Meaningful Broadband FAQ

Meaningful Broadband is the *zeitgeist* or "meta-factor" of Digital Divide Institute that cross-cuts everything we do. It is not just a theory but an emergent model, slated for testing in the real world. This FAQ provides current answers to general, non-technological questions about the Meaningful Broadband model.

What is meant by the term Meaningful Broadband?

Meaningful Broadband, as envisioned by Digital Divide Institute, refers to establishment of "national broadband ecosystems" that are optimally affordable, usable and empowering to users. By "ecosystems" we refer to co-deployment of many new technologies that involve the interaction between supply and demand. Such ecosystems are designed to elicit "meaningful use," as measured by their impact on citizen behavior. Such ecosystems would not simply imitate legacy systems of communications copied from the West, but be "context relevant" to low-income majority populations of emerging markets. Telecommunications in the West was designed primarily to achieve ubiquitous telephony. Telecommunications in emerging markets will serve purposes not yet imagined.

OK, what's the overview?

The purpose of Meaningful Broadband is to align a nation's broadband deployment with socioeconomic and environmental reforms advocated by host governments. Unlike other approaches to broadband deployment, our primary focus is not *supply* – e.g. extending access to broadband infrastructures to remote areas – but we emphasize the creation of *demand.* We help nations establish demand for "meaningful use" At their invitation, we help governments intervene into the difficult process by which a nation seeks to restructure its telecommunications industry to make the best possible use of broadband for the majority of its citizens, e.g. reducing their costs, increasing their revenue, transmitting job-related skills to them, and promoting their wellness, strengthening their cultural values and enhancing emotional balance. All this can happen on a commercially sustainable basis that can be scaled upon hundreds of millions of users. Amid this restructuring, we believe that the majority of the population in poor nations, once ignored by global market forces and investors, could be uplifted through the internet-enabled convergence of all electronic media. A new kind of economics undergirds this approach. We call it "MOPenomics" – economics for the Middle of the (economic) Pyramid of the world economy.

Aren't you advocating censorship by promoting "meaningful use?"

No. Our approach *pre-empts censorship.* It does so by embedding responsible use of the internet into the shaping of broadband ecosystems. It must be achieved with full cooperation between sectors of business and governments, which both have an interest in reducing censorship as much as possible. We believe that market forces can be voluntarily induced to align with government reformers to achieve this optimal impact. As a result political forces are less likely to impose censorship.

Aren't you duplicating what the ITU (International Telecommunications Union) is already doing?

No we are not. In fact, DDI supports and applauds the ITU and ITU/UNESCO's Global Broadband Commission for its efforts to help developing nations establish broadband policies and inter-ministerial broadband policymaking structures. We complement their efforts. But ITU cannot take on the big topic of broadband development all by itself. The truth is, most ITU-designed policies never get implemented -- because ITU does not claim to consider how to establish the *political will* to implement ITU's own policy recommendations. Their policy formulations do not address messy informal realities involved in achieving fundamental reforms of telecommunications sectors. To DDI, the challenge is to go deep into the modus operandi in each client nation, helping them avoid "digital cronyism," whereby broadband policies unwittingly reinforce dominant commercial or political forces while ignoring rampant corruption. Digital cronyism could actually widen gaps between rich and poor.

Aren't you taking a utopian view of changing the messy world of telecommunications?

Well, two big, "messy" nations – Thailand and Indonesia – have already adopted Meaningful Broadband. It is because we bowed to the short-term agendas that drive each nation's key players in both business and politics – while still innovating for the long term. Our views are backed up by international best practices and intellectual capital from the world's finest universities, as well as the top national universities in the countries where we operate. **Five domains of research** (technology, public policy, management, finance, and ethics) are being combined and balanced to produce this model-- which then become subject to test-market deployments which quantify results.

Who Authored this Model?

