LACK OF VENTURE CAPITAL AND SKILLED HUMAN RESOURCES TOP BARRIERS TO SOFTWARE INDUSTRY GROWTH, NEW SURVEY SHOWS

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The first ever joint global survey conducted by the United Nations Conference on Trade and Development (UNCTAD) and the World Information Technology and Services Alliance (WITSA) highlights the active role of national IT/software associations in supporting a more enabling environment for software industry development. For IT/software associations in countries representing more than half of the global software and IT services spending, better access to venture capital is the top priority for enabling the national software industry to grow and develop.

Background to survey

The UNCTAD-WITSA survey was conducted in March–April 2012. Out of 80 associations that were invited to participate, a total of 38 respondents completed an online questionnaire. The countries represented through these associations account for more than half of the global spending on software and information technology (IT) services, and more than half of total information and communications technology (ICT) spending worldwide. Eight of the respondents were based in a developed economy, 26 in developing economies, and the remaining four in a transition economy. Three least developed countries were included (Bangladesh, Haiti and the Gambia) (see annex).

Together, the IT/software associations that responded had some 16,100 member companies, employing more than five million people in the IT/software industry. Out of these companies, more than 9,000 are classified as software companies. In the countries represented through these associations, total ICT spending amounted to $2.3 trillion in 2012, which corresponds to about 52 per cent of the global total.

The results of the survey will among other things serve as an input to UNCTAD's *Information Economy Report 2012*, which will be launched in November 2012.

About WITSA

The World Information Technology and Services Alliance (WITSA) is a consortium of leading ICT industry associations from over 80 economies, representing more than 20,000 ICT companies worldwide. As the recognized global voice of the ICT industry, WITSA is dedicated to advocating policies that advance industry growth and development; facilitating international trade and investment in ICT products and services; strengthening WITSA's national industry associations; and providing members with a broad network of professional contacts.

WITSA hosts both the World Congress on Information Technology WCIT), the premier global industry-sponsored ICT conference, and the Global Policy and Trade Conference (GPAC).

WITSA members are leaders in a globally interconnected marketplace. Because the challenges facing the ICT industry are undisputedly global in nature, WITSA members work together to achieve a shared vision on important issues of common interest. WITSA makes it possible for its members — ranging from Mongolia and Argentina to Kenya and the United States — to identify common issues and priorities, exchange valuable information, and present a united position on industry issues.

About UNCTAD

Established in 1964, the United Nations Conference on Trade and Development (UNCTAD) promotes the development-friendly integration of developing countries into the world economy. Within its Division on Technology and Logistics, the ICT Analysis Section carries out policy-oriented analytical work on the development implications of information and communication technologies. It is responsible for the preparation of the annual *Information Economy Report* (www.unctad.org/ier2011)*.* It promotes international dialogue on issues related to ICT for development, and contributes to building developing countries' capacities to measure the information economy and to design and implement relevant policies and legal frameworks.

For more information, please contact: ict4d@unctad.org.

Many IT/software associations are young

Whereas the oldest of the IT/software associations in the sample was founded more than a hundred years ago (the Federation of Finnish Technology Industries), in most countries such associations are a more recent phenomenon (figure 1). In fact, in the sample, half of the associations were created between 1980 and 1999 and another 18 per cent in the twenty-first century. The Kosovo Association of Information and Communication Technology (STIKK) was the latest arrival (in 2008). Three out of four associations in transition economies were set up after 2000, as compared with 37 percent in developed economies and 23 percent in developing economies.

