzy, ghosting images that is often the cause of frustration when viewing analogue television.

DTT supports multi-channel programming and multimedia content with the ability to broadcast up to 15 Standard Definition TV or up to 5 High Definition TV program channels on a single spectrum or RF channel.

In analogue, only one TV program channel can be broadcast on a single spectrum channel, as shown in Figure 2. DTT uses spectrum more efficiently; freeing up some RF channels that were previously allocated to analogue. These channels can then be allocated to roll out new types of telecommunications services, a phenomenon commonly referred to as the digital dividend.

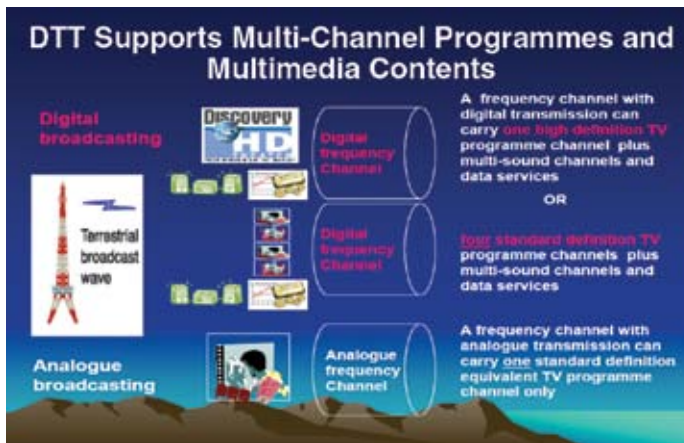


Figure 2. Multi-Channel Programming on DTT platform

DTT will spur the content economy and pave the way for the creation and production of more local content as it is interactive and has more capacities and features. Additionally, DTT supports mobile or portable reception whereby viewers can access content anywhere

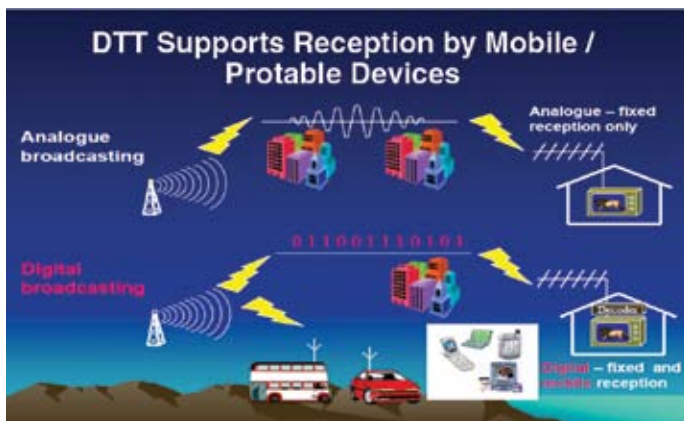


Figure 3. DTT service can be watched anytime and anywhere on mobile devices

and anytime using mobile devices as depicted in Figure 3 below.

DTT has been identified as a national agenda and is one of the key initiatives under the 11th Malaysia plan under the purview of the Ministry of Communications and Multimedia Malaysia (KKMM) and the Malaysian Communications and Multimedia Commission (MCMC) as its regulatory body.

COMMON INTEGRATED INFRASTRUCTURE PROVIDER (CIIP)

MYTV Broadcasting Sdn Bhd (MYTV) was selected by MCMC in 2014 through a tender process to become the CIIP to build, operate and own DTT infrastructure in Malaysia for 15 years. DTT infrastructure comprises three main areas, namely the Contribution Network, Aggregation Centre and Distribution Network.

The size of the Malaysian broadcasting market is ideal for a single infrastructure provider. As a CIIP, MYTV will provide access to digital broadcast infrastructure to the Free-to-Air broadcasters. The CIIP system will optimise infrastructure utilisation and reduce the analog broadcast providers' digital services access costs. The economies of scale will also facilitate future DTT service enhancements.

DTT TRIAL SERVICE

The DTT trial service began in April 2015 in Kelantan, Terengganu, Pahang and Sabah involving an estimated 5000 selected households. Households that do not subscribe to pay TV services and were within the DTT trial service coverage area were chosen.

MYTV provided each selected household with a basic Set Top Box and a portable indoor antenna to receive the DTT trial service. A roof top antenna was provided if a selected household could not receive the DTT trial service through the portable indoor antenna. Seven TV program channels comprising TV 1, TV 2, TV 3, ntv7, TV 8, TV 9 and TV Alhijrah were aired during the trial.

Technically, the trial was implemented using Digital Video Broadcasting-second generation (DVB-T2) standard, in accordance with the mandatory standard registered by the MCMC in 2011.

Based on the overall feedback from the trial participants, MYTY reported that 90% of the trial participants received all seven TV channels in good audio and visual quality. The remaining 10% did not receive any DTT signal as their homes were located outside of the DTT service coverage area. This was a marked improvement because prior to the trial some participants claimed that they could only receive two or three lower quality analog Free to Air channels.



Figure 4: YB Datuk Seri Dr Mohd Salleh Said Keruak, Minister of Communications and Multimedia Malaysia together with 30 DTT trial participants during a presentation ceremony of trial decoders at Kampung Likas, Kota Kinabalu, Sabah in August 2015

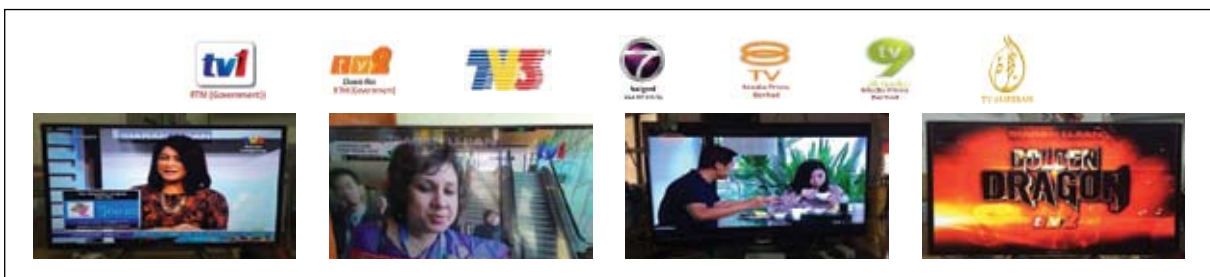


Figure 5: DTT service were received in enhanced audio and visual quality. Courtesy: 2015 MYTV Broadcasting Sdn Bhd

DTT CONSUMER LABEL

In October 2015, MCMC conducted a seminar for TV manufacturers to promote the use of a DTT consumer label beginning Jan 2016. The consumer label will assist consumers to distinguish and purchase television sets and Set Top Boxes which are capable of receiving DTT services, from among the plethora of products that are currently being sold at retailers' showrooms today.

The consumer label will help consumers identify original devices that are compliant to the DTT standards. MCMC has entrusted certifying agency SIRIM QAS International to manage label distribution for DTT to eliminate inappropriate and incorrect use of the label.

DTTB Consumer Label benefits the consumer and industry

- To help consumers identify DVB-T2 compliant receivers i.e. Set-Top-Box (STB and iTV)
- To serve as a tool to eliminate the existence of non-compliant receivers in the market
- To avoid confusion to the consumers
- To ensure consistent messaging across all platforms
- To facilitate the sales and marketing of Digital TV and Set Top Box

Figure 6: DTT Consumer Label Benefits

DTT SERVICE ROLL OUT TIMELINE

MYTV shall provide DTT service coverage in 2 phases. Phase 1 will cover up to 85% populated areas nationwide. Phase 2 will provide coverage up to 98% populated areas by Quarter 4 2016 nationwide.

GET READY TO WATCH FREE DIGITAL TV SERVICE

It is anticipated that DTT service will be made available to Malaysian households by mid-2016. Viewers are advised to check with MYTV on the availability of DTT service within their respective areas through MYTV's hotline and website.

Viewers have options available to receive the free DTT service. They can purchase MYTV Set Top Box / Decoders and install the decoder to existing TV sets. Or they could purchase a new integrated digital TV (iTV).

For both options and depending on the location of the viewer's home, viewers will have to install either a roof top antenna or a portable indoor antenna. It is advisable to install a roof top antenna to ensure good DTT reception. [my](http://mytv.gov.my)



Kemaman Smart Community

The national goal to increase ICT adoption in every nook and corner of the country starts at the District of Kemaman.

