

PREAMBLE

We stand at a unique point in history, when Information and Communications Technologies (ICTs) are transforming our economies, our societies, and our lives.

These new technologies have connected us as never before, catalyzed rapid economic growth, dramatically expanded access to information and economic opportunity, enabled world-changing innovations, and even allowed us to think in new ways about global challenges.

The APEC Telecommunications and Information Working Group (TEL WG) began its work just 28 years ago – the same year that saw the emergence of the World Wide Web. In that short time, ICT has become an integral part of modern life, and has revolutionized our economies and our societies.

APEC economies have made great progress in adopting and utilizing ICTs, but this transformational sector will continue to change and evolve. We should seek to further develop and nurture a culture that drives innovation and an enabling and adaptive environment that has produced such dynamic growth in the APEC region. ICTs have enabled many forms of trade and investment facilitation, and business streamlining, which have allowed greater regional economic integration. Continued exchanges and cooperation on ICT-related policy and regulation, therefore, are critical to furthering economic integration and development, and a healthy Digital Economy, including the Internet Economy.

The critical role of ICT infrastructures and services make them both the foundation and skeletal structure of the Digital Economy, a platform for growth and innovation. TEL WG shall continue to promote ICT connectivity as an important means of achieving regional economic integration and other APEC goals. We see mobility and hyper-connectivity changing consumer experience of ICTs, driving broadband adoption, and fueling innovation and investment.

ICTs have dramatically lowered barriers to economic participation, empowering individuals to be entrepreneurial and to improve their own lives. ICTs offer new opportunities to make our economies more inclusive, so the benefits are more widely available, and to improve access and serve those who have been underserved. TEL WG will therefore continue efforts to promote deployment and access to networks, as well as supporting advances in the technologies that connect us. TEL WG may discuss ways to promote adoption of new technologies and uses, such as promoting regulatory approaches that are responsive, adaptable, cost-effective and minimally distorting.

We will cooperate and build collective capacity to ensure a secure and trusted ICT environment through various measures, such as raising cyber security awareness, protection of vulnerable groups and encouraging secure cross-border flows of information. The TEL WG will continue to build collective capacity, promote best practices and improve shared understanding of these issues affecting people's trust and confidence.

ICTs can help mitigate non-technical shocks, such as natural disasters. Regional cooperation can help mitigate risks that may arise from misuse of ICTs. As risks to the Digital Economy typically do not observe borders, we share a collective interest and should work together to address them effectively. Consumers and businesses need to trust and have confidence in order to adopt and benefit from ICTs.

ICT should be used as an instrument for sustainable economic development and social integration. We will leverage ICT to build better and safer communities for the youth, vulnerable and disadvantaged groups so as to provide opportunities to improve their social and economic welfare.

1 Introduction

The APEC Telecommunications and Information Working Group (TEL WG) was established in 1990 and has since met biannually to advance the development of information and communication technology (ICTs) infrastructure and services as well as to promote cooperation, information sharing and the development of effective ICT policies and regulations within the region. It also aims to enhance social and economic development through effective use of ICTs and promote a secure and trusted ICT environment.

The TEL WG has endeavoured to ensure that all our people have affordable access to ICTs and the Internet. In 2000, Leaders set the Brunei Darussalam goal of universal Internet access by 2010; the 2008 TEL Bangkok Declaration affirmed our commitment toward achieving universal access to broadband by 2015; and the 2010 TEL Okinawa Declaration set the ambitious goal of access to next generation high speed broadband by 2020, to further enhance the growth of knowledge-based economies in the APEC region.

The TEL WG continues to support these goals. It will also continue to support the Bogor Goals which strive to achieve open and free trade and investment in the APEC region by 2020, including the fields of ICTs.

Additionally, in 2014, Leaders noted the importance of promoting the Internet Economy, and SOM established an Ad-Hoc Steering Group to guide the discussion on Internet Economy issues. In 2017, Leaders and Ministers welcomed the adoption of the APEC Internet and Digital Economy Roadmap. The TEL WG will greatly contribute to the implementation of this Roadmap, including but not limited to areas, such as infrastructure development, ICT trust and security, and digital inclusion, in order to advance human-centric Internet and digital economy.