Figure 1: Year of establishment of the national IT/software association, by economic group
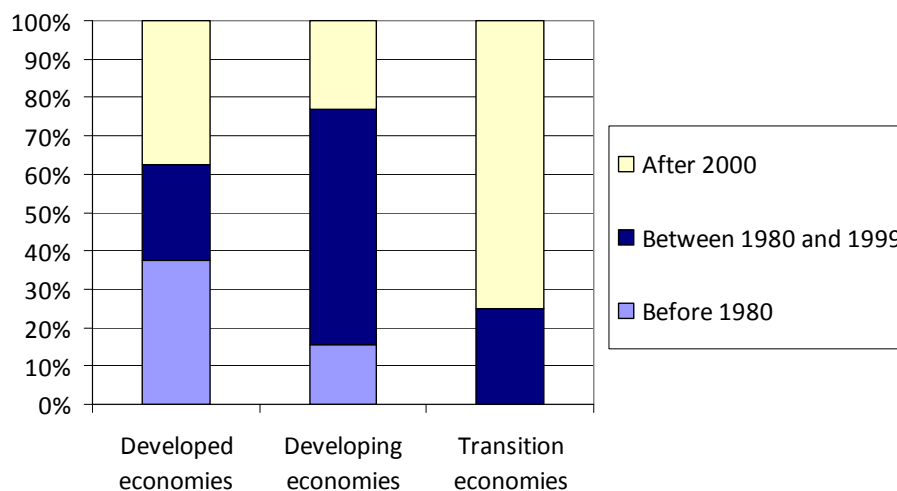
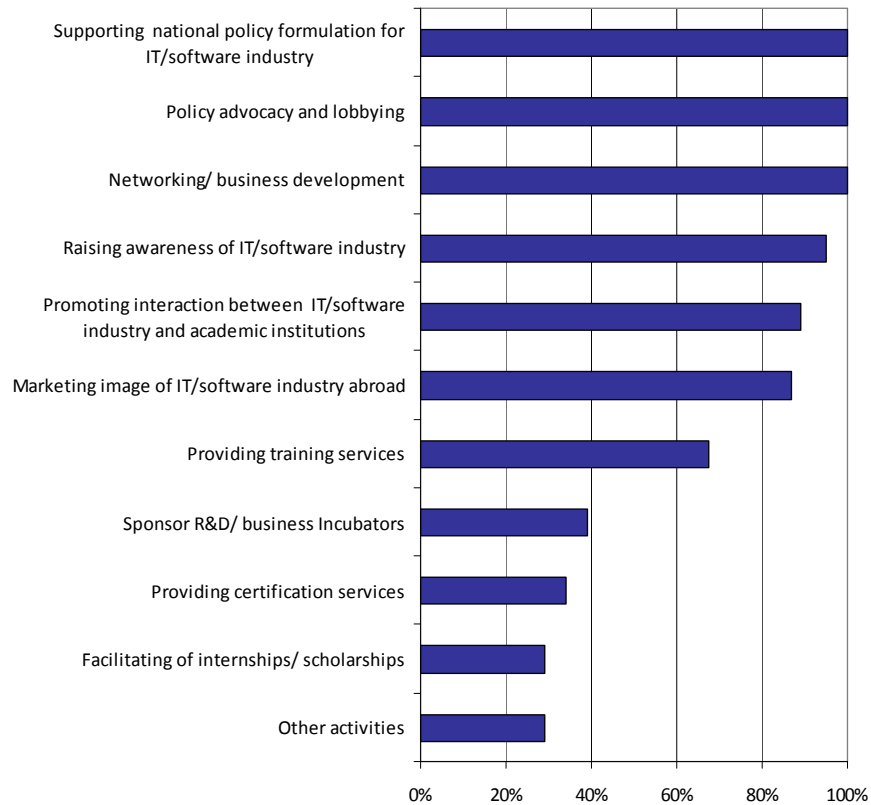*Source:* UNCTAD-WITSA Survey of IT/Software Associations, 2012.
Note. Based on responses from 38 associations.

Influencing national policies is a key role for national IT/software associations

The responses to the survey showed that most associations actively contribute to the process of national policymaking that is relevant to the software industry (figure 2). All responding associations support national policy formulation and engage in policy advocacy and lobbying. More than 80 per cent of the responding associations are also engaged in such activities as raising awareness of the IT/software industry, encouraging interaction between industry and academia, and promoting the national sector abroad.

Relatively few respondents indicated that they are involved in incubation, certification or facilitation of internships or scholarships.

Figure 2: What activities are IT/software associations involved in?
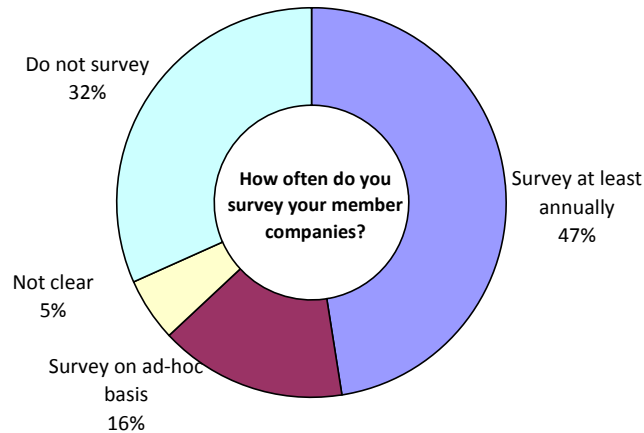(Share of respondents)

Source: UNCTAD-WITSA Survey of IT/Software Associations, 2012.
Note. Based on 38 responses.

