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## WEB SEMINAR REPORT

UNITAR WEB SEMINAR SERIES ON ICT POLICY ISSUES FOR DEVELOPMENT:

### DEVELOPMENT IMPACTS OF FREE OPEN SOURCE SOFTWARE (FOSS)

*Presented jointly with the United Nations Conference on Trade and Development (UNCTAD)*

*And*

*In cooperation with the Intel Corporation and the Global Alliance for ICT and Development (GAID)*

16 October 2007, United Nations Headquarters, New York

#### BACKGROUND

On 16 October 2007, the United Nations Institute for Training and Research (UNITAR) and the United Nations Conference on Trade and Development (UNCTAD) jointly hosted a seminar on the “Development Impacts of Free Open Source Software (FOSS)”. This event is part of the *UNITAR Web Seminar Series on ICT Policy Issues for Development* and was organized in cooperation with the Intel Corporation and the Global Alliance for ICT and Development (GAID).

The attendees included over 30 participants from 16 Permanent Missions to the UN, 7 UN organizations, 5 organizations from the NGO Community, 6 private sector companies and 2 representatives from Government Ministries.

Materials from this event, along with the recorded webcast, are available for download at:  
[www.unitar.org/en/foss2007.html](http://www.unitar.org/en/foss2007.html)

#### OBJECTIVES

This seminar’s objectives focused on the following: raising awareness among participants of the development potential of free and open technologies; analyzing and discussing a diverse set of real-world FOSS implementations with the aim of determining their viability in other contexts; providing participants with multiple perspectives on FOSS applications from across sectors (academia, private sector, civil society and the UN); providing delegates with an opportunity to review issues that relate to items 51 and 56b of the Agenda (A/62/251) and item 51 and 56b of the Allocation of agenda items (A/62/252) for the 62<sup>nd</sup> Session of the General Assembly.

More generally, the Series intends to stimulate critical thinking and to provide a forum for discussion and learning related to the global development potential of ICT policy. Topics within this Series are chosen based upon their relevance to internationally agreed upon development goals, namely the MDGs and the outcomes from both phases of the World Summit on Information Society (WSIS) held in 2003 (Geneva) and 2005 (Tunis).

## SUMMARY OF INTERVENTIONS

### *INTRODUCTORY REMARKS*

**Ms. Colleen Thouez, Chief of UNITAR's New York Office**, opened the seminar with an overview of the relevance of the day's topic to internationally recognized development objectives. She drew particular attention to the outcomes from the World Summit on Information Society (WSIS), such as the Geneva Plan of Action (2003). She further explained that the event was organized as a follow up to the previous year's introductory seminar on FOSS, pointing out that the agenda was developed in direct response to requests from the previous year's participants for more information on the practical implementations of FOSS solutions.

Ms. Thouez further commented upon the unique role UNITAR plays in bringing together diverse actors and stakeholders on key issues, drawing particular attention to the success of UNITAR's people-centred approach to technology and development throughout its 2007 Webinar Series.

**Dr. Choi Soon-hong, Assistant Secretary-General, Chief Information Technology Officer (CITO) for the United Nations**, prepared a statement that was delivered by Mr. Michael Laing, Coordinator of the ICT Board of the United Nations Secretariat. Dr. Choi began with an introduction to his role as the newly appointed CITO for the United Nations. The position was established by the General Assembly in July 2006, as part of the reform proposals put forth by the Secretary-General in the same year. In this capacity, Dr. Choi will assist the Secretary-General in the area of information and communications technology and will act as the senior UN officer responsible for developing and implementing ICT strategy.

Dr. Choi went on to express his support for the event and highlighted the important role that FOSS can play as a "practical instrument for development". He then placed the day's discussion in the context of the UN Charter and the Millennium Declaration, stating that the "free and open" aspirations of FOSS make it a natural component of development efforts. Dr. Choi also pointed to the UN Secretariat's own use of FOSS solutions as a part of its day-to-day operations, noting that critical parts of the technical infrastructure are implemented using FOSS. He then emphasized the important role that consistent support plays in the success and sustainability of such solutions, adding that, ultimately, all software choices made by the Secretariat are based upon the solution's ability to achieve the best overall return on technology investments.

### *FOSS OVERVIEW AND CONTEXT OF THE EVENT*

**Mr. Dimo Calovski, Economic Affairs Officer, UNCTAD SITE Division**, provided a short explanation of FOSS principles and an overview of the context for the event. He explained UNCTAD's role in providing member states with information on the policy and development implications of FOSS, especially within the context of economic development. He also pointed out the important role FOSS plays in establishing public trust and providing localized solutions. Mr. Calovski recommended that governments be more aware of FOSS within the context of development and to consider FOSS solutions equally when making ICT policy decisions. He further recommended that all ICT decisions be developed and considered within the scope of larger policy strategies, such as those relating to education and economic development.

