

ITU Workshop on “ICT Innovations in Emerging Countries”

(New Delhi, India, 14 March 2013)

Demand Driven Standardization and the Role of Innovation in Demand Stimulation

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Economic Functions of Standards

- “A standards can be defined as a construct that results from reasoned, collective choice and enables agreement on solutions of recurrent problems”
- “A striking balance between the requirements of users, the technological possibilities and associated costs of producers, and constraints imposed by governments for the benefit of society in general”

(Tasseey 2000)

However, that balance might be lost!

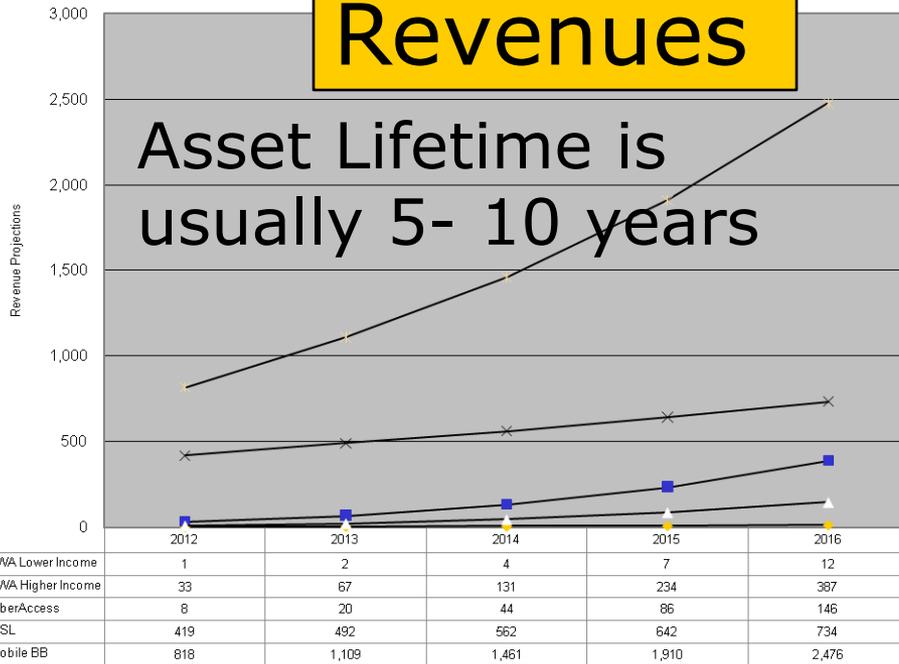
Needs of Developing Countries



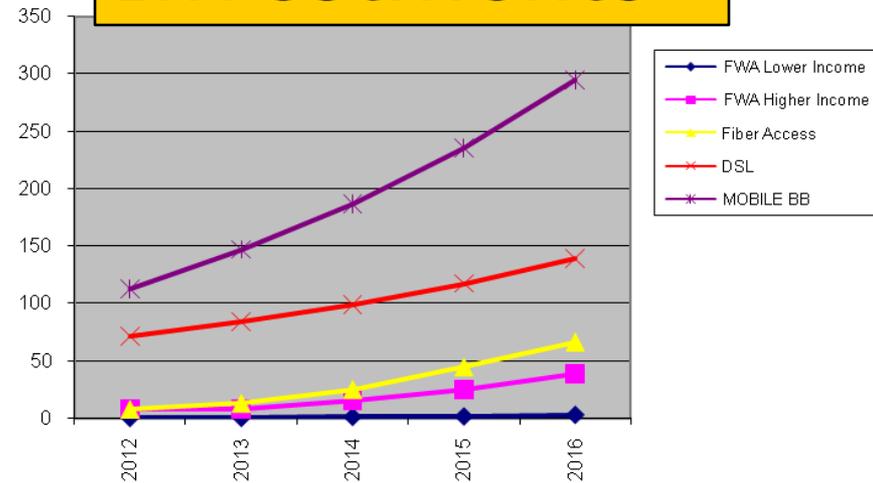
Telco Business Case vs. Standardization Pace

Revenues

Asset Lifetime is usually 5- 10 years



Investments



(eMisr 2011)