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The first challenge facing any country in its quest to create a digital society is the laying out of infrastructure across the nation. Once that has taken place – and Malaysia has largely gone past that stage– the challenge then is to foster an environment where applications and services that are useful to a particular community are identified or created and then utilised in a meaningful way.

As the regulator, MCMC has a role beyond ensuring service coverage. It is also mandated with advancing ICT adoption within all communities in Malaysia. To this end, Malaysia has launched the Smart Community Initiative based on the concept of establishing an ICT ecosystem at the smallest geographic unit which is the district level. For a start, Kemaman, the third largest district in the state of Terengganu on the east coast of Malaysia has been selected for a pilot project. The initiative is a combination of existing and new programmes developed in line with the ASEAN Smart Community concept.

The Smart Community concept is built on objectives that encourage the participation of the community. One of its objectives is the need to change and improve the community's lifestyle through the use of ICT applications. In addition, the aim is to bring a rural community like Kemaman to the same level as urban communities at the

national or international level. The smart community concept could bring real benefits to the community through the use of high speed broadband services that encourages both creativity and innovation within the community.

PRINCIPLES THAT DISTINGUISHES A SMART COMMUNITY

A smart community is designed and developed based on key principles to ensure successful and sustainable implementation. First, a bottoms-up approach is undertaken through multiple engagements which ensures every community will determine its own path to becoming digitally inclusive, depending on its unique set of needs and priorities.

Infrastructure improvement is another area that must be addressed. A reliable communications infrastructure has to exist for there to be innovation, growth and competitive engagement that support the requirement for the digital ecosystem.

Another key principle is the existence of an environment that nurtures the creation and subsequent use of local content and applications. The development

of such content and services is a prerequisite for building healthy and vibrant communities.

Any plan to build a smart community will require buy in and the active support of the local authorities. Consultation and cooperation with local authorities will bring about policies that remove the barriers to entry in the deployment of cost-effective communication infrastructure and services.

Initiators will also collaborate with institutions and organisations that would be able to mobilise much needed resources. Partnerships with community-based organisations will provide support to access the technology and services. Similarly, the initiative would be stronger if local champions are enlisted to steer the initiatives and facilitate the use of technologies amongst the community.

Lastly, any smart community enterprise must be replicable, scalable, sustainable and have a wide reach. This makes certain that a reliable ecosystem is in place, an ecosystem that promotes innovation and growth and can reach the community who needs access to digital technologies. Solutions that are implemented must have the potential to grow smoothly in order to accommodate future growth and continue to provide the needs for the future generation.

This was one of the reasons why Kemaman was selected to pioneer the smart community initiative. Kemaman has many characteristics that are found in many other districts, thus ensuring that the project would be easily replicated across the nation.

KEMAMAN SMART COMMUNITY PROJECT

In implementing the project, MCMC and the industry first collaborated to improve service coverage throughout Kemaman district. The local municipality, Majlis Perbandaran Kemaman (MPK) facilitated the deployment of infrastructure through a blanket approval for Right of Way.

Currently Chukai, the largest population centre in Kemaman, is covered by 4G LTE services as well as high speed fibre broadband service. The remaining 85% of the populated areas in Kemaman are covered by 3G services. These improvements are critical to the success of the Smart Community initiative implementation as it enables the introduction of six flagship programmes.

KEMAMAN FLAGSHIP PROGRAMMES

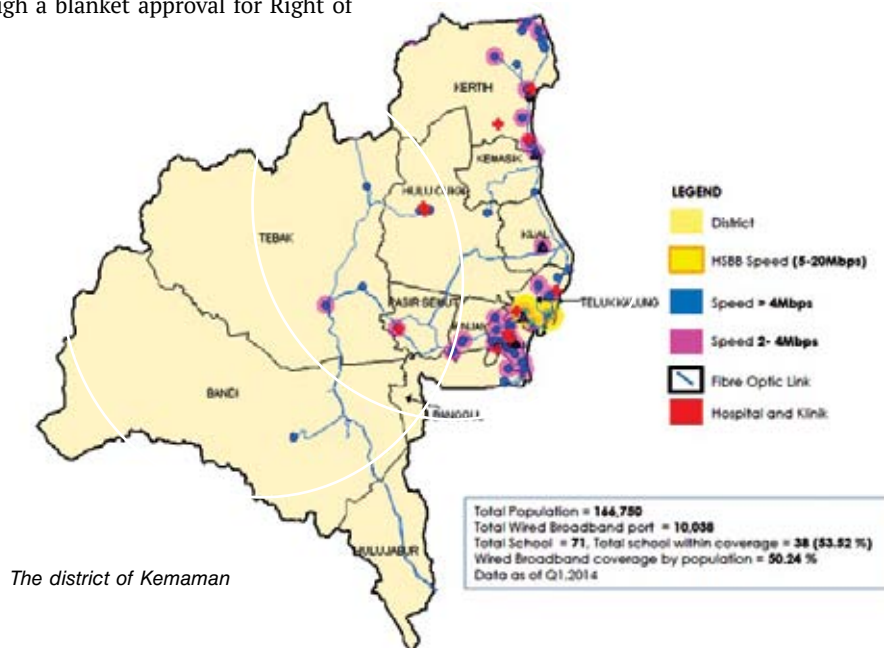
1. Flood Management System

The Flood Management System is an ICT platform that was built to manage flood disasters. It is a tactical flood management system that takes into account the pre-flood period, the flood itself and post flood management. The system aims to transform how various parties manage floods that tend to occur in the East Coast on an annual basis. Its scope is wide, encompassing day-to-day functions all the way to a central command system.

The Flood Management System is integrated with the existing early warning system. There is also a database of people and assets accessible through the web and over mobile devices.

Before floods occur, the system emphasises preparedness. The application allows for the registration of community members that are likely to be affected. It sends out the latest updates and issues early warning of incoming floods. In this way, residents can find out locations of relief centres. The authorities also maintain a registry of logistical needs such as relief assets and supplies for flood victims.

When a disaster occurs, citizens have a reliable source for much needed information as opposed to mere rumours. The relief teams have access to updated logistical information. The main command centre is able to coordinate the operations of local and external relief teams.





After the floods have receded, the system caters for the scheduling of cleaning and rebuilding efforts. Authorities are able to make assessments of the amount of damage to public and personal assets. Relief work continues as many victims would remain in need of funding and other assistance from the Government and other sources.

2. Malaysia's Flood Warriors documentary

Another flagship programme is the commissioning of a 45-minute documentary that tells the story of the devastation brought by the recent floods in Kemaman. Despite the ravages wrecked by the flood and resultant challenges; the close-knit community of Kemaman persevered and became a national role model community in managing floods.

A few months after the state had set a world record by bringing together 1,180 fishing boats to form the largest boat procession in the world, massive floods hit the community. The community in Kemaman came together and received widespread praise for its organised and systematic handling of the devastating floods that hit Malaysia in December 2014.

Many districts in Malaysia were badly inundated with floods and there were inspiring stories everywhere. In the case of Kemaman, the community received universal praise for its

excellent flood management action plan. The Prime Minister himself proposed it as a national benchmark in flood disaster management.

3. Appster Boss 2015

Yet another programme under the Smart Community Initiative is the Mobile Applications Development Competition event which was named Appster Boss 2015. This mobility application development hackathon was held in May 2015. It was targeted for developers from the East Coast region and was the first to be hosted by MCMC outside Kuala Lumpur.





The hackathon was part of MCMC's continuous efforts to build capacity and skills in the content industry. Participants coded and pitched their prototyped mobile application within 24 hours. It was an excellent platform for students and developers to showcase innovation as well as network with other budding developers and industry experts.

4. Kemaman Innovation Centre (KIC)

Efforts to increase the development of local content and applications were given a boost with the setting up of the KIC in Kemaman. This tech accelerator programme will help to increase the competitiveness of the local community and generate creativity and innovation through use of ICT in local communities.

5. 1Malaysia Internet Centre

1Malaysia Internet Centre or Pusat Internet 1Malaysia (PI1M) is an initiative developed by MCMC to facilitate and support the use of computers and grow ICT literacy. The collective internet access initiative enable communities to access new knowledge and information that can be applied in their daily lives such as entrepreneurship, education, employment opportunities, government services, agricultural and healthcare programmes. There are currently nine 1Malaysia Internet Centres in Kemaman.