Generating knowledge about the industry

A common challenge for policymakers, especially in low-income countries, is a lack of reliable data on the size and nature of the IT/software industry that can be used as a basis for informed policymaking. This is an area where industry associations can offer valuable inputs. The UNCTAD-WITSA Survey found that two-thirds of the associations survey their members, and almost half of them do so at least annually. A relatively large share (31 per cent) of the associations do not yet survey their members (figure 3).

Figure 3: How often does the association survey its members?

Do not survey
32%

How often do you
survey your member
companies?

Survey at least
annually
47%

Not clear
5%

Survey on ad-hoc
basis
16%

Source: UNCTAD-WITSA Survey of IT/Software Associations, 2012.
Note. Based on 38 responses.

Access to venture capital identified as the top growth barrier

Inputs from IT/software associations can help to identify priority areas for policy interventions. In the UNCTAD-WITSA Survey, associations were asked to identify the main barriers to the growth and development of the software and IT services industry in their respective countries. The factor that was mentioned by the largest number of respondents was limited access to venture capital, followed by shortages of qualified human resources and a lack of government procurement (table 1).

At the same time, a regional breakdown reveals notable differences. For example, whereas none of the associations in developed economies saw software piracy as a significant barrier, this factor was highlighted by almost half of those in Latin America and the Caribbean. Venture capital was the top-rated factor in all regions except Asia-Pacific, where access to skills was mentioned more often. In the Middle East and Africa, more than 70 per cent of the respondents found that the lack of public procurement constituted a barrier – highlighting the role of Government as a potential creator of demand in these economies. The results underscore the importance of understanding the specific context when designing policy responses aimed at enabling the software industry.

Table 1: Main barriers to the growth and development of the software and IT services industry
(Share of respondents mentioning factor)

Region	Developed economies	Asia-Pacific*	LAC**	Middle East and Africa	Transition economies	All regions
Limited capabilities in domestic software/ IT services companies	13%	38%	45%	43%	50%	34%
Lack of qualified human resources	63%	63%	55%	43%	75%	56%
Limited access to venture capital	63%	50%	73%	86%	75%	66%
Weak demand among private enterprises for software and IT services	25%	25%	18%	57%	50%	29%
Lack of government procurement of software and IT services	13%	50%	45%	71%	50%	44%
Limited demand from export markets	13%	25%	18%	29%	25%	22%
Inadequate protection of intellectual property rights	25%	25%	27%	14%	0%	22%
High rates of software piracy	0%	13%	45%	29%	25%	24%
Unfavourable general business climate	13%	13%	27%	14%	50%	20%

Source: UNCTAD-WITSA Survey of IT/Software Associations, 2012.
Note: Based on 38 responses. * excluding West Asia; ** Latin America and the Caribbean.

Wide range of policy actions demanded

UNCTAD and WITSA also asked the national associations what they see as the most important policy changes that should be implemented in order to facilitate the growth and development of the national software and IT services industries. The responses were varied and covered a wide range of policy areas. Some examples are offered below.

ICT infrastructure
- Provide access to affordable communications infrastructure, with acceptable broadband speeds
- Develop a modern regulatory framework for the telecommunications sector at large
- Build infrastructure across Tier 2/3 cities in the country

Education and skills development
- Develop education programmes at the tertiary level for software and IT services
- Double the percentage of youth enrolled in scientific and technological careers
- Improve human resources for the software and IT services industry
- Improve the quality of primary, secondary and tertiary education
- Promote technical and college education to accelerate the availability of human resources
- Support technological education and entrepreneurship
- Increase the level of computer science and ICT skills
- Invest in human capital and stimulate public–private partnerships for education