### *KEYNOTE ADDRESS*

**Mr. Rishab Ghosh, Senior Researcher, United Nations University (UNU), Maastricht Economic and Social Research and Training Centre on Innovation and Training (MERIT)**, provided a look at the economics of open source and the substantial role that it can play in contributing to building information technology economies. In answer to common concerns about the inability of FOSS to create revenue from the sale of software, Mr. Ghosh noted that only 16% of software spending in the US is on packaged proprietary software, while more than 50% is spent on in-house software development, with the remaining spent on custom software. He stated that most firms writing software do not actually make their money directly through software sales, but instead by selling the services and support

related to that software. Thus, while FOSS programs are not sold as software licenses, a services-driven approach can be used to generate revenue.

Mr. Ghosh also emphasized—by providing a case example of the Nokia N770/N800 handheld Internet browser—the strong role that FOSS plays in driving innovation. This new product utilizes a platform based upon Debian GNU/Linux. However, Nokia wrote less than 2% of the software. As an open source project, other large companies contributed to more than 12% of code while others like Debian contributed the vast majority. The result was an estimated savings of 900 million (Euro) in development for Nokia, namely through a reduction in research and development (R&D) spending. This allowed Nokia to limit potential losses when developing a risky product with an unclear market, while focusing R&D on furthering product innovation. However, Mr. Ghosh noted that this product was, in fact, quite successful—resulting in an even better return for Nokia.

Finally, Mr. Ghosh made several policy recommendations which included: avoiding “lifetime vendor lock-in” by teaching multiple applications (which included FOSS); stipulating that software paid from public funds be made publicly available and accessible through a FOSS license; making FOSS contributions tax deductible in cases where in-kind contributions are tax deductible; and not requiring citizens to use proprietary software in order to access public information or utilize public services.

### *PANEL DISCUSSION: FOSS CASE STUDIES*

Case studies were chosen to reflect the widespread use and applicability of FOSS solutions in a variety of contexts. Cases studies were presented from SchoolNet Namibia, Google, Software Freedom Law Center, Banco do Brasil and Virgin America. A panel of experts represented by UNCTAD, UNDP, UNU-MERIT, and Fordham University, provided further discussion and critical assessment of the case studies.

Both Virgin America and Google were chosen as case studies, owing to the contrasting nature of their FOSS experiences. Both cases also highlight the fact that FOSS solutions have value across all economic contexts – i.e., FOSS is not a solution aimed only at developing countries, but has a global appeal and utility that is often insufficiently understood outside of the IT practitioner’s realm. SchoolNet Namibia and Banco do Brasil further demonstrated the wide range of FOSS implementations in Africa and Latin America - from informing national education and ICT policy frameworks to driving the development and growth of Latin America's largest bank. Finally, Software Freedom Law Center brought an advocacy and legal services perspective to the table.

Main themes elaborated within the discussion included: the economics of FOSS, capacity building, structural/institutional challenges and development opportunities.

### **The Economics of FOSS**

**Mr. Bill Maguire, Vice President and Chief Information Officer for Virgin America**, provided an overview of Virgin America’s experience when utilizing FOSS to run everything from IT security to the company’s website. He emphasized the value of FOSS for a private company and indicated that Virgin America has saved more than 6 million USD in licensing fees by using open source. In addition to cost savings, Mr. Maguire also noted the importance of studying not just the software itself but also the overall health of the open source community contributing to software development.

Banco do Brasil chose a FOSS solution for its new online bank in 1995, when the proprietary software it had been using became obsolete. Faced with no support for the discontinued software, Banco do Brasil conducted an analysis of alternative solutions and found that it was more cost effective to invest in open source solutions than to pay corporate licensing fees for proprietary software. According to **Mr. Alex Souza de Conceição, Deputy IT Regional Manager, Banco do Brasil**, investing in local and internal capacities on open source meant not just lowering costs but also increasing the bank’s ability to invest in internal capacities and to increase customization. Mr. Souza also noted that Banco do Brasil regularly releases code back into the open source community, thus contributing to the overall health of the open source community mentioned by Mr. Maguire.

**Mr. Bradley Kuhn, Chief Technology Officer for the Software Freedom Law Center**, countered that, while the economic benefits of FOSS are clear in an enterprise environment, looking to save on licensing and to increase customization, other sectors (such as the NGO sector in the United States) did not often have a good business case for using FOSS. With limited resources and few internal capacities for FOSS development, many non-profits can find it difficult to implement or support FOSS solutions. In addition, non-profits in the US are frequently given subsidized licensing agreements to use proprietary software in a market where proprietary software is dominant, and support for it is commonplace. This in turn encourages vendor lock-in and a continuation of the same cycle. The result is that developing countries are often more likely to implement FOSS solutions, which, Mr. Kuhn pointed out, actually puts them "ahead of the curve" in understanding and implementing open source – a scenario which could result in specialized areas of expertise eventually sought out by users, in the US for example, who missed out on the same opportunity due to vendor lock-in.