The PI1M centres aim to be agents of change that enable

individuals to transform ideas into reality. A PI1M is also a repository of knowledge. They will also be centres of creativity and innovation that promote the creation of local digital content.

The physical centre acts as a collaborative interface between the community, leaders and businesses. It is also a centre for business and commerce. In non-urban communities such as Kemaman, a PI1M centre is the hub for online delivery, marketing and business activities and support various applications for e-government, e-commerce, employment opportunities, online banking transactions and so on.

Finally it serves as a centre of lifelong learning and capacity development activities for the communities to seek formal and informal knowledge.



6. Lifelong Learning

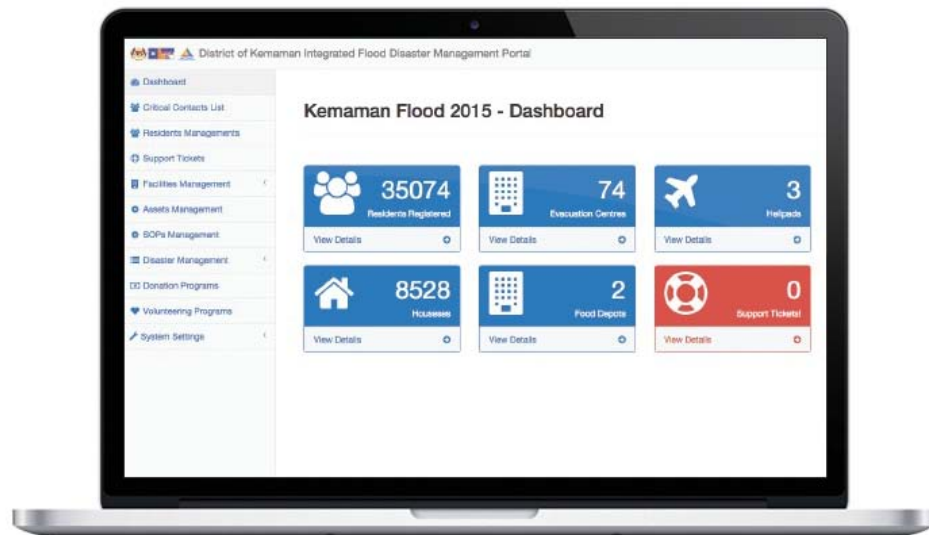
A very important flagship programme implemented at the Kemaman Smart Community project is the Lifelong learning (LLL) initiative, which aims to use ICT platforms to enhance knowledge of community. There are 4 sub initiatives that promote lifelong learning.

The first target is Kemaman online entrepreneurs. More than 90 entrepreneurs are registered and there has been active participation by them. Weekly activities have been held to help them improve their online sales, product marketing and to introduce online payment in their business operation.

Another sub initiative is the active promotion of u-Pustaka the national Ubiquitous Library system. u-Pustaka is a massive online library service which uses broadband to create a library network that brings together major libraries throughout Malaysia. Members have access to inter-lending services from 8 libraries, delivery through courier services, e-payment services and virtual access to web publishing, collaboration and content management.

In Kemaman a borrowing station was set up. The book drop allowed members to return RFID tagged books from the

The smart community initiative is especially suited for online and distance learning programmes. To a certain extent, e-learning used to be available only in the big cities and main towns. MCMC collaborated with Open University Malaysia (OUM) to develop courses for the community. Examples of professional development programmes offered by educational institutions to Kemaman residents are Early Childhood Education, Entrepreneurship, English and Religious courses.



Flood Management System developed for Kemaman

The smart community initiative is especially suited for online and distance learning programmes.

Kemaman District Library as well as books borrowed from libraries outside Kemaman that form part of the u-Pustaka system.

The Kemaman District Library also hosts hands-on sessions where members of the community especially students get to learn about robotics using Lego blocks. The versatility of LEGO Education resources ensures that every student is effectively involved in the learning process. LEGO Education resources are designed to prepare students with real-life applications of core subject knowledge, combined with the opportunities to develop life skills such as communication, collaboration and creative problem-solving.

Another lifelong activity launched at Kemaman was the e-Magazine project. This is a Digital Yearbook competition amongst schools in the district. 74 primary and secondary schools are involved in the competition. The objective of the e-Magazine programme is to develop students' creativity in making sets of digital magazine.

SMART KEMAMAN

The success of the Kemaman Smart Communities rests on its people. The prognosis for the initiative is excellent. There is a lot of involvement and receptiveness from the community. Activities are incredibly well participated and the people there are easy to work with.

Success here will enable MCMC to replicate the Smart Community model in other communities. On hindsight, this is probably one of the most ambitious projects MCMC has undertaken. The signs are very positive that soon many more rural districts will be transformed for the greater good of its people and its future. [my](#)

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Communications and Multimedia Industry Landscape:

Looking Ahead

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The communications and multimedia industry landscape has seen significant changes from the days when the Communications and Multimedia Act (Act 588) was enacted in 1998. In 1996, when the policy considerations to regulate the converging sectors of broadcasting, telecommunications and the internet were being formulated, the fixed line penetration was at 18%, and the mobile phone penetration was at 8%. There were 3 million households with access to (free-to-air) television, compared to 5.3 million who subscribe to pay television in 2015.

More than fifteen years later, the communications and multimedia industry has moved from a service convergence of broadcasting, telecommunications and the internet, to a competitive

convergence of service and applications, made possible by Internet Protocol (IP) technology. While the fundamentals of Act 588 are still valid, new trends impacting the industry necessitates the Malaysian Communications and Multimedia Commission (MCMC) to future-proof its approaches in facilitating the growth of the industry.

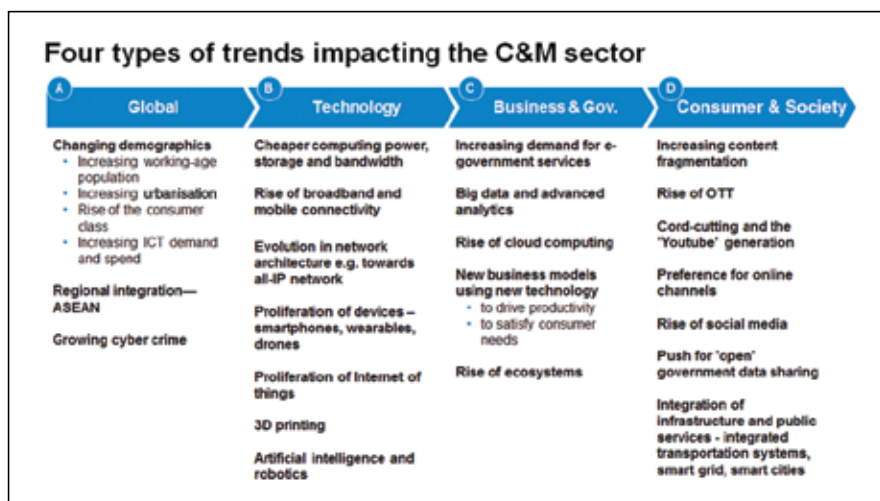


Figure 1 - Source: MCMC

THE CHALLENGES AHEAD

The changing demographics worldwide due to the increasing working-age population, urbanisation, and disposable income to spend, among others, create the demand for more communications and multimedia products and services. This is reflective in Malaysia, where 70 percent of the population live in urban areas. This relatively young population expects new and innovative services to support their lifestyle. Another global trend that would have a significant impact on the growth of the communications and multimedia industry is the threat of cybercrime and cyberterrorism.

Additionally, the advancement of technology and Moore's Law ensure that new devices and services can now be obtained easily and cheaply. The Gartner's Hype Cycle for Emerging Technologies for 2015 for the first time indicate 'that the emergence of technologies that support what Gartner defines as digital humanism — the notion that people are the central focus in the manifestation of digital businesses and digital workplaces.' This would mean more real use cases and challenges posed by gesture control, autonomous field vehicles and enterprise 3D printing in the near future, which test the boundaries of IP, ICT and communications and multimedia.

On the other hand, the consumers and the society will not be the passive users of these services. The challenges and opportunities provided by the digital services, new technologies and global availability of data, information and content mean that consumers can also participate in the digital economy. From merely consuming, either just watching television or sending messages, consumers are now increasingly producing – be it on YouTube, or on social media, or actively seeking and producing content. With access to cheap and secure applications, consumers are also able to participate more efficiently in the greater economy where they can communicate directly with their peers and communities, as well as to a whole new market for their products.