Public procurement
- Enhance government use of software and IT services and encourage e-Government
- Increase government procurement opportunities for national companies
- Specify share of ICT (software and maintenance) in the Government's public procurement projects
- Take a multi-stakeholder approach to developing better procurement mechanisms
- Grow the use of local software by Government
- Synergize focus on e-governance initiatives across the country
- Implement true electronic government as an example for the private sector
- Stimulate efficient development and implementation of e-Government
- Increase access of local IT services companies to public tenders to increase experience

Government vision and institutions
- Create a Ministry responsible for National IT Policies and Strategies
- Make institutional reforms to improve government capabilities and public policymaking
- Follow a time-bound, clear approach when implementing different policies in the country

Enhanced ICT use in the private sector
- Create incentives for the private sector to invest in IT
- Promote integration of ICT in vertical sectors
- Subsidize ICT use in non-IT industry sectors
- Promote the use of local software in small and medium-sized enterprises (SMEs)
- Encourage a preference for use of local software in all sectors

Better business climate in general
- Create a more favourable business climate for domestic entrepreneurs. Markets are often dominated by the large multinationals/ beneficial environment for business development/stimulate private sector in general
- Make taxation schemes more competitive/lower sales taxes
- Execute/ensure a stronger focus on public–private partnership projects
- Clean up the legal environment
- Adopt structured policy support for growth of SMEs and start-ups
- Offer incentives for IT (including IT education)
- Demonopolize the economy

Export promotion
- Encourage export development/ active assistance/increased support with access to export market
- Support SMEs in accessing international markets
- Implement an effective high-tech export support policy

Enhance access to capital
- Facilitate access to venture capital and other financial instruments/facilitate more venture capital
- Cater to the needs of international investment funds
- Improve access to capital and financing

Promote innovation and R&D
- Reach 1 per cent of GDP in R&D
- Strengthen the institutional sector of science, technology and innovation, through legal framework update, redesign and policy
- Enhance protection and enforcement of intellectual property (IP) rights
- Enhanced focus on research and development (R&D), IP development
- Prioritize innovation and ensure that R&D incentives are globally competitive.
- Develop globally competitive R&D incentives (for both SMEs and large companies)

Software sector development
- Train and encourage companies to collaborate and find new niche opportunities
- Encourage innovation and commercialization via public policy
- Increase recognition of the IT industry as an innovator and provider of high-value solutions
- Foster win-win growth of large, medium and small software firms by building a software ecosystem
- Encourage favourable legislation and incentives for the software and IT services industry
- Offer more government support to the industry
- Ease taxation on the IT industry
- Increase trust of local clients in domestic IT industry capabilities
- Launch smaller-sized projects that local companies can bid for

Other areas
- Address issues of global protectionism through bilateral and multilateral forums

Future growth potential is mainly overseas

Participating national IT/software associations see growth potential for the software and IT services industry in several market segments. The vast majority (81 per cent) indicated that the export market offered the greatest growth potential, followed by software development for vertical industries (74 per cent) and government procurement (55 per cent). Only three out of ten associations saw the greatest prospects for expansion in the domestic sector. This may suggest a need for governments as well as the IT/software associations to explore ways to enhance software use in the domestic private and public sectors.

Annex 1: IT/Software associations that responded to the survey, by UN classification of economies

Developed economies
Bermuda: BTD
Bulgaria: BASSCOM
Canada: ITAC
Finland: Federation of Finnish Technology
    Industries
Greece: SEPE
Romania: ATIC
United Kingdom: Intellect
United States: TechAmerica

Transition economies
Armenia: UITE
Kosovo: STIKK
Russian Federation: RUSSOFT
Ukraine: IT Ukraine

Developing economies
Argentina: CESSI
Bangladesh: BCS
Brazil: Assesspro
Colombia: Fedesoft
Costa Rica: CAMTIC
Dominican Republic: Dominican Association of
    Software
Ecuador: AESOFT
Egypt: EITESAL
Haiti: AHTIC
India: NASSCOM
Jordan: int@j
Malaysia: PIKOM
Mexico: Canieti
Morocco: APEBI
Nigeria: ITAN
Republic of Korea: FKII
Singapore: SiTF
South Africa: ITA
Taiwan Province of China: CISA
Thailand: ATCI
The Gambia: ITAG
Trinidad and Tobago: ICTS
Turkey: TÜBISAD
Uruguay: CUTI
Venezuela: CAVEDATOS
Viet Nam: VINASA