In 2018, the TEL WG conducted a Mid-Term Review of this Strategic Action Plan to examine the progress made in its implementation and identify essential tasks to do for post-2018. This Mid-Term Review enabled the TEL WG to reprioritize its undertakings in response to the rapid advancement in ICTs, such as artificial intelligence, 5G, big data, and the internet of things. The review also allowed TEL WG to align with the guidance from Leaders, including the strengthened focus on promoting sustainable, innovative and inclusive growth through ICT development and applications.

The TEL WG conducts its work programme through the following steering groups:

- Liberalization Steering Group (LSG);
- ICT Development Steering Group (DSG); and
- Security and Prosperity Steering Group (SPSG).

The steering groups propose and implement projects that address priorities set by both Telecommunications and Information Ministers and Leaders.

2 Vision and Objective

By 2020, APEC has established an ICT ecosystem, characterized by an integrated, seamless, secure, trusted and innovative ICT infrastructure, services and applications; widespread use of ICT in all sectors; and improved ICT skills and digital literacy which will enable APEC to attain regional economic integration, economic transformation and growth, and physical, institutional and people-to-people connectivity and other APEC

goals.

The TEL WG aims to improve the availability and productive use of ICT infrastructure in the Asia-Pacific region, to promote regional integration and connectivity and to stimulate robust, sustainable, inclusive and secure economic growth.

3 TEL WG Scope

The TEL WG consists of member economy policy makers, regulators and experts, working with the private sector, academia, and agreed stakeholders. The expected contributions of the TEL WG fall into three broad categories: fields where the TEL WG has a core competency, where others can contribute their experiences in using ICTs, or on the intersection of ICTs with the broader economic and social benefits of the Digital Economy.

3.1 TEL WG Core Competencies: The expertise and core competencies of the TEL WG shall relate to policies and regulation of information and communications infrastructures and services across the region. The TEL WG members are encouraged to pursue a range of activities, such as conducting studies, workshops, information exchanges, and capacity building, to advance goals such as enhancing cooperation and improving regulatory and policy environments.

3.2 ICT Adoption: As ICTs become ubiquitous, their benefits are realized by adoption and effective use in many fields. The TEL WG members are encouraged to share ideas or collaborate with other APEC fora and experts who may benefit from uses of ICTs. Examples of such fields include: trade facilitation, logistics, electronic and digital commerce, healthcare and aging, education and human resources, accessibility for persons with disabilities, disaster risk reduction and management, environment and earth sciences, science and technology, and other fields.

3.3 The Digital Economy and the Internet Economy: The Digital Economy is a dynamic ecosystem representing complex interactions of government laws and policies, private sector business, and individual behaviours. Right now the Internet Economy is playing an increasingly significant role in promoting innovative development and empowering inclusive economic participation. TEL WG is committed to contribute to the 2014 APEC Leaders' instruction on pushing forward APEC Initiatives of Cooperation to promote the Internet Economy.

4 Guiding Principles

The TEL WG aims to promote improvement of ICT infrastructure in the region by conducting studies, workshops, exchanging information, and capacity building, among others.

In order to fulfil the vision and objectives, the economies of APEC should be guided by the following principles;

- Commitment and willingness of member economies to address issues identified by the TEL WG;
- Active participation of member economies in the TEL WG's activities;
- Sharing of information and experiences;

- Identification of capacity building needs and necessary resources;
- Development and implementation of projects and initiatives to support the overarching APEC objectives; and
- Engagement and partnership with relevant multilateral and multi-stakeholder organisations as well as with the private sector.

5 Priority Areas

In 2014, the TEL WG reviewed the APEC TEL WG Strategic Action Plan 2010-2015 to take into consideration the recent priorities and decisions of the Leaders and Ministers, as well as the recommendation of the APEC Business Advisory Council (ABAC).

Over the past five years, the TEL WG has focused on enhancing telecommunications connectivity as a necessary precursor to the development of a robust regional Digital Economy. With a range of connectivity initiatives now underway across member economies, the focus of the TEL WG is now shifting to address the question of how to capture the substantial economic and social benefits associated with the smart use of ICTs.

The 10th Ministerial Meeting on Telecommunications and Information (APEC TELMIN10) endorsed the APEC TEL Strategic Action Plan 2016-2020 with the following Priority Areas:

5.1 Develop and support ICT innovation

The TEL WG will continue to promote infrastructure investment, connectivity and support the productive and innovative use of ICTs in line with technological trends. It will champion strategic opportunities for new ICTs and services, and will sponsor leadership on ICTs by bringing together ICT leaders from among stakeholder groups to share knowledge and form collaborative partnerships. TEL WG will explore ways ICTs can address emerging challenges such as disaster risk reduction and management, social responsibility, and help foster resilient, diverse, inclusive, and prosperous economies.