New applications and services are fast gaining ground with consumers. Traditional communications services such as short messaging services (SMS) are steadily being replaced by Over-the-Top (OTT) messaging applications. The decline in the use of SMS also mean that the traditional service providers can no longer rely on revenue from such services; this declining trend is also emerging in the previously resilient voice service. The use of smartphone is also putting strain on the network with the growth in demand for mobile data traffic and coverage. Similarly, the traditional broadcast television is also facing challenges from new business models provided by the non-linear and on-demand content providers.

Notwithstanding these challenges, the emergence of the digital economy may present more opportunities for productivity, innovation and economic growth for the next 10 to 15 years, not only for the communications and multimedia industry, but also for other sectors such as transportation, financial services, health, education and retail. This

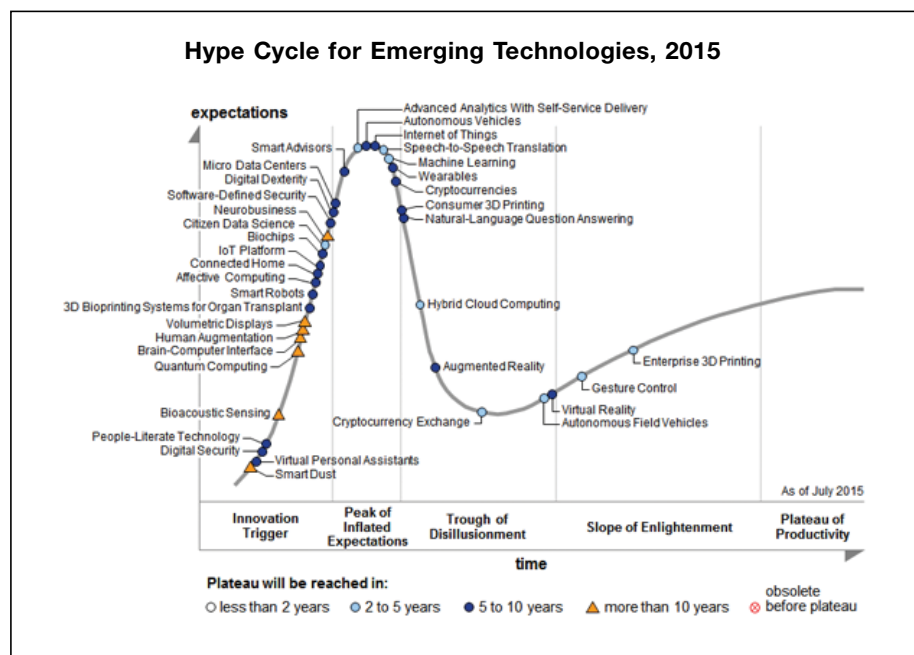


Figure 2 - Gartner's Hype Cycle for Emerging Technologies

Based on the above, the communications and multimedia industry will also increasingly affect the broader economy for both the public and private sector. The businesses and governments will be compelled to use cloud computing, big data, advanced analytics, as well as other platforms to compete, and to improve their services to their customers and the general public. This is where enablement platforms such as payment platforms, digital identity (ID), and open data become critical to support the digital services.

is where a new policy direction for the communications and multimedia is needed to support the drive for growth. In this regard, the need to ensure the sustainability and competitiveness of the digital infrastructure and services and the need to ensure the robustness of the regulatory framework and environment would require better collaboration and coordination in both public and the private sectors. Similarly, the regulator also needs to be able to identify and prepare safeguards to address 'digital' challenges arising from abuse of social media whilst improving cyber security, data protection, liability regime, taxation of digital goods, among others.

THE STRATEGIC APPROACH – 11TH MALAYSIA PLAN

Moving into the future, the 11th Malaysia Plan (2016-2020) provides some insights to Malaysia’s medium-term strategy:

The next five years are expected to be challenging with continued uncertainties in the global economy... there needs to be a greater resolve to boost productivity to drive economic growth; strengthen the fiscal position while ensuring adequate public funding to support continued economic expansion; and raise the average income and share of total income of the bottom 40% household income group (B40 households) to become truly inclusive (Eleventh Malaysia Plan 2016-2020 – Anchoring Growth on People).

The 11th Malaysia Plan, among others, also outlines some strategies on how ICT can open up the opportunities for Malaysia’s growth in the knowledge economy. Strategy Paper 15 of the 11th Malaysia Plan (www.rm11.edu.gov.my) provides the strategic approaches to the development of content, development and access to digital infrastructure including affordability, and accessibility, and human capital development to drive Malaysia’s digital economy. In this regard, Strategy Paper 15 outlines the issues and challenges faced by the industry, as well as the way forward.

The strategies outlined in the 11th Malaysia Plan are reflective of how the digital economy will feature in our lives. The permeability of communications and multimedia in our day-to-day lives will be further evident

with the changing demographics, in which today’s digital natives will mature and demand new services reflecting their digital savviness. Similarly, an increasingly mature communications and multimedia industry will consider new ways of how services can be provided more efficiently. In this regard, discussions are already under way globally on how to look at the competitive industry, and how to ensure that the communications infrastructure can continue to be built to address the demands of the consumer and technology advances.

Based on the above, the targets set out under the 11th Malaysia Plan look at digital inclusion and how the industry can be ‘re-energised’ from ‘supply to demand-driven, consumption to production and low knowledge-to high knowledge-add’. The specific targets in the Plan outline some of the priority areas and support needed to drive the changes.

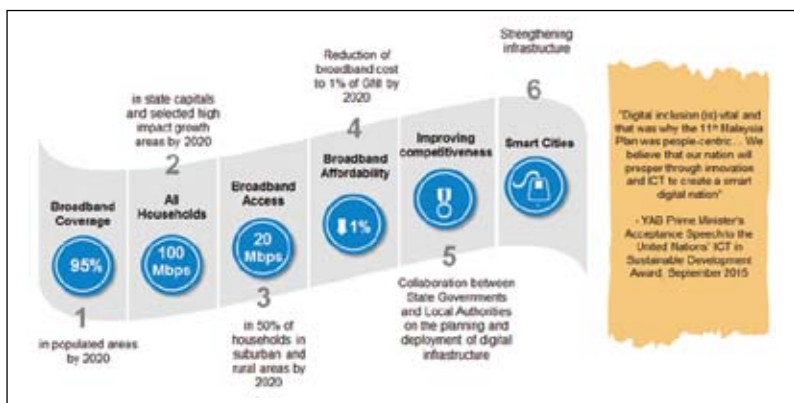


Figure 4 - Source: 11th Malaysia Plan

THE POLICY APPROACH – TOWARDS A SMART DIGITAL NATION

The policy approach currently developed by MCMC, which is based on the broad strategies under the 11th Malaysia Plan, looks at how the communication and multimedia industry can anchor the changes or anticipated challenges. The approach will position Malaysia from the first wave of facilitating convergence to the second wave of transitioning to digital economy. In this regard the digital infrastructure would have to be improved to encourage investment and innovation, while maximizing the economic use and allocation of scarce resources such as spectrum. Additionally, with the expanded range of digital services, there is a need to

