The Social Context of Free Software

Open Source and Free Software conference

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The FLOSS survey

- **Origin of term "FLOSS" uniting Free Software, Libre Software and Open Source, different names for the same thing; term now in wide use**
- **Largest, most comprehensive survey of developers worldwide (2002-2004)**
  - **~2800 responses to original EU–funded survey**
  - **~1500 responses to FLOSS-US survey (Stanford/SIEPR)**
  - **~650 responses to FLOSS-JP/FLOSS-Asia (Mitsubishi Research)**

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Software as society

- **What FLOSS developers expect of each other:**
  - "share their knowledge": 78%
  - "respect my contribution": 32%
  - "write beautiful and aesthetic programs": 24%
- **Why they participate in the FLOSS community:**
  - "learn new skills": 70%
  - "share their knowledge and skills with others": 67%
  - "improve the products of others": 40%
  - "improve job opportunities": 30%
  - "make money": 12%

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Software in society

- **Software as a tool of freedom***
- **Software as a tool of empowerment**
- **Software as an economic enabler**

A proxy for knowledge, power and wealth…

*FLOSS survey showed many more developers identify with "free software" (45%) than with "open source" (27%); similar finding in FLOSS-US

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Software in society

"Access [to ICTs] is not enough, it is the ability to create, to add value, that is important"

Felipe Gonzalez
former Spanish Prime Minister,
Speaking at Open Source conference in Málaga, Spain, 18/2/04

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Software in society

"Access [to ICTs] is not enough, it is the ability to create, to add value, that is important"

- Access *(for whom?)*
- Participation *(by whom, how active?)*

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Why Free/Libre/Open (FLOSS)?

- **Cost – *Total Cost of Ownership!***
  The broad, socio-economic change long promised by ICTs would be limited to a tiny elite without FLOSS

- **Performance, flexibility, localisation**
  Many FLOSS applications provide superior performance & security; adaptation is permitted, e.g. for local languages

- **Skills development**
  FLOSS is a training environment that increases the earning capacity of community participants without any explicit investment in training: a novel form of technology transfer?

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The TCO bogeyman?

Software Total Cost of Ownership:

- Licence fees
- Associated hardware costs
- Associated software costs
- Maintenance
- Integration
- Support
- Training

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The TCO bogeyman?

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60-85%
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Labour costs **60-85%**

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The TCO bogeyman!

Software Total Cost of Ownership:

- **The share of licence fees in TCO is small…**
  …when the share of labour costs is high (as in the countries or social domains where TCO studies are normally conducted)

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The TCO bogeyman!

Software Total Cost of Ownership:

- **The share of licence fees in TCO is small… …when the share of labour costs is high (as in the countries or social domains where TCO studies are normally conducted)**

- **If labour costs (average incomes) are low, their share in TCO is lower, with the result that the share of licence fees is considerably higher**

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Licence costs seem low...*

Licensing Cost of Windows XP + Office (USA):
$560**

**Standard Edition, price from Amazon.com,*

**The view from the rich world!*

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...and not the #1 reason for FLOSS

(even in rich countries: UK, Germany, Sweden)