The lead author is Craig Warren Smith, a former professor of Science and Technology at Harvard's Kennedy School of Government. Meaningful broadband emerged from a 2001-2004 academic task force at Harvard and MIT overseen by Prof Smith, when he was at Harvard and also a research fellow at MIT Media Lab. At that time was under the supervision of Professor Jeffrey Sachs (at Harvard) and Nicholas Negroponte, (at MIT), whose perspectives both contributed to Meaningful Broadband. Since then, dozens of academic, corporate and governmental thought leaders have contributed and moved it towards implementation in emerging markets. Two individuals that have had an enormous influence in recent years are Prof Prasit Prapinmongkolkarnas, former chairman of Thailand's telecommunications regulatory agency, and Ilham A Habibie, who is the DDI-Indonesia chairman in Indonesia.

How does this model differ from other approaches to broadband policy being adopted by developing nations?

As evidenced by this list of more than 100 national broadband policies, https://docs.google.com/file/d/0B-4dz7rjxqNmbGs2eEhLOTdsRjg/edit , most existing broadband-deployment models are based on countries like South Korea, Singapore or Australia whose circumstances do not apply to the realities faced by most low-income countries, large and small. They are mostly "trickle-down" models which are designed to serve affluent urban sectors and institutions. Unlike these, our model is not just a government "policy," but a framework for mobilizing all sectors in a country-- governmental, commercial, academic, NGOs, and media – and it stimulates a continual revolution in the country by which a constant flow of "next generation" digital technologies are introduced to continually update each nation's broadband ecosystem. Its focus is not just on rapid broadband deployment but on "meaningful" deployments in which benefits to the nation are defined in ethical as well as economic terms. The model not only involves innovative policy-formation but a way of implementing these policies by engaging the thinking of innovators in each country – including thought leaders living outside the country. Indonesia provides the best example for how this model can work in the real world.

How does this model "close the Digital Divide?"

Our model shows how the “bottom four billion” - those who have been excluded from global markets till now -- could be feasibly integrated into the global market economy, in ways that bring “equitable growth” to each participating nation. As you can observe by looking over sites such as www.internet.org, barriers to affordable connectivity may be reduced by a factor of 100 within the next decade. Furthermore, the emissions impact of broadband has been dramatically reduced by smart electrification and new designs of data centers and technologies can dramatically reduce electrical impacts even as data use soars.

The model draws upon the lessons-learned and best practices of the 15-year global movement to close the Digital Divide -- a process with six phases. It replaces piecemeal close-the-Divide strategies with strategies that are holistic, cross-sectoral and technologically up-to-date. It reflects the new consensus in developing countries that the only way to bring full benefits of ICT to majority populations of developing countries is by massive, rapid and “meaningful” deployment of broadband.

Aren’t there financial barriers that prevent the world’s “lower middle class” from receiving the benefits of broadband?

Not anymore. We believe that virtually all nations – even many of the least developed countries -- can now mobilize the investments they need to fund Meaningful Broadband. They key lies in mixing money from commercial, governmental and commercial sources, which in some cases can be augmented by foreign aid (Official Development Assistance.) Nations can also put their taxation system to good use by applying their “universal services” funds to Meaningful Broadband. Furthermore, small clusters of nations can form cost-cutting coalitions to effectively enhance their bargaining power with large multinational corporations.

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What is our definition of “broadband?”

Broadband is not just defined by high speeds but by the *breadth* of internet – broad enough to empower citizens, and institutions in light of their own distinct context. Broadband is not just an upgrade to an older technology but an altogether new technology that introduces new and uncertain impacts on human behavior – for better or worse. In our use of the term, broadband does not refer only to wireless or wireline broadband infrastructures but to an *ecosystem* of inter-related broadband-enabled technologies

by which data arrives at the backbone, and then transmitted to users via a Last Mile solutions, e.g. Wimax,.

What is meant by "meaningful?"