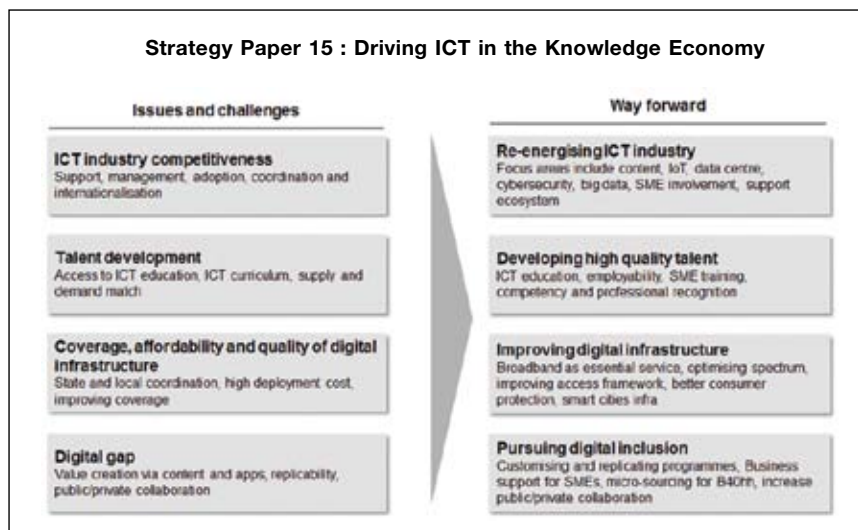


Figure 3 - Source: Strategy Paper 15, 11th National Plan

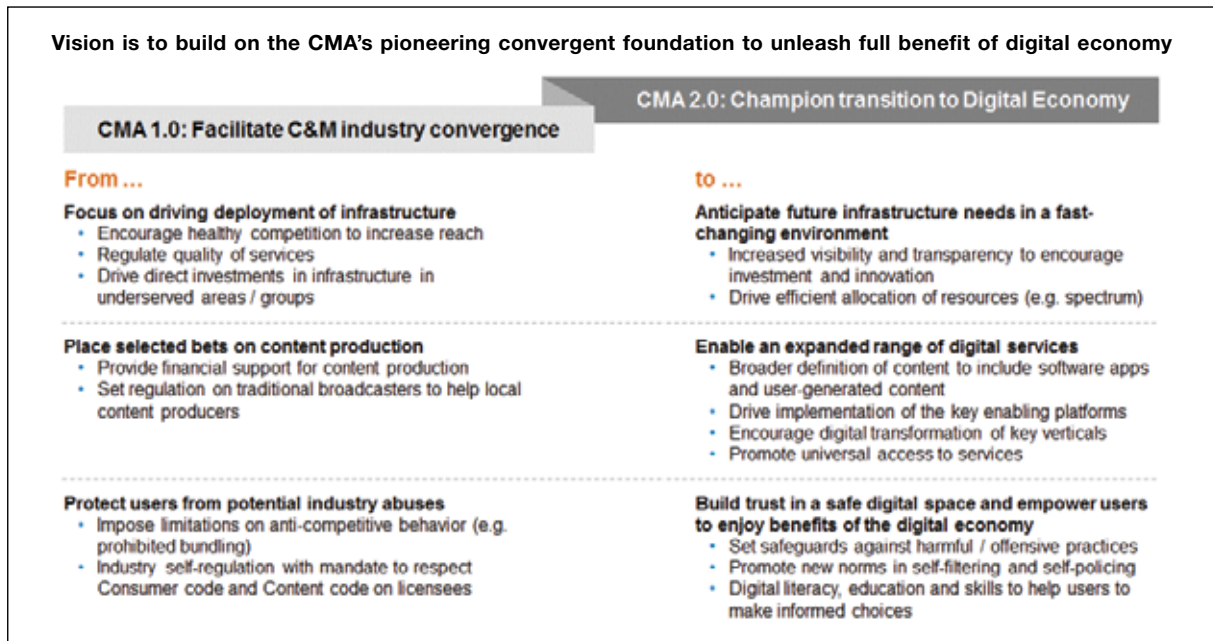


Figure 5 - Source: MCMC

facilitate and to drive enabling platforms and encourage digital transformation of key services. Similarly, these services would have to be based on a trusted digital environment in which sufficient awareness programmes and safeguards must be put in place to protect consumers against harmful practices and other challenges.

The transition to a smart digital nation is a natural progression of the planning for broadband undertaken by many regulators around the world. The Global Symposium for Regulators' (GSR) 2014 Discussion Paper on Monitoring the Implementation of Broadband Plans and Strategies¹ outlined the progression from deployment to adoption to integration. Malaysia has undergone the first two phases with the National Broadband Plan and the National Broadband Initiative. In the National Broadband Plan, the Government looked at how broadband can be made available using WiFi, 3G and copper networks.

As Malaysia progresses, the High Speed Broadband (HSBB) and Sub Urban Broadband (SUBB) Projects under the National Broadband Initiative addressed the access and speed improvements, while the Universal Service programmes such as Kampung Tanpa Wayar and other community access, were combined with digital literacy programmes such as Klik Dengan Bijak. Moving forward, the smart digital nation looks at integrating broadband with the greater economy and society, with further

emphasis on digital infrastructure and platforms. With improved access, the previously disparate sectors such as transport, finance, health, and others can leverage on the opportunities made available through the smart digital nation initiatives.

The planning for a smart digital nation will then incorporate the various facets of digital economy, including e-health, e-governance, e-education and e-commerce strategies. Due to the greater impact of the communications and multimedia industry, the collaboration among public and private sectors is pertinent to drive the smart digital nation initiatives. With the collaboration, citizens will be able to participate in civic and commercial endeavors across different platforms using communications and multimedia infrastructure and services.

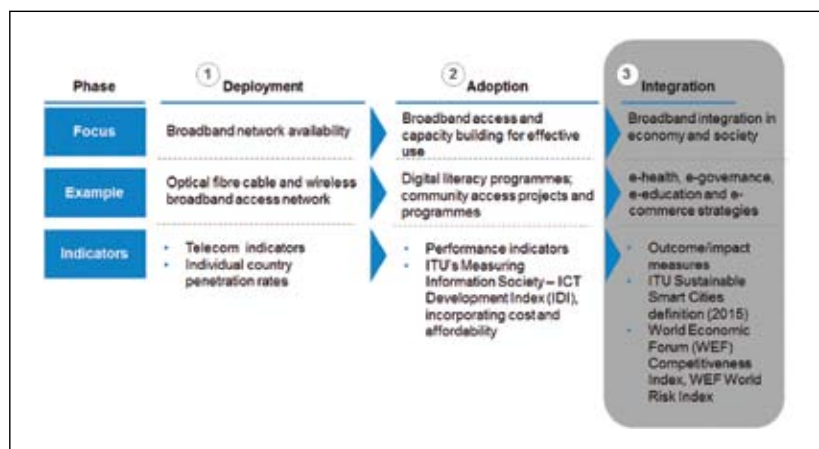


Figure 6 - Source : Colin Oliver, 'Monitoring the Implementation of Broadband Plans and Strategies'; Trends in Telecommunication Reform 2015. Successive phase of a National Broadband Plan

1. https://www.itu.int/en/ITU-D/Conferences/GSR/Documents/GSR2014/Discussion%20papers%20and%20presentations%20-%20GSR14/Session9_GSR14-Presentation-MonitoringBroadband.pdf

It is also important for the regulator to ensure universal access to a robust and sustainable digital infrastructure. Efforts are already undertaken to identify the relevant investments and resources to prepare and fulfill the requirements of the future as outlined by the 11th National Plan. Similarly, MCMC is also in discussion with the relevant stakeholders to provide proof of concepts and to prepare the foundations for enabling platforms such as digital payment framework. Additionally, local content development and distribution will need to be further enhanced to prepare for the expected demands in line with the improved bandwidth and advances in technology.

Above all, it is also important for the regulator to develop and to provide relevant safeguards to address the challenges posed by social media and new applications. Notwithstanding these initiatives, consumer awareness and empowerment are very important, as information and education will ultimately dictate the direction of the industry.

In a future issue of .myConvergence, we will discuss how MCMC develops the Communications and Multimedia Action Plan (CMAP) 2016-2020 to realise the above vision.

MOVING AHEAD –THE REGULATORY APPROACH

Current discussion on the challenges provided by the Over-the-Top (OTT) service providers may be a good starting point on how to regulate the communications and multimedia industry in the future. Proponents of OTT marvel at how OTT opens up new opportunities in different markets in addition to being able to provide these services at no or low cost. The traditional players, on the other hand, are in a challenged position to build and to improve the network and infrastructure, while at the same time, see their revenues decline. While some argue the need to regulate OTT, and to ‘level the playing field’, the challenges provided by OTT indicate a different approach may be needed:

The characteristics of the current digital ecosystem appear to recommend the avoidance (and regulatory temptation) to impose one size fits all solutions. Instead stakeholders (regulators, telecommunications operators and OTTs) should look for evidence of adverse effects regarding lack of competition or anti-competitive before either ex ante regulatory or ex post enforcement tools are thought.