Standardization pace is faster

Supply vs. Demand

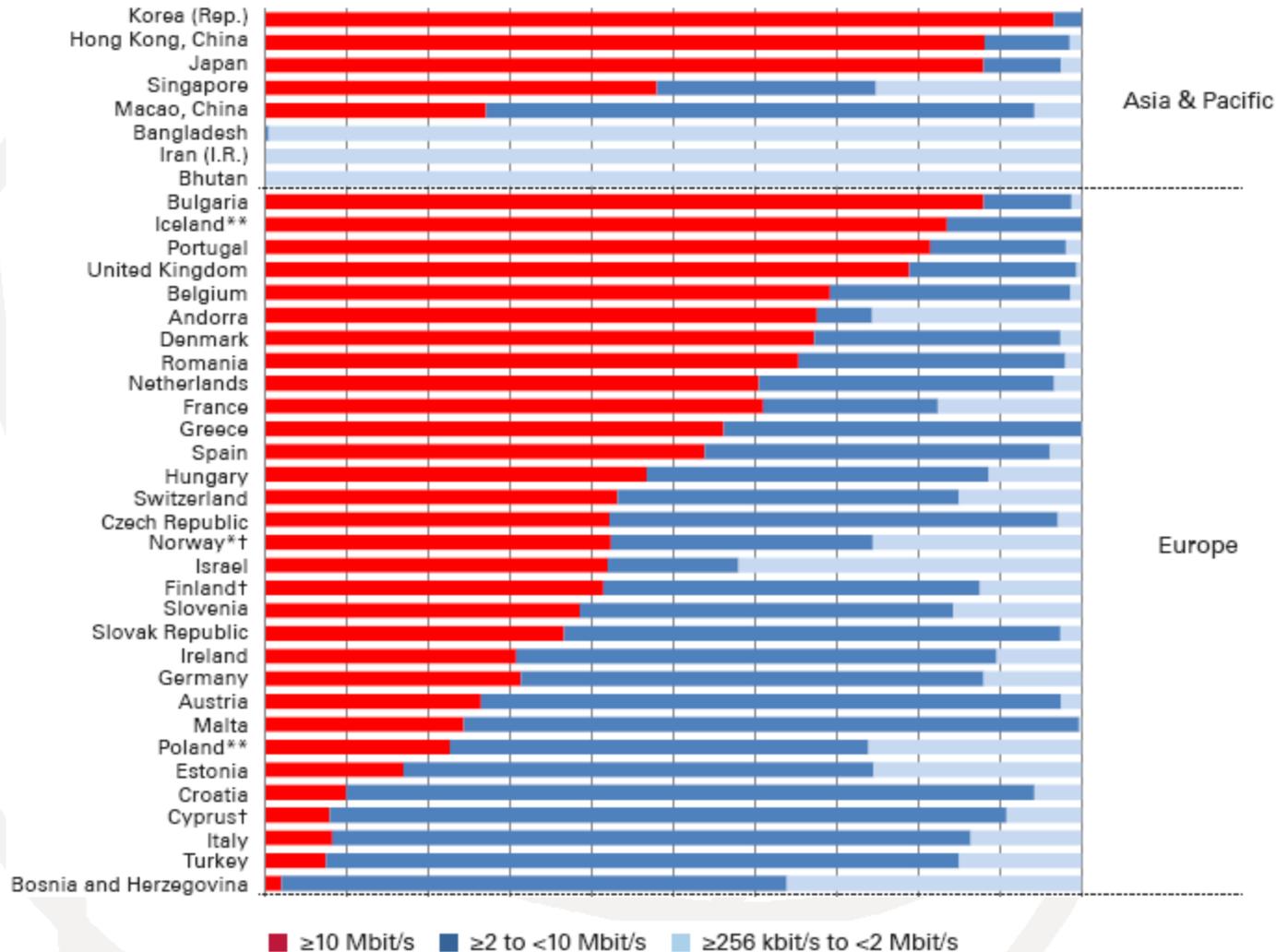
Build it and they will come.. Will they?

- Development policy has usually been concerned with increasing supply infrastructure
- inherent demand for ICTs because everyone wants better communications and information