Meaningful refers to three key terms, each of which can be subject to measurement: 1) usable, 2) affordable, and 3) empowering. Meaningful also means "adjusted to context." In other words, a technology that fits smoothly and practically into its own environment and which adjusts to the current motivations of users is meaningful. A DDI research team is dedicated to operationalizing the term by producing an index that measures the degree of "meaningfulness "of any technology or mix of technologies.

How does Digital Divide Institute (DDI) promote Meaningful Broadband?

DDI offers a series of services to introduces and develop Meaningful Broadband and Meaningful Broadband Working Groups. At the same time, DDI formulates theories, methodologies, strategic partners (combining multinational and domestic corporations), and formulates innovations on five levels (public policy/ regulation, technology design, management, and ethics) which can help any participating nation to optimize the impact of broadband.

Does the model have a "target population" of users?

While our focus is bringing Meaningful Broadband to entire nations, we emphasize serving the "lower middle class" majority of citizens and enterprises in middle-income developing countries. Our core group of users cannot afford smart phones at current prices, but they are wealthy enough to have at least one basic cell phone in operation in their families. (In general we are talking about families with purchasing power that spreads between $100 per month and $600 per month, based on 2010 dollars measured for purchasing power parity (PPP.)

What is a Meaningful Broadband Working Group (MBWG)?

This is the name for our advisory board in a country where Meaningful Broadband is in development. It is usually overseen by a leading ICT stakeholder, such as the head of an inter-ministerial broadband task force or chairman of the national telecoms regulatory agency. They oversee the development of several reports from Digital Divide Institute that influenced the creation of a national broadband strategy for that nation. In Thailand, the MBWG was composed of CEOs of the five leading telecommunications operators (AIS, DTAC, True, TOT Telecom and CAT Telecom) along with the chairman of the country's independent regulatory agency, National Broadcast and Telecommunications Union. In that country, MBWG has functioned as an advisory body, not a policy-making group, since the reports issued by MBWG represent the analysis of academics, backed by extensive research into domestic and international best practices. In Indonesia, the Meaningful Broadband Working Group is less formal. It has been conducted from the Office of the President (Istana Negara), and serves as a bridge between the nation's President and other national stakeholders.

Can implementing Meaningful Broadband alter national economies?

Meaningful Broadband strategies could affect the overall quality of the economy, as indicated by the chart below, created by Digital Divide Institute using 2011 data, which predicts the difference between two scenarios of broadband deployment: business as usual, versus meaningful broadband.

FACTOR (2015)	BAU (Business As Usual)	MB (Meaningful Broadband)
Penetration Rate (age 13+)	+37% population +17% households	+74% population +54% households
GDP Boost	+0.90%	up to 3.5%
Inequality*	Gini 0.48 High/low 1:65	Gini 0.35 High/low 1:47
Workforce Development	-17% of KEI**	+14% of KEI **
Microfinance Growth	+12%	+320%
Productivity Growth	+7 (in rankings)	+18 (in rankings)
Investments Impacts	+$3 billion	+$9 billion
R&D Impacts	0.26% of GDP	1.5% of GDP
Impact of Stimulus II	+0.80% of GDP	+2.3% of GDP

*Gini Coefficient refers to a quantitative index, ranking nations by their degree of inequality. High/Low refers to the gap between the highest paid 20% of workforce and the lowest paid 20% of workforce.
**KEI = Knowledge Economy Index

As indicated in the chart, MB would serve as a necessary condition for the qualitative reforms which many governments espouse, such as emerging as “knowledge-based economies,” but which are unachievable without broadband. MB could also help a national economy move from an export-focus towards a domestic-market focus, by enabling urban-based enterprises to use cloud computing to facilitate their expansions into the countrywide. Furthermore, the deployment of Meaningful Broadband could produce a more equitable distribution of wealth, e.g. increasing the share of total income for low-income groups (those who currently earn from 60 baht to 300 baht per day) in Thailand. By 2014, this low-income group, who represent 60% of the Thai population, could increase its share of total national income by about 5% within four years as a result of full-scale deployment of Meaningful Broadband.