Communications and Multimedia Act 588 already provides for a self-regulatory approach to consumer protection, market regulation, technical regulation and social regulation. Moving forward, it may be relevant

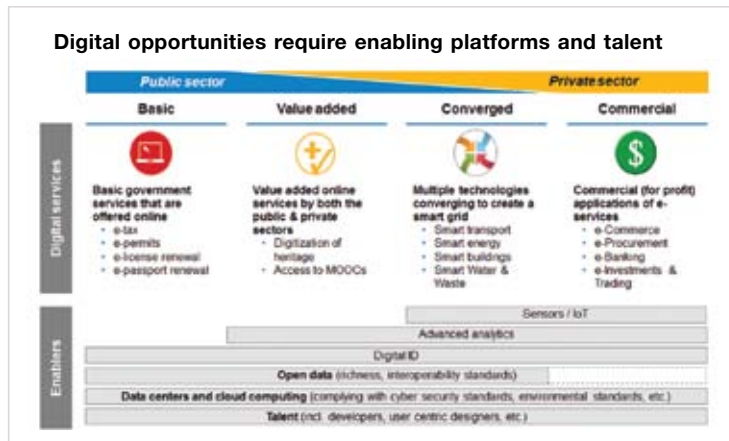


Figure 7 - Source: MCMC

to look at these areas of regulation and investigate the potential impact of the new digital services in each of the areas of regulation. For example, OTT may have different impact in terms of consumer protection and awareness, whilst also having social implication in relation to the content that is provided through this platform.

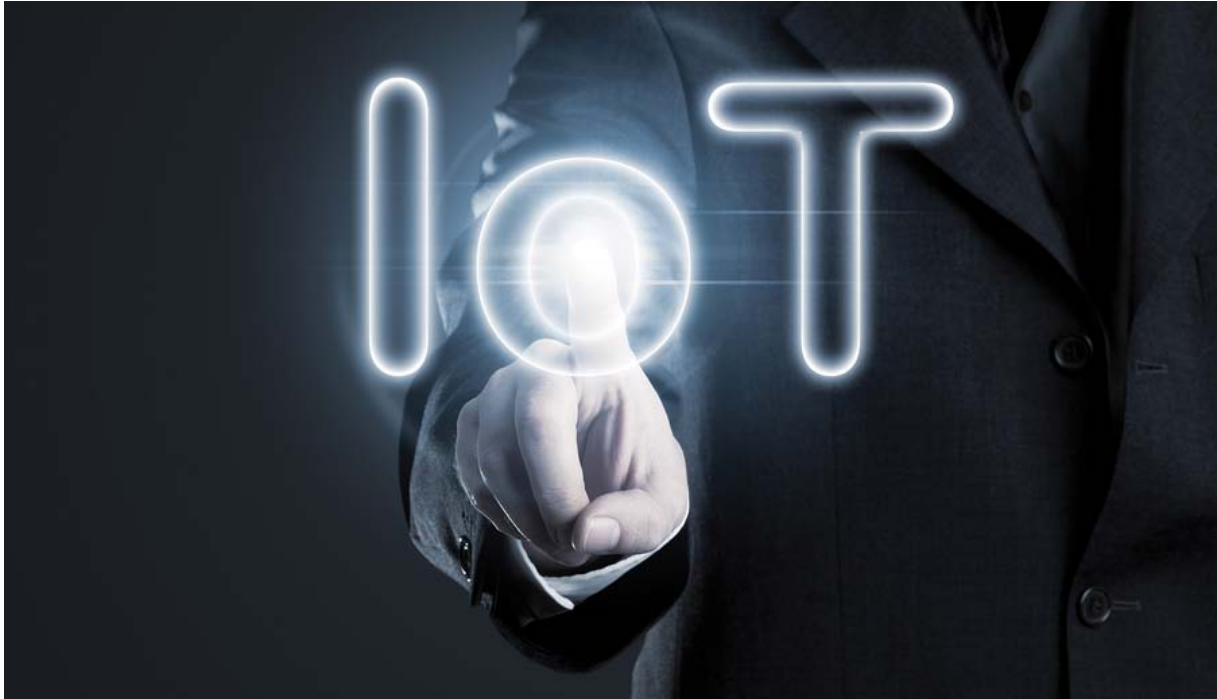
The International Telecommunication Union (ITU) in its 2015 Global Symposium for Regulators (2015 GSR) held in Libreville, Liberia recognised the challenges of the future. In this regard, the 2015 GSR indicates that:

(g)iven the global nature of online services and apps, cross-border harmonisation of relevant regulatory policies as well as enhanced collaboration among national government agencies, regional and global organisations is essential for creating a global digital ecosystem while putting in place effective safeguards against fraud and abusive practices.

Based on the above, we can conclude that the future will see more conversations among the various stakeholders on how to facilitate the move to a digital economy. The collaboration and engagement are very important, and it is here that the communications and multimedia industry should take the lead in order to shape a positive outlook for the smart digital nation. [Jmy](#)

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2. International Telecommunication Union. *GSR-15 Best Practice Guidelines to Facilitate the Widespread Adoption and Use of Mobile Applications and Services Through Targeted Regulation.* http://www.itu.int/en/ITU-D/Conferences/GSR/Documents/GSR2015/Consultation/BPG_2015_E.pdf



How Retail is Being Transformed By The Internet of Things

Smart retailers are turning to IoT to enhance customer experience and increase customer loyalty. Here are some trends and what is in store for retail outlets.

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In this fast paced world, successfully doing business has become a big challenge for many retailers. For businesses to succeed, they need to attract customers to buy their products. Technology has transformed how these businesses and consumers interact. Consumers, especially those from the Gen Y group want to have access to information anywhere anytime and from any device before making a purchase decision. To stay relevant, retailers have no other choice but to keep themselves constantly updated to compete with their competitors, provide new shopping experiences and hopefully expand their business. The move towards a connected digital lifestyle society and the trend of Gen Y communities with connected smartphones mean retailers must either stay ahead of the technology curve or be left out.

Fifteen years into the new millennium, a pure traditional storefront or brick and mortar store is no longer viable for most retail sectors. Retailers know that they have to look into ways to transform their operations

towards a hybrid combination of traditional store and brick and click store. The Internet of Things (IoT) can be a major driver for the third industrial revolution and will influence how merchants run their business in the future.

IoT

The Internet of Things was coined by Kevin Ashton in 1999 while he was working in Auto-ID Labs in Massachusetts Institute of Technology (MIT) in USA. IoT basically means 'things' or 'objects' with smart features connected to the Internet. The intelligence on these objects comes from embedded sensors and software with network connectivity to the cloud. These objects can report on what they are doing and what is going on around them. And they can send this data to some central point. Because of this, smart objects usually have the value added capability of being able to contribute to data analytics for better business decision making.

Gartner has predicted there will be 26 billion IoT devices by 2020 and each person will have about 7 devices at any one time. The market size of IoT in retail is estimated to grow from USD14.28 billion in 2015 to USD35.64 billion by 2020, at a Compound Annual Growth Rate (CAGR) of 20.07%, again according to Gartner.

IoT has great promise across many industries such as agriculture, healthcare, transportation, retail, payment and manufacturing. One major benefit is the potential to track and trace products across many verticals or value chain. For instance, the aerospace industry has long implemented IoT in managing their elaborate bills of material that they employ to build, manage and maintain the complex airplanes components.



With more advanced sensors and wearables in the market and all this while getting more affordable, IoT can play an important role alongside technologies such as barcode, radio frequency identification (RFID) or Near Field Communication (NFC) to supplement the value chain with proper integration to create efficient supply chains and to improve productivity.

RETAIL & IoT

So what can retailers do with IoT? Forward thinking retailers can capitalise on fast smart sensors and wearables to bring about improvements in products tracking, customer acquisitions and purchasing behaviour. Wearables and sensors are new innovative ways for retailers to engage with their loyal customers and new customers. Key benefits that retail businesses can get by implementing IoT solutions include improving customer experience, customer flow, purchase trends, transformation of retail operations, smart shelves, traceability, loss prevention and put in place Just-In-Time (JIT) supply chain.

Implementing IoT can be simple or complex. IoT devices could be implemented as a standalone solution

where, for example, smart beacon devices are placed around a store to push notifications to consumers inside a store. Or an IoT project could be a complete integrated solution affecting every business process. This would then involve a back office system and store-level messaging platform connected through the cloud.