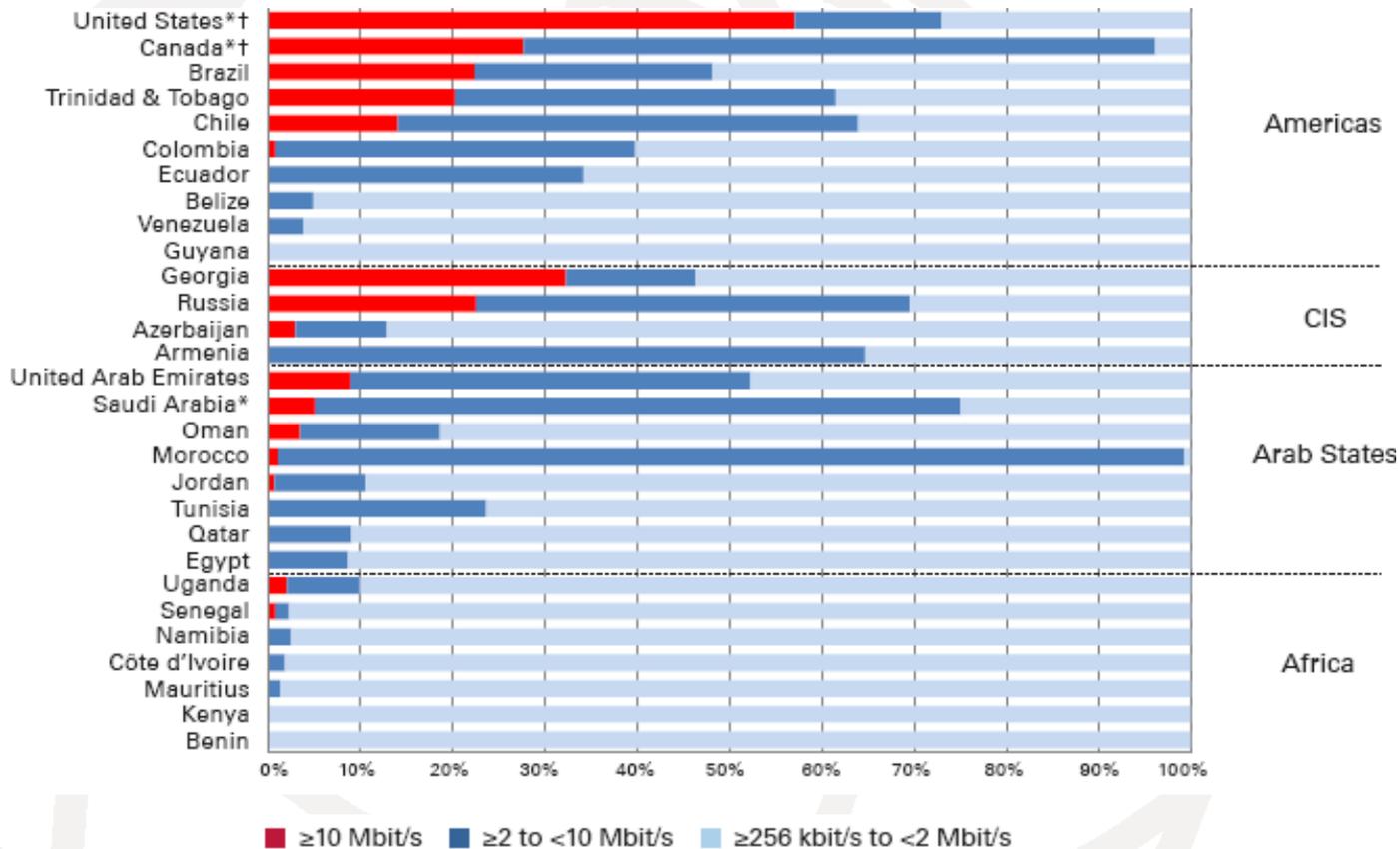
This underlying assumption is

Not necessary true

Fixed-broadband subscriptions, by speed, early 2012



Fixed-broadband subscriptions, by speed, early 2012



(The World in 2013: ICT Facts and Figures)

Economic Impacts of ICT

Author	Study	Employment Effects	GDP Effects
Atkinson et al. (2009)	Estimate the impact of BB stimulus plan in US based on Input/Output multiplier estimates and literature	Employment multiplier of 49.8, with contribution from network effects of 26.8. Results in cost per job created of \$20,082.	
BCG (2009)	Cost-benefit case study analysis of Bangladesh, Serbia, and Thailand broadband plans in 2009.		Internet expected to add 2.6-5.2% to GDP by 2020, due mostly to productivity enhancements.
Crandall and Singer (2010)	Forecast of economic impact of U.S. broadband investment 2010-2015	Expect total investment of xpe \$182.5B (\$30.4B average per year) to result in 509,546 jobs (16.8 multiplier, or cost per job created of \$	GDP multiplier of 2.97
Eisenach, Singer et al (2009)	US BB tax incentives for investment in BB investigated	Employment multiplier per \$Million CAPEX 14.7-19.7	GDP multiplier per \$ of incremental CAPEX infra is 2.9-3.1

(eMisr 2011)