5.2 Promote a secure, resilient and trusted ICT environment

The TEL WG will continue to work to enhance trust and confidence in the use of ICTs by promoting the importance of cyber security, collaboration and cooperation, as well as the dissemination of knowledge. These support the capacity of all relevant stakeholders in the APEC economies to manage risks, create resilient networks, and facilitate a trusted environment for transactions and communications.

5.3 Promote regional economic integration

The TEL WG will continue to work in support of regional economic integration by promoting connectivity, regulatory coherence and technical harmonisation. This includes physical, institutional, and people-to-people as well as online connectivity ¹ to address relevant emerging issues. TEL will advance measures which promote interoperability and trans-border cooperation.

¹ "Online connectivity" in this Strategic Action Plan is not meant to create a new pillar of connectivity but, for the purpose of APEC TEL WG only, to promote studies, workshops, information sharing and capacity building relating to ICT Connectivity in accordance with the APEC Connectivity Blueprint for 2015-2025 endorsed by Leaders in 2014.

5.4 Enhance the Digital Economy and the Internet Economy

The TEL WG will continue to work in support of the development of a vibrant Digital Economy with a focus on the Internet Economy. In order to promote smart, green, creative, inclusive and sustainable development of the economy, the TEL WG also supports raising the overall level of ICT industry development and the extensive integration of ICTs with other industries.

5.5 Strengthen cooperation

The TEL WG will engage with groups within APEC and other fora to consider how to apply digital technologies and issues arising from their application. The TEL WG will also engage with groups outside APEC to maximise synergies, harness resources and minimize duplication between the work of these groups and that of TEL.

6 Implementation

The following table identifies actions to address the Priority Areas identified in section 5²:

1. Develop and Support ICT Innovation		
<i>The TEL WG will continue to promote infrastructure investment, connectivity and support the productive and innovative use of ICTs in line with technological trends. It will champion strategic opportunities for new ICTs and services, and will sponsor leadership on ICTs by bringing together ICT leaders from among stakeholder groups to share knowledge and form collaborative partnerships. TEL WG will explore ways ICTs can address emerging challenges such as disaster risk reduction and management, social responsibility, and help foster resilient, diverse, inclusive, and prosperous economies.</i>		
No.	Objectives	Actions
1.1	Promote innovation and value creation in ICTs	<ul style="list-style-type: none"> a) Strengthen cooperation in the field of research into new business models based on innovative use of ICTs. b) Facilitate cooperation with stakeholders. c) Promote policy and regulatory cooperation to enable ICT innovation, economic growth and address convergence, new services and changes in use. d) Promote availability and use of open data. e) Share experiences and best practices on social and economic benefits from investment and liberalization of ICT infrastructure and services. f) Promote the use of ICTs to improve living standards of citizens, including disabled people and socially vulnerable groups.
1.2	Continuous improvement in connectivity, including access to broadband	<ul style="list-style-type: none"> a) Exchange ideas and experiences on practical approaches for improving access to broadband services. b) Explore ways to increase availability, accessibility and affordability of ICTs for the underserved or unserved groups. c) Promote access to high-speed next generation broadband networks and services.
1.3	Enhanced digital literacy and improvement of citizens' capability to fully participate in the Digital Economy	<ul style="list-style-type: none"> a) Identify and share best practice approaches to improve digital literacy of citizens, <u>including but not limited to areas such as education, training and human resource development.</u> b) Exchange policies on improving access to ICTs in schools, libraries, etc. c) Promote creativity among ICT users to encourage innovation.

²These include actions which have been endorsed by the TEL WG, as well as proposed future work under consideration, and initiatives which are currently on-going. In 2018, these actions are evaluated and modified in line with current APEC priorities and ICT development.