IoT obviously could bring more efficiency to traditional retail processes. IoT could also break new ground. Enterprising retailers who are willing to break norms are trying brand new ways of doing businesses. Rebecca Minkoff, a US retailer of luxury handbags, accessories, footwear, and apparel brought IoT into her in-store dressing rooms by placing smart mirrors there. The connected 'mirror' displays videos and enables shoppers to interact with it. All items in the store have RFID chips on them. This enables the mirror to identify items and provide information such as sizes available. Shoppers can also communicate with store employees. These smart mirrors have both increased customers' time spent in stores and boosted clothing sales.



Some of the core issues that haunt retailers are how to improve efficiencies and profits for each of their physical stores. Better inventory control is crucial as it is associated with costs. Traditional retailers lack visibility of inventory that is on the shelf versus what is still in the storeroom. IoT solutions using enablers such as sensors, beacons, RFID tags and intelligent cameras bring more visibility into the actual location of inventory. Advanced analytics capabilities further enhance control of inventory and the business.

Smart shelves, sensors, smart displays panels, digital price tags make it possible for retailers to have real time inventory control and thus improve the management of the store. With digital price tags integrated with their store Point of Sales (POS) system, retailers can easily sync the prices of each product in real-time.



Customers like to find what they want to buy as quickly as possible. Large stores with rows and rows of product filled shelves can be a daunting prospect for a shopper looking for a specific item. The ability to locate products quickly in vast retail areas using track and trace technologies can further enhance the consumer shopping experience in a particular store - including occasionally products having to be taken off the shelves. The same IoT technology add to increased customer confidence and help stores avoid public relation disasters when product recalls happens.

All retailers face shrinkage and fraud whether from internal staff or shoplifters. With IoT retailers can manage their smart shelves, RFID tags and analytics camera or CCTV to track the flow of employees and inventory of the store.

Similarly, advanced CCTVs, sensors and beacons allow retailers to have their customers (who have opted into their loyalty programmes) shown in store promotions through mobile phones whenever they are within the vicinity of their brick and mortar retailers or inside shopping malls or even away from the stores. Instead of bombarding all customers with the same generic content and promotions, smart beacons technology can easily push content tailored for their customers via smartphones or smart displays in strategic locations of the mall or store to drive greater retail sales.

Big retailers such as Tesco, Giant and IKEA and many other smaller ones are spending time to analyse the traffic flow of their lay out store to maximise the appropriate customer exposure to their products. IoT enables analytics of traffic flow and flow patterns. Retailers can view visual heat maps of their customers, where they stop and which route they take inside their store. Smart CCTVs reveal human behavior like how long and often customers frequent a store. Even detailed specifics such as what happens at a particular aisle rather than strictly relying on POS systems and human observations.

It can be seen then that with IoT, connected sensors, beacons, smart applications, real time information and analytics retailers can create whole new customised shopping experiences in their brick and mortar stores which eventually will create new sales and aid in retaining their loyal customers.


The costs of implementing IoT solutions are not prohibitive. System integrators provide easy fix solutions for retailers that are keen to explore retail IoT with monthly outsourcing services subscription. These come coupled with all the necessary hardware such as sensors and beacons that are almost maintenance free. In addition, these systems integrators will provide maintenance and support services to stores that do not have technical people for small monthly fees. They will also provide all the necessary reporting to analyse and transform their traditional brick and mortar business and expand their market reach.

There may be some concerns about privacy when it comes to IoT solutions. The ability to track consumers, know their shopping habits and so on can make shoppers become wary about what the collected data could be used for. Thankfully, this is not a major issue because retailers are keener on gathering and analyzing big data rather than snooping on individual shoppers. Furthermore, one-to-one communications like push notifications are only initiated with the consent of consumers who understand that IoT will enhance the shopping experience.

IoT IN MALAYSIA

Retailers have begun to experiment with IoT solutions. Shaftsbury Square in Cyberjaya trialed an installation of smart beacons throughout the shopping area. Some department stores have also done the same thing.

MCMC has done its bit to promote IoT to retail outlets. Its Digital Lifestyle and Society department organised a Retail IoT and Payment roadshow in Penang and Kuala Lumpur in 2015 which drew interest from retailers on the knowhow of Retail IoT and Payment solutions. We look forward to expanding the roadshow to different cities in 2016.

If they have not done so, retailers should check out the potential benefits Retail IoT can offer them. They need to be able to provide the best customer experience and keep their loyal customers engaged before their competitors make the first move and leave them far behind. For more information, please visit <http://dlm.mcmc.gov.my>. 

Malaysia Internet Centres proves to be a hit with people from all walks of life.



Suruhanjaya Komunikasi dan Multimedia Malaysia
Malaysian Communications and Multimedia Commission

Klik Dengan Bijak
Programme activity



The launching of the Mobile e-Waste programme in collaboration with the communication industry players will help to raise public awareness in the proper disposal of unused mobile phones safely.



Crowds were seen thronging the KL Convention Centre throughout the 3 day event.



Google were among the big names who participated in the KL Converge! event.



Various advocacy programmes are being held nationwide by MCMC to educate the public on the positive use of the Internet.



Creativity should be nurtured from young and it will go a long way in helping the country to become a leader in innovation.



Highlights from the World Radiocommunication Conference 2015

The World Radiocommunication Conference 2015 (WRC-15) took place in November 2015. Around 3,300 participants, representing 162 out of ITU's 193 Member States attended. Another 500 participants representing 130 other entities, including industry, also attended the conference as observers. The conference deliberated on many issues. Following are some of the highlights of WRC-15.

Global flight tracking for civil aviation: Agreement was reached on the allocation of radio-frequency spectrum for global flight tracking in civil aviation for improved safety. The frequency band 1087.7-1092.3 MHz has been allocated to the aeronautical mobile-satellite service (Earth-to-space) for reception by space stations of Automatic Dependent Surveillance-Broadcast (ADS-B) emissions from aircraft transmitters. This will facilitate reporting the position of aircraft equipped with ADS-B anywhere in the world, including oceanic, polar and other remote areas.

Emergency communications and disaster relief: WRC-15 identified spectrum in the 694-894 MHz frequency band to facilitate mobile broadband communications for robust and reliable mission critical emergency services in public protection and disaster relief (PPDR), such as police, fire, ambulances and disaster response teams.



Amateur radio service gets new secondary allocation: New secondary allocation for amateur radio service in the frequency band 5351.5-5366.5 kHz will maintain stable communications over various distances, especially for use when providing communications in disaster situations and for relief operations.

Search and rescue: WRC-15 reinforced protection to Search and Rescue beacons that transmit in the 406-406.1 MHz frequency band signals to uplink to search and rescue satellites, such as the Cospas-Sarsat system. Resolution 205 was modified to ensure that frequency drift characteristics of radiosondes are taken into

account when operating above 405 MHz to avoid drifting close to 406 MHz. Administrations are requested to avoid making new frequency assignments for the mobile and fixed services within the adjacent frequency bands to prevent interference in the frequency band 406-406.1 MHz. As of December 2013, the Cospas-Sarsat System has provided assistance in rescuing over 37,000 persons in over 10,300 incidents worldwide.

Road Safety: Radio-frequency spectrum needed for the operation of short-range high-resolution automotive radar has been allocated in the 77.5-78 GHz frequency band. This will provide a globally harmonised regulatory framework for automotive radar to prevent collisions and improve vehicular safety by reducing traffic accidents. According to UN data, more than 1.25 million fatalities occur each year on the roads around the world.

Unmanned aircraft and wireless avionics systems: WRC-15 opened the way for the development by ICAO of worldwide standards for unmanned aircraft systems (UAS), and identified the regulatory conditions that may be applied to such systems internationally. WRC-15 also agreed on spectrum for wireless avionics intra-communications (WAIC) to allow for the heavy and expensive wiring used in aircraft to be replaced by wireless systems.

Operation of broadband satellite systems: Earth Stations in Motion: WRC-15 agreed to facilitate the global deployment of Earth Stations In Motion (ESIM) in the 19.7-20.2 and 29.5-30.0 GHz frequency bands in the fixed-satellite service (FSS), paving the way for satellite systems to provide global broadband connectivity for the transportation community. Earth stations on-board moving platforms, such as ships, trains and aircraft, will be able to communicate with high power multiple spot beam satellites, allowing transmission rates in the order of 10-50 Mbits/s.



Singapore announces spectrum allocation exercise and possible new mobile operator

The Infocomm Development Authority of Singapore (IDA) plans to conduct a spectrum allocation exercise later this year for International Mobile Telecommunications (IMT) and IMT-Advanced services (e.g. 4G services). A total of 235 MHz of spectrum is to be made available for mobile services.