In terms of the overall economic development benefits of FOSS, all panelists agreed that the current impact of FOSS is still minimal. More comprehensive research is needed, especially in developing countries, to gauge FOSS's effects. **Mr. Raul Zambrano, Senior ICT & Governance Policy Advisor, Democratic Governance Group for UNDP**, suggested that FOSS initiatives in developing countries should also be concerned with fostering the development of a local FOSS enterprise sector—particularly local Small and Medium Enterprises that can cater to and support government institutions and local organizations or enterprises and that can choose FOSS as their service platform. This will in turn foster a more competitive software sector and drive prices further down, directly benefiting end users and offering more choices to suppliers of services.

### **Capacity Building**

Mr. Zambrano expanded upon the issue of capacity building, identifying it as the chief concern for governments considering FOSS within larger ICT policy strategies, especially within developing countries. He counseled against mandating the use of FOSS as a policy and again stressed the importance of implementing policies that enable both local and international enterprises to provide support and to contribute to local capacity building. As a result, capacity building efforts become crucial components to the success of FOSS implementations in the public sector.

Mr. Maguire added that more global collaborations among the public and private sector be supported and explored to increase exchanges of information and expertise.

Mr. Kuhn suggested that additional bottom-up approaches also be provided. He emphasized the importance of freely available, localized content in local languages. He also cited the One Laptop Per Child (OLPC) project as a way to introduce technology-based education to children and to eventually contribute to the growth of more locally-driven technology economies.

Finally, Mr. Ghosh, suggested that capacity building, while important, may be less critical than making sure the benefits of FOSS solutions (such as localization of content) are actually known and applied. He noted that most of the support for proprietary software that has arisen in developing countries is independent of their vendors' revenue streams, because it is based around providing support for pirated copies of the software. Within this model there is no relationship between the original software company and the local (generally self-taught) people providing the service. According to Mr. Ghosh, most software skills generation and development happen simply through use; thus, increasing the availability of FOSS necessarily increases opportunities for building the capacities to support it.

### **Structural/Institutional Challenges**

**Mr. Joris Komen, Executive Director, SchoolNet Namibia**, explained that developing country governments are often pressured to sign enterprise licensing agreements with software giants in order to acquire technology at a sufficiently affordable price. However, such agreements often limit future choices and lead to vendor lock-in, a scenario that can have long-term negative impacts on regions where bandwidth and connectivity are low and where the newest technologies may not be supported. Mr. Komen highlighted SchoolNet Namibia's model, which delivers computer and Internet services to over 300 schools using FOSS solutions such as Linux Terminal Service Solutions, diskless work stations and thin client computers in mostly rural areas operating outside of any traditional IT

infrastructure. However, given the lucrative nature of many enterprise licensing agreements for governments, the potential for corruption in procurement remains high – even as successes are achieved with cheaper and more localized FOSS solutions.

Mr. Calovski remarked that developing country governments often choose proprietary solutions based on a perception of the stability of an external solution from an established and renowned vendor. This is especially prevalent in countries with low-income economies and developing social environments. **Chris DiBona, Open Source Program Manager for Google**, remarked that countries in these scenarios might, in fact, be better served by FOSS solutions, regardless of whether they invest in local or external support. He reasoned that the advantage of FOSS, in this case, was that government always owned the FOSS solution, regardless of the capability to pay for the support. Avoiding expensive proprietary licensing may then result in less dependence, more choice, and a lower overall cost burden.

Mr. Komen also noted that large auditing firms indirectly mandate software choices for clients undergoing standard auditing processes. For example, SchoolNet Namibia must buy a proprietary software program in order to report its financials and comply with auditors. Mr. Komen suggested that such practices could be more effectively challenged by larger public companies that currently use FOSS solutions and who have more overall bargaining power.

### **Opportunities for Global Development**

Panelists pointed to the ability of FOSS to potentially provide developing countries with unique “leap frogging” opportunities. Mr. Kuhn explained that IT newcomers are actually at a distinct advantage when building new systems based on FOSS. Migrating from proprietary or legacy solution can be complex and costly. He also pointed to the significant advantage that FOSS gives younger generations when developing complex skillsets in programming, for example. FOSS, combined with the Internet, makes access to source code an option for any level of learner anywhere, while FOSS support communities provide spaces for mentorship and information sharing.

However, Mr. DiBona noted that the success of these inclusive open source user communities can diminish significantly in areas of limited bandwidth and network connectivity—a concern of particular relevance for areas with little or no access to IT infrastructure. Mr. Calovski added that, in such cases, it is important to consider the multiple uses for FOSS, such as mobile phones and other handhelds that are often more widely used and accessible than traditional computing is in developing countries. However, all panelists agreed that connectivity and bandwidth challenges in developing regions must be addressed in order for these areas to fully benefit from FOSS.

UNITAR New York Office is responsible for the information presented within this report.

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