Why is this needed?

Most broadband polices, imported from advanced nations, do not fit the realities of low-income nations. Yet, the evidence is that next-generation broadband ecosystems could produce a more beneficial effect on national economies in poor countries than in rich ones.

Isn’t broadband by its very nature beneficial to society?

No. Broadband does not qualify as a “public good,”• in the same way as a utility might serve a nation. By contrast, broadband is a moving force, doubling in communications power every year which can bring benefit or harm to a society (or more likely a combination of both). Still in its infancy in emerging markets, broadband is not just another medium of communications but a meta-medium which will eventually encompass all other media. Thus, broadband will not merely convey information but increasingly it will shape behavior of citizens – competing with the power of culture itself. Given the consequences of broadband to society, it is essential that broadband be harnessed by leaders to achieve optimal benefits to society, and to anticipate and mitigate any harmful impacts that would occur if unwise governmental or commercial practices are accelerated through broadband.

What kind of negative impacts could occur if broadband is deployed unwisely?

If guided by unsound public and private policies and any ill-conceived regulatory mechanisms, broadband could accelerate gaps between rich and poor, produce massive net job loss through automation, undermine cultural and spiritual values, accelerate urban sprawl, undermining rural economies, cause widespread addictive behaviors, and deepen a country’s carbon footprint.

What meaningful impacts can be achieved through broadband?

Meaningful broadband properly deployed and funded, could bring equity to emerging markets, scale up microcredit and boost small and medium enterprise (SME) growth, creating a new non-consumerist middle class that could bring stability to fragile economies. Broadband could shift the focus of economies towards human-resources development via lifelong learning, workforce development, It can enable reforms of basic public education as well as introduce informal interactive learning via data apps delivered through mobile devices or a convergence of multiple devices (TV, radio, PCs, phones) linked via broadband. It could cause a reverse emigration from cities back to rural villages. It can transform the agricultural sector and shifts the population away from unprofitable farming or logging and towards eco-tourism. Broadband could enhance the productivity and accountability of government bureaucracies, reducing corruption while strengthening democratic processes from the bottom up. Broadband is essential for extending banking services to the unbanked and in that way it can promote savings and creditworthiness among low-income populations. Broadband could also help citizens in a more general

sense by “unlocking human resources,” enabling citizens to become more creative, open and flexible in their behavior.

Can markets, left to themselves, produce these benefits?

No. Private sector investment and market-development activities are essential but not sufficient to deliver the benefits of broadband. But markets, rather than government bureaucracies, must play the starring role in delivering these benefits. Market forces must be reshaped through public policy, regulation, subsidy and voluntary practice to enhance benefits of broadband as well as to minimize harm. However, none of these positive changes made possible by broadband can emerge without the coordinated and skillful development of complex broadband ecosystems. Perhaps more than any other industry, telecommunications industry must create a new *social compact* which reinvents how business and government sectors share costs and risks of bringing the benefits of broadband to mass populations and institutions.

So is this something that has to be forced onto the private sector?

No. It may surprise you to know that support for meaningful broadband has come more from business than government. Though mobile supply chains have been able to achieve remarkable cell phone penetration without active assistance from government, they have not had corresponding success with broadband. For example, commercial forces need governments’ help to induce cell phone users to upgrade to mobile data services or video-enabled mobile devices or activate high speed government intranets serving local units of the public sector. To fulfill their own ambitious goals for broadband penetration, commercial forces must form alliances with government reformers. They cannot get this help without establishing broadband as a public good, e.g. assuring governments that broadband will have meaningful impacts. To guide this process, Digital Divide Institute will develop a “meaningful technologies index”• that can be used to help regulators, technology designers, and educators distinguish between technologies that help, and those that hinder the welfare of citizens.