The allocation may result in a new mobile network operator (MNO) as IDA said it will facilitate the entry of a new MNO, if any. At the same time it

said that it will make sure that there is sufficient spectrum for the incumbent MNOs to continue to provide quality mobile services.

The spectrum auction will take place over two stages. The first stage is open to only interested pre-qualified parties who do not currently operate a nationwide mobile network in Singapore. 60 MHz of spectrum from the 900 MHz and 2.3 GHz bands will be available. The auction for this spectrum will start at the bid price of S\$35 million. The new MNO, if any, will be required to achieve nationwide outdoor service coverage by October 2018.

The second stage will be the General Spectrum Auction which will be open to incumbent MNOs and any new MNO that emerges after the first stage.

'Video-on-demand' programme services to be regulated by Ofcom

UK Regulator has taken over regulation of 'video-on-demand' programme services. The move follows an Ofcom review to ensure regulation of broadcast and on-demand content remains as effective and efficient as possible for the benefit of consumers, audiences and industry.

Previously, Ofcom had designated the Authority for Television On Demand (ATVOD) in 2010 as a co-regulator to take the lead in regulating editorial content for video-on-demand services. After a review of the co-regulatory arrangements, Ofcom decided that acting as sole regulator for video-on-demand programmes is a more effective model for the future than having two separate bodies carrying out this work.

Video-on-demand services include catch-up TV and on-demand services on the TV and the internet. Video-on-demand services have become increasingly popular among viewers. The proportion of adults aged 15 and over that watch video-on-demand services has increased from 27% in 2010 to 57% in 2014, according to Ofcom research. Ofcom takes over sole responsibility for regulating video-on-demand programme services from 1 January 2016. The Advertising Standards Authority will continue to act as a co-regulator for advertising content on video-on-demand services.



EU Commission proposes 700 MHz for mobile data

The European Commission asked for feedback in early 2015 for its plans to make the 700 MHz spectrum available for mobile broadband use by 2020. Currently the spectrum is used in EU for TV and wireless microphones.

After receiving from its consultation period, the EU Commission has proposed that more spectrum will be made available for mobile services in the 700 MHz band (694-790 MHz) by 2020. It is coveted by mobile broadband operators because of its long-range and its ability to operate with little interference and service interruption in highly

built up areas due to the fact that it can penetrate through walls.

Frequencies in the sub-700 MHz area (470-694 MHz) will remain available, as a priority, for audiovisual services. The EU says it is taking these steps because spectrum needs to be better coordinated at EU level to avoid interferences and to allow innovative services, such as connected cars or remote health care, to work across the continent. The EU also has to cope with the growing demand for wireless broadband. It estimates that by 2020 there will be nearly eight times as much mobile internet traffic as today. The timeline takes into account the anticipated deployment of 5G services in 2020. [.my](#)

FOOD

Food Trucks Galore



Food trucks have always been a part of the Malaysian food scene. The ubiquitous truck selling 'Cendol' and 'Rojak' can be found at strategic locations all over Malaysia. But in the last few years, when people talk about food trucks, they refer to the more exotic food trucks that have become a staple especially in the Klang Valley.

These trucks typically sell quality Western food like premium burgers, Mexican dishes and Italian fare at prices lower than restaurants. They have become a hit with the hipster younger set. The more popular ones are avidly followed by fans and it is common to see long queues at these food trucks.

City authorities and event organisers have smartly accommodated them by organising Food Truck festivals very regularly. One regular place to catch food truck fare is the bimonthly KL Food Truck Feast (KLFTF) that takes place on Saturday nights and Sunday mornings every first and third week of the month at Dataran Merdeka.

Another way to find Food Trucks would be by searching for them on Facebook. There is a popular Food Truck Malaysia page there. Or one can also download the newly launched TastyTrackr app on Android.

HEALTH

Sit Correctly At Work

The chances of getting back pains and repetitive strain injuries can be reduced drastically by sitting correctly when working. These guidelines below will show you how to sit properly.



Support your back

Adjust your chair so that your lower back is properly supported. A correctly adjusted chair will reduce the strain on your back. Ensure your knees are slightly lower than your hips.

Chair height

The chair height should allow you to use the keyboard with your wrists and forearms straight and level with the floor. Place your elbows at the side of your body, so that the arm forms an L-shape at the elbow joint.

Your feet

Your feet should be flat on the floor. Use a footrest if necessary. Also, don't cross your legs as that can cause posture problems.

Screen

The top of the screen should be around eye level and directly in front of you. Place the monitor about an arm's length away.

Keyboard

Leave four to six inches space at the front of the desk to rest your wrists. Your wrists should be straight when using a keyboard. Keep your elbows vertical under your shoulder and right by your side.



Camping in Style

Hard core hikers and scouts love going into the wild and camping in the middle of nowhere. For the rest of us, who still want a taste of what camping is but without the inconveniences, the better alternative is to go Glamping. That is the term used to describe luxury camping or glamorous camping. There are quite a few places in Malaysia that offers the high end camping experience. Here are three places you can try today plus one that is still being built.

Canopy Tribes Johor – This is in Kota Tinggi. The operators offer a back to nature experience that includes amenities (like toilets!) one cannot do without. The highlight would be the Barbecue dinner under the stars.

Kahang Organic Rice Eco Farm (KOREF) – This is also in Johor, along the road from Kluang to Mersing. Visitors can stay in chalets or camp. This venue is great to experience organic farm life.

Sailors Rest – This is a nice spot in Janda Baik, Pahang. There are camping spots available next to a river. Here, one can experience a range of hiking activities, with waterfall not too far away.

The Boulder Valley – This is large glamping suite being built in Penang. Once ready, it will have everything. There will be more than 40 tents, a treetop restaurant and a suspended bridge. It is due to open sometime in 2016.

PRODUCTIVITY

Stop multi-tasking

Many studies have shown that multi-tasking is not good. In fact, it is simply not possible to multi-task and it is bad for the brain. What you're really doing is splitting your focus and making your brain jump from one task to another task rapidly multiple times.

Here is how to 'single task'.

Build your work list

List down the order of the tasks you intend to do. Set times for each task and challenge yourself to finish the task within the time you have given it.

Single tabs on browser

Avoid opening multiple tabs on your PC browser, with each one being on a different task. Only open tabs related to the work you are doing.

Take short breaks between tasks

Once you finish a task, get up and move around. Use the break to refresh the mind and prepare to focus on the next task.

Learn to prioritise

We often multi-task because we have taken on too many tasks. By learning how to differentiate from what's urgent and important and what is unimportant, one can become more productive and accomplish more of the really useful tasks.

SCOREBOARD Communications & Multimedia

Postal and Courier



NUMBER OF POST OFFICES



2014 - 961
2015 - 930

NUMBER OF COURIER LICENCES



2014 - 91
2015 - 88

POSTAL TRAFFIC DOMESTIC LETTERS

MILLION



2014 - 913.0
2015 - 851.3

POSTAL TRAFFIC DOMESTIC PARCELS

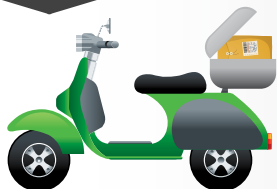
MILLION



2012 - 0.8
2013 - 0.7
2014 - 1.3
2015 - 0.8

COURIER TRAFFIC DOMESTIC DOCUMENTS

MILLION



2012 - 30.1
2013 - 32.1
2014 - 33.4
2015 - 33.1

COURIER TRAFFIC DOMESTIC PARCELS

MILLION



2014 - 14.1
2015 - 18.2

Cellular, DEL, SMS And Broadband

PENETRATION RATES: CELLULAR PHONES BY PERSONS



2014 : 148.3%
2Q 2015 : 144.8%

PENETRATION RATES: FIXED LINES BY HOUSEHOLDS



2014 : 30.3%
2Q 2015 : 28.4%

NUMBER OF SMS TEXT MESSAGES

BILLION



2014 : 49.3
2015 : 25.9

PENETRATION RATES: BROADBAND BY HOUSEHOLDS



2014 : 70.2%
2Q 2015 : 72.2%



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Our Broadband Journey...

What we have achieved in the past 5 years can only be possible with the support and commitment of the industry, the people and the government.

Let's continue to build our future..., together. Thank you Malaysia!