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1.4	Greater adoption of ICTs within APEC economies	a) Identify and share best practices and strategies to encourage adoption of ICT services. b) Explore ways to promote a culture or system that enable entrepreneurship and innovation. Promote the development of entrepreneurship in the domain of internet.
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2. Promote a Secure, Resilient and Trusted ICT Environment		
<i>The TEL WG will continue to work to enhance trust and confidence in the use of ICTs by promoting the importance of cyber security, collaboration and cooperation, as well as the dissemination of knowledge. These support the capacity of all relevant stakeholders in the APEC economies to manage risks, create resilient networks, and facilitate a trusted environment for transactions and communications.</i>		
No.	Objectives	Actions
2.1	Enhanced resilience of critical domestic infrastructure	a) Promote understanding of the importance of how greater connectivity impacts critical domestic infrastructure and the approaches to enhancing the resilience of critical domestic infrastructure.
2.2	Greater capacity to enhance security and manage cyber risks	a) Support cyber security competency for ICT professionals and consumers. b) Encourage information sharing relating to emerging cyber security threats and challenges, and approaches for managing cyber risks.
2.3	Increased awareness on cyber security	a) Engage governments, the private sector, other APEC fora as well as other relevant organizations to raise cyber security awareness. b) Promote awareness among the general public through activities such as the APEC Cyber Security Awareness Day.
2.4	Intensified promotion of secure and trusted use of ICTs	a) Share information and <u>recommendations to combat malicious activities aim at consumers.</u> b) <u>Share information and recommendations to combat malicious activities aim at enterprises, especially in relation to handling of user information.</u> c) Promote consumer confidence in the use of ICTs.
2.5	Increased collaboration among APEC economies	a) Share domestic developments and best practices to support capacity building in the region. b) Foster a common understanding for counter measures to cyber threats and measures to protect privacy in the APEC region.

3. Promote Regional Economic Integration		
<i>The TEL WG will continue to work in support of regional economic integration by promoting connectivity, regulatory coherence and technical harmonisation. This includes physical, institutional, and people-to-people as well as online connectivity to address relevant emerging issues. TEL will advance measures which promote interoperability and trans-border cooperation.</i>		
No.	Objectives	Actions
3.1	Enhanced physical connectivity	<ul style="list-style-type: none"> a) Promote quality of ICT infrastructure. b) Promote diversity in the use of ICTs.
3.2	Enhanced institutional connectivity	<ul style="list-style-type: none"> a) Promote conducive regulatory environments. b) Promote interoperability between APEC economies. c) Promote development and use of global data standards. d) Reduce mobile roaming rates between APEC economies. e) Research on promoting the free flow of information.
3.3	Enhanced people-to-people connectivity	<ul style="list-style-type: none"> a) Promote a common ICT Skills Recognition Framework (ICT SRF) within the APEC region.
3.4	Enhanced online connectivity	<ul style="list-style-type: none"> a) Promote open data in APEC region. b) Promote development of cross-border e-commerce. c) Promote the Internet of Things (IoT) and application-to-application connectivity. d) Promotion of digital content within the APEC region. e) Promote greater adoption of IPv6.

4. Enhance the Digital Economy and the Internet Economy

The TEL WG will continue to work in support of the development of a vibrant Digital Economy with a focus on the Internet Economy. In order to promote smart, green, creative, inclusive and sustainable development of the economy, the TEL WG also supports raising the overall level of ICT industry development and the extensive integration of ICTs with other industries.

No.	Objectives	Actions
4.1	Enhanced ICT industry ecosystem	<ul style="list-style-type: none"> a) Promote the enhancement of ICT hardware, software and networks. b) Promote the development of sustainable smart cities in the APEC region. c) Promote business use of new-generation mobile communication. d) Promote efficient use of spectrum resources. e) Promote measures that are conducive to the ICT industry to support a robust Digital Economy.
4.2	Accelerated evolution of traditional industries through comprehensive use of ICTs	<ul style="list-style-type: none"> a) Encourage the use of ICTs to transform business practices in traditional industries, <u>including through engagement between the ICT sector and other industries.</u> b) Share policy experiences on ICT application.
4.3	Development of new industries	<ul style="list-style-type: none"> a) Promote the development of new industries <u>and sustainable smart cities</u> through the application of ICTs.
4.4	Enhanced application of ICTs in services	<ul style="list-style-type: none"> a) Promote the development of ICT-enabled commercial and social services. b) Promote a favourable environment for innovation in new economic sectors.