Benefits from using F/OSS
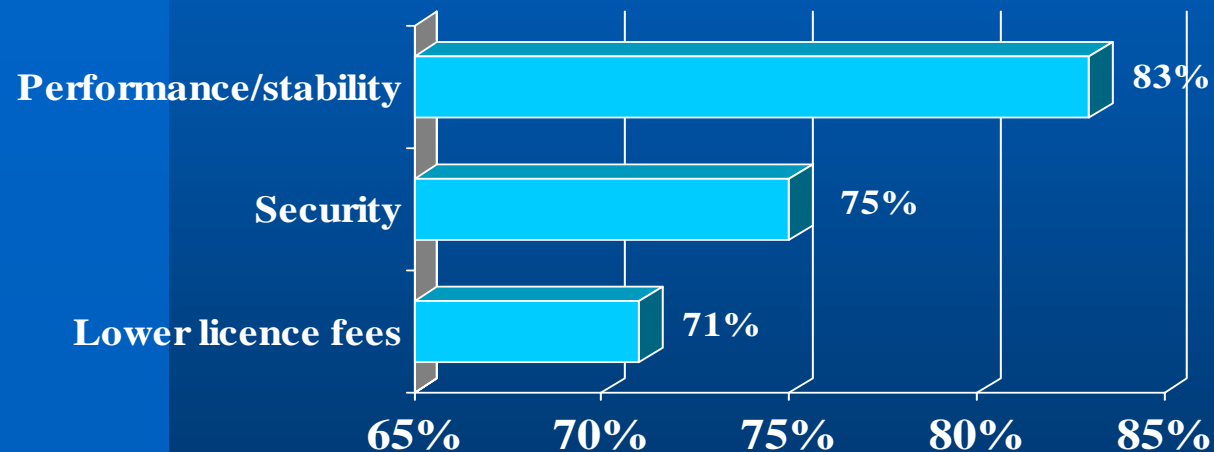
Source: FLOSS survey of user organisations, FLOSS final report, www.flossproject.org/report/

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But in Brazil...

Licensing Cost of Windows XP + Office* in the US:

$560

In Brazil:

GDP/capita (average annual income) $2915

Effective cost of Windows XP + Office (per capita)

2.3 months' GDP

(I.e. the cost of a single copy is 2.3 months of average income)

*Standard Edition

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...Cost really DOES matter

Licensing Cost of Windows XP + Office in the US

$560

BRAZIL: GDP/capita $2915

Effective cost of Windows XP + Office (per capita)

2.3 months' GDP

Comparing with US GDP/capita: $35 277 p.a…

Effective cost in $ equivalent for a *single copy* of Windows XP + Office in Brazil: $6 777

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...Cost really DOES matter

Country	GDP/cap	PCs ('000s)	Piracy	WinXP Cost:**	
				Effective $	GDP months
Argentina	7166	3415	62%	2757	0.9
Brazil	2915	10835	56%	6777	2.3
Chile	4314	1640	51%	4579	1.6
Ecuador	1396	300	62%	14149	4.8
Mexico	6214	6835	55%	3179	1.1
Peru	2051	1262	60%	9630	3.3
Asia*	2128	102229	n.a.	9282	3.2
Latin America*	4335	18703	n.a.	4557	1.6
Africa	652	7636	n.a.	30297	10.3
United States	35277	178326	25%	560	0.2
EU	20863	116997	n.a.	947	0.3
Canada	22343	14294	0.38	884	0.3

*GDP/capita in US$, WinXP cost in $ equivalent; * Asia (incl Japan, Korea); LatAm incl Mexico, Caribbean*
***Windows + Office XP effective $ cost calculation = $560 * (GDP per capita / US GDP per capita)*
Source: World Bank World Development Indicators Database, (2001 data); Business Software Alliance

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# Why Free/Libre/Open (FLOSS)?

- **Cost –** *Total Cost of Ownership!*
  The broad, socio-economic change long promised by ICTs would be limited to a tiny elite without FLOSS. Although other barriers exist (hardware, bandwidth) software licence fees are yet another additional barrier, but can be avoided.

- **Performance, flexibility, localisation**
  Many FLOSS applications provide superior performance & security; adaptation is permitted, e.g. for local languages

- **Skills development**
  FLOSS is a training environment that increases the earning capacity of community participants without any explicit investment in training: a novel form of technology transfer?

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FLOSS can mean better security...