Economic Impacts of ICT

Author	Study	Employment Effects	GDP Effects
Fornefeld et al (2008)	EU27 study of BB economic impact due to adoption by businesses 2004-2006. Forecasts EU27 BB plans impacts on GDP and jobs.	BB added 105k net jobs, with 1,319 lost due to displacement and 1,424 added due to new activity growth	BB added 84B Euros net to EU27 GVA in 2006, or 0.71% growth.
Katz & Sutter (2009)	Estimate the impact of BB stimulus plan in US based on Input/Output multiplier estimates and literature	Employment multiplier of 41.2, with contribution from network effects of 21.2. Results in cost per job created of \$24,261.	
Katz, Vaterlaus et al. (2009)	German National BB strategy impact from 2010-2020; basic and ultra BB plan for total investment of 35.9B Euros	Type II multiplier 19.95, Externality mult 15.75, total 35.70 (mult converted to \$ per million CAPEX)	Type II multiplier 0.93, Externality mult 3.83, for total of 4.76 (mult converted to \$)
Fornefeld et al (2008)	EU27 study of BB economic impact due to adoption by businesses 2004-2006. Forecasts EU27 BB plans impacts on GDP and jobs.	BB added 105k net jobs, with 1,319 lost due to displacement and 1,424 added due to new activity growth	BB added 84B Euros net to EU27 GVA in 2006, or 0.71% growth.

(eMisr 2011)

Demand Stimulation Critical Success Factors

- A primary constraint on demand might be **lack of technology awareness** and **a life context** that makes ICTs useful, particularly in small rural communities or for socially isolated persons.
- **Ease-of-use** is a dominant factor in initial adoption of ICT, however **usefulness** is the crucial aspect for **sustainability** of adoption

(Adams, Nelson, & Todd, 1992)

Demand Stimulation Critical Success Factors

- Perceptions about **ease-of-use** and **usefulness**, the “task-technology fit,” is critical for ICT use

(Cooper and Zmud, 1990)

- In his seminal work, *Diffusion of Innovations*, Rogers (1995) combines 50 years of diffusion research → set of general principles that explain how a new idea or innovation propagates in a social system

Demand Stimulation Critical Success Factors

- The focus of the theory is not only on awareness and knowledge but also on attitude change and the decision-making process that lead to the innovation practice or innovation adoption

(Rogers and Singhal 1996)

Demand Driven Standardization

- Standardization has a great impact on the sustainability of ICT industries,
- Addressing the real needs of developing economies is crucial; to achieve a global sustainability.
- Attempt to develop standards that are driven by the true needs of developing economies since the latter form a major portion of the worldwide consumption on newly standardized technologies.

Multi-tiered Strategy for *effective* Standardization Activities Participation

Competences

- Exposure and training
- ITU BSG Programmes
- Academic curricula ammendments

Drivers

- Means to increase demand for top notch ICT services
- Industrial incentives

Foundational ICT Infrastructure

- Develop national R&D strategies
- Innovation development

(Ramy Ahmed, innovation-i-0041, 2012)

Role of Innovation

- Effective mechanism to bridge the standardization gap
- Stimulate demand for ICT applications and services for a maximum global ICT market sustainability and development

Role of Innovation

- “In terms of policy, it is a well-established result that market economies normally do not generate a socially optimal **volume of knowledge creation, innovation and entrepreneurship**”
- However, there is no consensus concerning what institutional frameworks and policy measures that might generate such a social optimum given the imperfections in both the economic and the political markets.

(Braunerhjelm , 2010)

Role of Innovation

- This has not stopped policy-makers from launching a large number of institutional changes and policy measures to stimulate knowledge creation, innovation and entrepreneurship.
- Nevertheless, the number of carefully carried through policy evaluations is limited, → there is knowledge gap regarding which policies are effective and justify its costs.
- This is one major role the ITU-T could actually do in reference to Res. 44 WTSA-12

Conclusions and Recommendations

- Developing economies suffer from major problems beside the lack of connectivity
- Radical Pulling Strategy is needed instead of the traditional Push Strategy

Conclusions and Recommendations

- Standardizing demand stimulating technologies is the key + the Critical Success Standardization Activities (CSSA)

Examples include:

- DRM and Watermarking technologies
- Machine Learning
- e-Money Architecture
- e-Health Enablers
- e-Agriculture
- Cognitive Radio

Conclusions and Recommendations

- Provide a window for introducing innovations from developing countries
- FG on Innovation: A perfect tool which lacks support
- Res. 44 WTSA-12: Establishment of a specialized panel for stimulating ICT innovations, to enhance global collaborative innovation and to identify and support innovations from developing countries

Conclusions and Recommendations

- Res. 44 WTSA-12 instructs TSB Director: to carry out the necessary studies on the role of innovation management and innovation stimulation programmes on bridging the standardization gap between the developed and developing countries

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Questions

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