5. Strengthen Cooperation		
<i>The TEL WG will engage with groups within APEC and other fora to consider how to apply digital technologies and issues arising from their application. The TEL WG will engage with groups outside APEC to maximise synergies, harness resources and minimize duplication between the work of these groups and that of TEL.</i>		
No.	Objectives	Actions
5.1	Collaboration within the APEC groups- provide thought leadership and coordination of, as well as secondary advice on ICTs related activities within APEC	Engage and collaborate with relevant APEC groups including the: <ul style="list-style-type: none"> a) Committee on Trade and Investment- to strengthen and contribute to regional economic integration; b) <u>Fora engaged in implementation of the APEC Internet and Digital Economy Roadmap;</u> c) Electronic Commerce Steering Group and the Counter Terrorism <u>Working Group</u>- to promote a trusted ICTs environment; d) Emergency Preparedness Working Group- to promote the benefits of and share policy options for using ICTs for emergency preparedness and disaster prevention/mitigation; e) Health Working Group- to identify effective e- Health applications; f) Group on Services- to promote trade and investment liberalisation and facilitation (TILF) issues related to trade in ICTs services; g) Finance Ministers' Process (FMP)- to foster awareness of mobile banking activities to better reach the unserved population due to geographic or economic/ financial barriers; h) SME Working Group- to promote the development of SMEs by increasing the opportunity of SMEs to access the Internet and reduce the cost of using it; and i) <u>Human Resource Development Working Group- to promote ICT for improving workforce employability and empowering individuals in the digital age.</u>
5.2	Collaboration with groups external to APEC to maximise synergies, harness resources and minimise duplication of work undertaken by APEC TEL	<ul style="list-style-type: none"> a) Gather ICT leaders from among stakeholders to share knowledge and form cross-regional collaborative partnerships. b) Collaboration with the ICT industry, relevant multilateral organisations and Internet-related technical and administrative bodies on issues.

ANNEX

1. Develop and Support ICT Innovation			
<p><i>The TEL WG will continue to promote infrastructure investment, connectivity and support the productive and innovative use of ICTs in line with technological trends. It will champion strategic opportunities for new ICTs and services, and will sponsor leadership on ICTs by bringing together ICT leaders from among stakeholder groups to share knowledge and form collaborative partnerships. TEL WG will explore ways ICTs can address emerging challenges such as disaster risk reduction and management, social responsibility, and help foster resilient, diverse, inclusive, and prosperous economies.</i></p>			
No.	Objectives	Actions	Possible Initiatives
1.1	Promote innovation and value creation in ICTs	a) Strengthen cooperation in the field of research into new business models based on innovative use of ICTs.	<ul style="list-style-type: none"> ■ Study and share experiences on various citizen-centric ICT applications. ■ Information sharing on mechanisms to address emerging challenges, e.g. disaster risk reduction and management, aging populations and Green ICTs.
		b) Facilitate cooperation with stakeholders.	
		c) Promote policy and regulatory cooperation to enable ICT innovation, economic growth and address convergence, new services and changes in use.	<ul style="list-style-type: none"> ■ Share experiences on policies to support transitions to next generation ICTs, e.g. 4K/ 8K, wearable devices and <u>Interactive Technologies</u>, <u>Artificial Intelligence (AI)</u>, <u>Internet of Things</u>, transition to fiber, <u>5G</u>, <u>Blockchain</u> etc.
		d) Promote availability and use of open data.	<ul style="list-style-type: none"> ■ E.g. e-Gov, e-Learning, e-Health, e-Commerce, m- Gov, emergency communications, logistic, transportation, energy management, environment monitoring.
		e) Share experiences and best practices on social and economic benefits from investment and liberalization of ICT infrastructure and services.	<ul style="list-style-type: none"> ■ <u>E.g. eliminate market entry barriers, promote competition policy and light-touch regulation that encourage innovation.</u>