Benefits from using F/OSS

Performance/stability — 83%
Security — 75%
Lower licence fees — 71%

65% 70% 75% 80% 85%
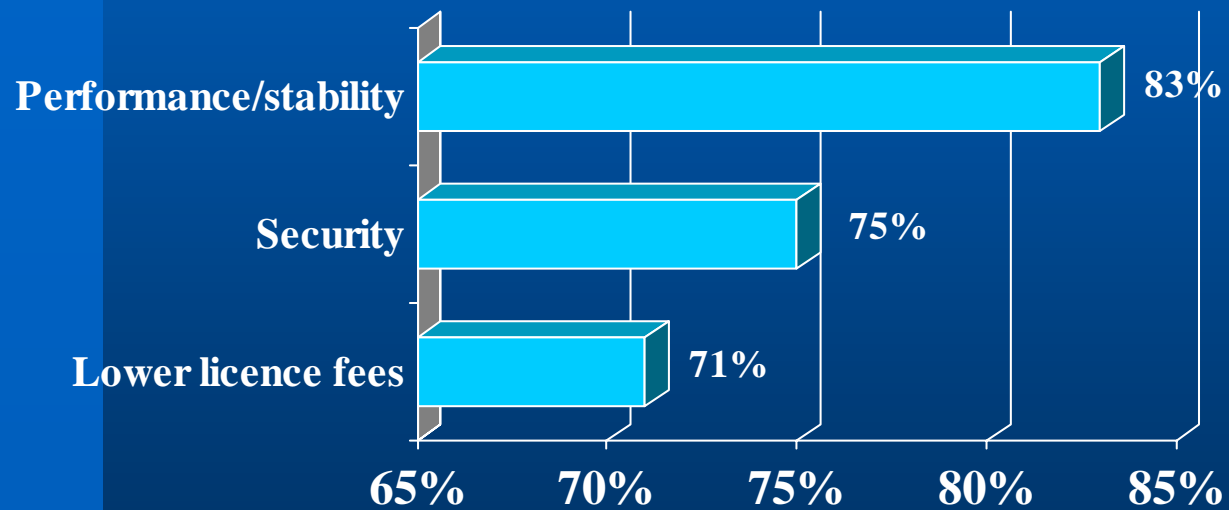
Source: FLOSS survey of EU user organisations

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FLOSS helps localisation

- **Proprietary vendors are motivated by global profit-maximisation strategies**
- **They often don't care about local issues and user needs – unless they matter in "a global context"!**
- **Many FLOSS developers may have absolutely no interest in software usability for Xhosa speakers**
- **But FLOSS developers allow and encourage those *with* locally relevant motives to adapt their software**
- **This allows projects such as translate.org.za, LinEx, adapting software to local needs, culture**

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FLOSS develops local skills

FLOSS is a training environment that enables the ability to create and actively participate rather than passively use ICT.

FLOSS increases the earning capacity of community participants without any explicit investment in training: a novel form of technology transfer.

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FLOSS develops local skills

- **Not skills *to use* FLOSS applications, but skills *learned from* participating in the FLOSS community**
- **Skills learnt through participating in the FLOSS community:**
  - **programming**
  - **copyright law and licenses**
  - **teamwork and team management**

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FLOSS develops local skills

- **FLOSS encourages not only passive "use" but active participation in the creative process**

- **FLOSS provides a very low barrier to entry for creativity – you don't *have* to be creative but if you want to, you easily *can***