Don’t governments jealously control the shaping of broadband policies in ways that serve the entrenched interests of politicians and bureaucrats?

Not necessarily. It is true that governmental interests may seek to prevent reforms needed to bring the full benefits of broadband to a nation. But governmental interests are not monolithic. Reformist politicians and bureaucrats can use the resources of Meaningful Broadband to overcome entrenched forces, just as they have done with the wireless revolution that leapfrogged over the wireline industries. The struggle within governments to bring the benefits of broadband to all citizens is one of the great dramas of the 21st century. Digital Divide Institute wants to help strengthen reform by working through the most credible universities, academic programs and most influential professors. They are in the best position to introduce the innovations needed for Meaningful Broadband.

What outcomes are the expected from Digital Divide Institute?

The critical outcome is that Meaningful Broadband defines what mix of government intervention via tax incentives, regulatory requirements and legal inducements and subsidies (via budgetary and extra-budgetary sources) are needed to stimulate and shape market forces in the telecoms sector --- then we build structures for testing, revising and scaling Meaningful Broadband.

Where and how did the Meaningful Broadband framework emerge?

After 15 years of deliberations and hundreds of conferences on the topic of "digital divide,"• held all over the world, the theme of broadband has emerged as the highest priority among governments, think tanks, business associations, intergovernmental agencies, NGOs, and leading corporations. After years of debate it is now generally accepted by all ICT stakeholders in emerging markets that the key to closing the Digital Divide is to shape the deployment of broadband. The concept follows the 15-year journey of Prof Craig Warren Smith, who is one of the founders of the global movement to close Digital Divide.

How is Chulalongkorn University involved?

Digital Divide Institute-Asia, located within the Center for Ethics of Science and Technology at Chulalongkorn University, first emerged through the interaction between Prof Smith and Dr. Charas Suwanwela, former Chairman of the University Council. Digital Divide Institute's MBWG in Thailand was formally established on February 23, 2007, in an event at the university hosted by Dr. Charas. At this event, various CEOs and regulators responded positively to the invitation to join the Meaningful Broadband Working Group. At the same time, the university's Center for Ethics of Science and Technology, led by Prof Soraj Hongladarom, accepted the role of Secretariat for MBWG. Craig Warren Smith is in residence as a Visiting Professor at Chulalongkorn, and is responsible for directing a team of

researchers who form the DDI Secretariat. Currently, our next step in Thailand is for Chula to host a significant event in October 2014: an international gathering of social science researchers focused on establishing a new academic field called Broadband Ethics.

Who funds DDI and Meaningful Broadband?

For a full list of DDI's past supporters go http://www.digitaldivide.org/#!services/c250t. So far, direct and in-kind funding for Meaningful Broadband has come from Nokia Siemens Network, from Chulalongkorn University, from Alcatel-Lucent, from the National Broadcast and Telecommunications Commission (Thailand), Cisco Systems, and True Corporation. Additional in-kind funding for Meaningful Broadband in Indonesia has come from the Republic of Indonesia (Minkominfo), The Habibie Center, BRI (a state-owned bank emphasizing microcredit) and a coalition of participating universities.

What is Meaningful Broadband's global agenda?

We are extending the Meaningful Broadband model to several Southeast and South Asian. We work with a number of intergovernmental agencies such as "World Bank, UNESCAP ADB, ITU, APEC, ASEAN, UNESCO, SAARC, and EU. We have also opened discussions with the Saudi Arabian-based Islamic Development Bank in our initial exploration of how to bring Meaningful Broadband beyond Indonesia and into other parts of the Islamic world. A concept called Islamic Computing evolved from these discussions. In China, we work with the Ministry of Telecommunications and the Ministry of ICT along with their affiliated institutes. Beyond this, our aim is to develop a partnership with Peking University, in an effort to explore the relationship between Meaningful Broadband and Neoconfucian Ethics. Similarly in Taiwan, we work with National Taiwan University on broadband ethics issues.