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		f) Promote the use of ICTs to improve living standards of citizens, including disabled people and socially vulnerable groups.	
1.2	Continuous improvement in connectivity, including access to broadband	a) Exchange ideas and experiences on practical approaches for improving access to broadband services.	<ul style="list-style-type: none"> ■ <u>Exchange best practices on guaranteeing the quality standards of ICT services.</u> ■ <u>Including but not limited to coverage of basic telecommunications and efficient infrastructure deployment. E.g. infrastructure sharing policies, efficient spectrum allocation.</u>
		b) Explore ways to increase availability, accessibility and affordability of ICTs for the underserved or unserved groups.	<ul style="list-style-type: none"> ■ Share practical experiences in universal broadband access and use of new ICT services that focus on remote areas. ■ <u>Exchange best practices to bridge digital gaps in terms of age, gender, education and income levels etc.</u>
		c) Promote access to high-speed next generation broadband networks and services.	<ul style="list-style-type: none"> ■ Exchange experiences and best practices to establish policies and incentives to provide faster speeds with appropriate quality of service.
1.3	Enhanced digital literacy and improvement of citizens' capability to fully participate in the Digital Economy	a) Identify and share best practice approaches to improve digital literacy of citizens, <u>including but not limited to areas such as education, training and human resource development.</u>	<ul style="list-style-type: none"> ■ Share information on awareness-raising activities regarding the importance of digital literacy. ■ <u>Explore measures to promote inclusive digital learning through ICTs.</u> ■ <u>Empower users with information and capacity building activities to educate users on digital practices.</u>
		b) Exchange policies on improving access to ICTs in schools, libraries, etc.	<ul style="list-style-type: none"> ■ Identify benefits and potential risks of new technologies and educate consumers accordingly.

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		c) Promote creativity among ICT users to encourage innovation.	
1.4	Greater adoption of ICTs within APEC economies	a) Identify and share best practices and strategies to encourage adoption of ICT services.	<ul style="list-style-type: none"> ■ Identify non-infrastructure barriers which prevent individuals and companies from utilizing ICTs. ■ Explore or promote measures to mitigate barriers to ICT utilization.
		b) Explore ways to promote a culture or system that enable entrepreneurship and innovation.	<ul style="list-style-type: none"> ■ <u>Share practices that support MSME/startups in using ICTs to enhance productivities, and competitiveness.</u>
		c) Promote the development of entrepreneurship in the domain of internet.	<ul style="list-style-type: none"> ■ Enhance the use of Internet to provide entrepreneurial opportunities.

2. Promote a Secure, Resilient and Trusted ICT Environment			
<i>The TEL WG will continue to work to enhance trust and confidence in the use of ICTs by promoting the importance of cyber security, collaboration and cooperation, as well as the dissemination of knowledge. These support the capacity of all relevant stakeholders in the APEC economies to manage risks, create resilient networks, and facilitate a trusted environment for transactions and communications.</i>			
No.	Objectives	Actions	Possible Initiatives
2.1	Enhanced resilience of critical domestic infrastructure	a) Promote understanding of the importance of how greater connectivity impacts critical domestic infrastructure and the approaches to enhancing the resilience of critical domestic infrastructure.	<ul style="list-style-type: none"> ■ Promote public-private partnership within economies for managing critical domestic infrastructure. ■ Encourage APEC economies to exchange best practices towards raising the resilience of critical infrastructure (<u>such as submarine cable</u>).
2.2	Greater capacity to enhance security and manage cyber risks	a) Support cyber security competency for ICT professionals and consumers. b) Encourage information sharing relating to emerging cyber security threats and challenges, and approaches for managing cyber risks.	<ul style="list-style-type: none"> ■ Share best practices on competency standards for ICT professionals. ■ Sharing of knowledge among Computer Emergency Response Teams (CERT) or Computer Security Incident Response Teams (CSIRT) in APEC economies. ■ Highlight emerging challenges and opportunities from the use of new technologies.
2.3	Increased awareness on cyber security	a) Engage governments, the private sector, other APEC fora as well as other relevant organizations to raise cyber security awareness. b) Promote awareness among the general public through activities such as the APEC Cyber Security Awareness Day.	

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2.4	Intensified promotion of secure and trusted use of ICTs	a) Share information and <u>recommendations to combat malicious activities aim at consumers.</u>	<ul style="list-style-type: none"> ■ In particular, in relation to child online protection.
		b) <u>Share information and recommendations to combat malicious activities aim at enterprises, especially in relation to handling of user information.</u>	
		c) Promote consumer confidence in the use of ICTs.	
2.5	Increased collaboration among APEC economies	a) Share domestic developments and best practices to support capacity building in the region.	<ul style="list-style-type: none"> ■ Encourage emergency response organizations with advanced network security capacity to provide training and technical assistance. ■ Strengthen operational competence through Computer Emergency Response Team (CERT) collaboration.
		b) Foster a common understanding for counter measures to cyber threats and measures to protect privacy in the APEC region.	

3. Promote Regional Economic Integration			
<i>The TEL WG will continue to work in support of regional economic integration by promoting connectivity, regulatory coherence and technical harmonisation. This includes physical, institutional, and people-to-people as well as online connectivity to address relevant emerging issues. TEL will advance measures which promote interoperability and trans-border cooperation.</i>			
No.	Objectives	Actions	Possible Initiatives
3.1	Enhanced physical connectivity	a) Promote quality of ICT infrastructure.	<ul style="list-style-type: none"> ■ Promote best practice planning and implementation to enable long-lasting and effective financial support for network infrastructure projects. ■ Strengthen access in rural areas. ■ Encourage information sharing on mechanisms that enhance and streamline infrastructure approval processes, while also enhancing the expected durability and quality of ICT infrastructure. ■ <u>Share measures to promote an enabling and competitive environment with pro-investment policies for the development of ICT infrastructure.</u>
		b) Promote diversity in the use of ICTs.	<ul style="list-style-type: none"> ■ Promote deployment of diversified systems, such as multi-language email address technology. ■ Promote accessibility for vulnerable and disadvantaged groups including persons with disabilities.
3.2	Enhanced institutional connectivity	a) Promote conducive regulatory environments.	<ul style="list-style-type: none"> ■ Promoting measures to improve transparency and predictability. ■ Share experiences concerning: <ul style="list-style-type: none"> ❖ Regulatory and policy making procedures and processes; ❖ Regulatory issues including the areas of competition and consumer policies; and ❖ Free Trade Area (FTA)/Economic Partnership Agreement (EPA) issues. ■ Explore and elaborate regulatory approaches on statistical evaluation of ICTs' social and economic effects.

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		<p>b) Promote interoperability between APEC economies.</p>	<ul style="list-style-type: none"> ■ Promote technical conformity assessments and equivalence of technical requirements. ■ Explore and elaborate on principles. ■ Exchange information on new technologies and issues, and encourage participation in TEL WG MRAs. ■ Engage with other fora on interoperability principles and consider applicability. ■ Promote the development of common applications to support interoperability.
		<p>c) Promote development and use of global data standards.</p>	<ul style="list-style-type: none"> ■ Survey successful uses of data standards. ■ Explore approaches to the development of data standards. ■ Engage with other fora regarding meaningful applications of data standards. ■ Collaborate with ECSG (e-Commerce Steering Group).
		<p>d) Reduce mobile roaming rates between APEC economies.</p>	<ul style="list-style-type: none"> ■ Explore the principles and measures to <u>increase transparency and</u> reduce mobile roaming rates among APEC economies.
		<p>e) Research on promoting the free flow of information.</p>	<ul style="list-style-type: none"> ■ Research and share experiences of network neutrality with a view of understanding how this impacts on free information flow. ■ Identify and share experiences on how to promote the free flow of information.
3.3	Enhanced people- to-people connectivity	<p>a) Promote a common ICT Skills Recognition Framework (ICT SRF) within the APEC region.</p>	<ul style="list-style-type: none"> ■ Explore the development of a common ICT SRF for the APEC region to improve mobility opportunities for ICT-professionals.

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3.4	Enhanced online connectivity	a) Promote open data in APEC region.	<ul style="list-style-type: none"> ■ Explore approaches to the development of open data policy, including common data format for open data.
		b) Promote development of cross-border e-commerce.	<ul style="list-style-type: none"> ■ Study issues concerning cross border e-commerce in the APEC region, including interoperability.
		c) Promote the Internet of Things (IoT) and application-to-application connectivity.	<ul style="list-style-type: none"> ■ Encourage APEC economies to discuss IoT development related issues such as policies and regulatory measures, technological innovation and standardisation development, innovative business models, etc. ■ Study and share experiences on how to promote connectivity among applications used by different sectors, e.g. between disaster and e-health.
		d) Promotion of digital content within the APEC region.	<ul style="list-style-type: none"> ■ Promote exchange and development of digital content (e.g. broadcast programmes, video, games, applications, etc.) between member economies.
		e) Promote greater adoption of IPv6.	<ul style="list-style-type: none"> ■ Encourage implementation of the APEC TEL IPv6 Guidelines.

4. Enhance the Digital Economy and the Internet Economy			
<i>The TEL WG will continue to work in support of the development of a vibrant Digital Economy with a focus on the Internet Economy. In order to promote smart, green, creative, inclusive and sustainable development of the economy, the TEL WG also supports raising the overall level of ICT industry development and the extensive integration of ICTs with other industries.</i>			
No.	Objectives	Actions	Possible Initiatives
4.1	Enhanced ICT industry ecosystem	a) Promote the enhancement of ICT hardware, software and networks.	
		b) Promote the development of sustainable smart cities in the APEC region.	
		c) Promote business use of new-generation mobile communication.	<ul style="list-style-type: none"> ■ <u>Explore approaches to support the deployment of 5G networks and the innovative use of 5G technologies.</u>
		d) Promote efficient use of spectrum resources.	
		e) Promote measures that are conducive to the ICT industry to support a robust Digital Economy.	<ul style="list-style-type: none"> ■ Encourage developments that promote the market, including innovative ICT applications.
4.2	Accelerated evolution of traditional industries through comprehensive use of ICTs	a) Encourage the use of ICTs to transform business practices in traditional industries, <u>including through engagement between the ICT sector and other industries</u>	<ul style="list-style-type: none"> ■ <u>Information sharing on ICT services and platforms that enable traditional industries to adapt and transform.</u>
		b) Share policy experiences on ICT application.	
4.3	Development of new industries	a) Promote the development of new industries <u>and sustainable smart cities</u> through the application of ICTs.	<ul style="list-style-type: none"> ■ E.g. the use of sensor networks, smart grids, big data and data analytics, digital identity authentication, etc.
4.4	Enhanced application of ICTs in services	a) Promote the development of ICT-enabled commercial and social services.	<ul style="list-style-type: none"> ■ E.g. internet banking, e-commerce, logistics, medical services, education services, culture services, etc.

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		b) Promote a favourable environment for innovation in new economic sectors.	■ <u>Promote multi-stakeholder dialogue on internet governance.</u>
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5. Strengthen Cooperation			
The TEL WG will engage with groups within APEC and other fora to consider how to apply digital technologies and issues arising from their application. The TEL WG will engage with groups outside APEC to maximise synergies, harness resources and minimize duplication between the work of these groups and that of TEL.			
No.	Objectives	Actions	Proposed Initiatives
5.1	Collaboration within the APEC groups- provide thought leadership and coordination of, as well as secondary advice on ICTs related activities within APEC	Engage and collaborate with relevant APEC groups including the: a) Committee on Trade and Investment- to strengthen and contribute to regional economic integration; b) <u>Fora engaged in implementation of the APEC Internet and Digital Economy Roadmap</u> ; c) Electronic Commerce Steering Group and the Counter Terrorism <u>Working Group</u> - to promote a trusted ICTs environment; d) Emergency Preparedness Working Group- to promote the benefits of and share policy options for using ICTs for emergency preparedness and disaster prevention/ mitigation; e) Health Working Group- to identify effective e-Health applications; f) Group on Services- to promote trade and investment liberalisation and facilitation (TILF) issues related to trade in ICTs services; g) Finance Ministers' Process (FMP)- to foster awareness of mobile banking activities to better reach the unserved population due to geographic or economic/ financial barriers; h) SME Working Group- to	<ul style="list-style-type: none"> ■ Encourage the development of information resources to assist SMEs. ■ Share best practices on informatization. ■ <u>Support ECSG in encouraging APEC economies to participate in international data protection systems.</u> ■ <u>Promote good regulatory practices in the preparation, adoption and application of standards, technical regulations and conformity assessment procedures as well as to capacity building programs.</u>

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		<p>promote the development of SMEs by increasing the opportunity of SMEs to access the Internet and reduce the cost of using it; and</p> <p>i) <u>Human Resource Development Working Group - to promote ICT for improving workforce employability and empowering individuals in the digital age.</u></p>	
5.2	<p>Collaboration with groups external to APEC to maximise synergies, harness resources and minimise duplication of work undertaken by APEC TEL</p>	<p>a) Gather ICT leaders from among stakeholders to share knowledge and form cross- regional collaborative partnerships.</p> <p>b) Collaboration with the ICT industry, relevant multilateral organisations and Internet- related technical and administrative bodies on issues.</p>	<p>■ Including:</p> <ul style="list-style-type: none"> ❖ Developing, implementing and promoting relevant cyber security initiatives; ❖ Promoting ICTs for Corporate Social Responsibility; ❖ Reducing international communications cost; and ❖ Data protection and privacy.