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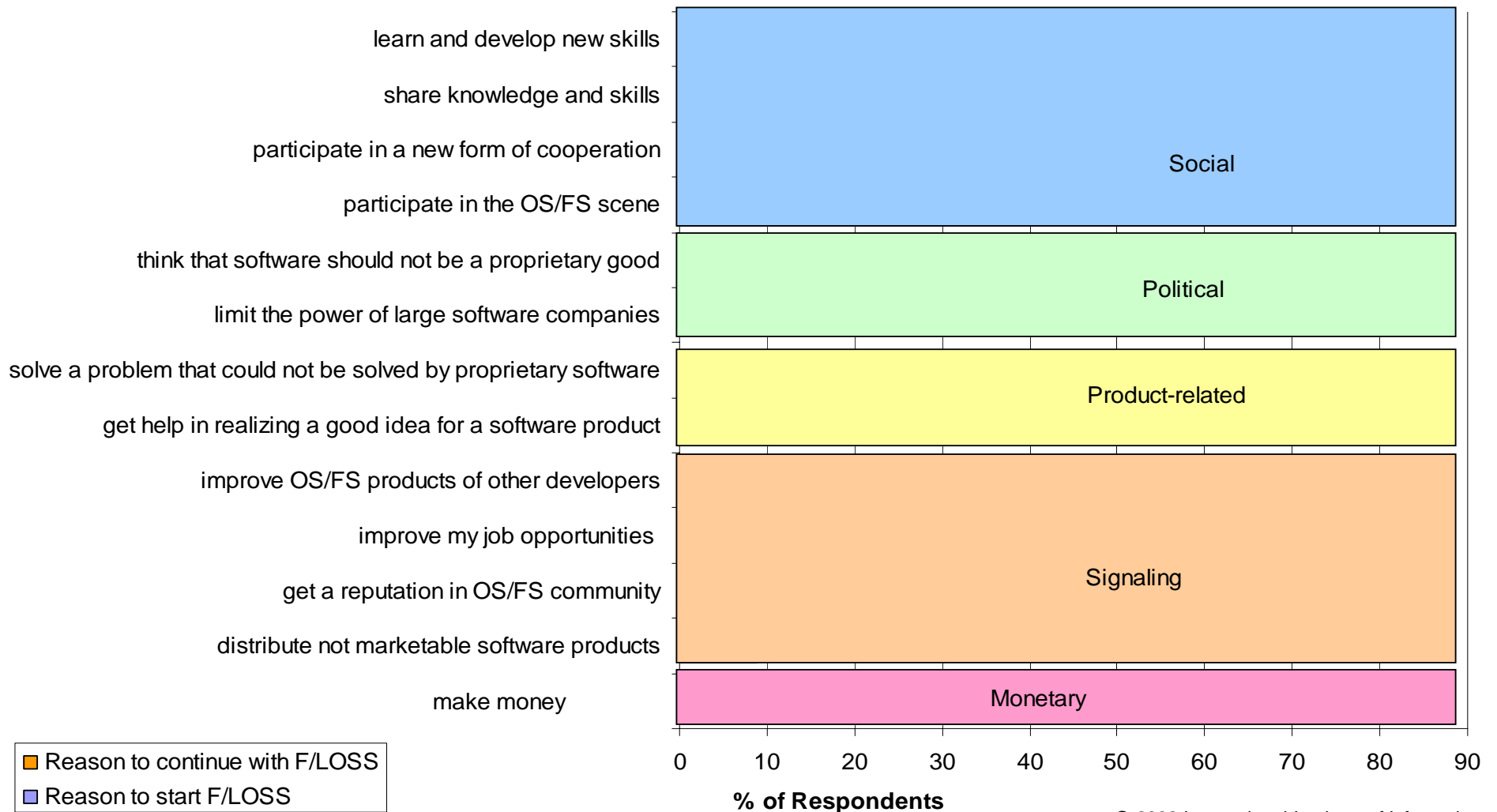
Learning skills – then sharing!

- **78% of developers *join* the FLOSS community "to learn and develop new skills" (70% *continue* for this reason)**

- **67% of developers *continue* their participation in the FLOSS community "to share … knowledge and skills"**

Source: Free/Libre/Open Source Software (FLOSS) Study of Developers

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These skills have economic value

- **30% of developers participate in the FLOSS community "to improve … job opportunities"**
- **Over 30% of developers derive income directly through their FLOSS work**
- **A further 20% derive indirect income as a result of their FLOSS work**
- **18% got job because of FLOSS experience**

Source: Free/Libre/Open Source Software (FLOSS) Study of Developers

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Employers appreciate this…

- **36% of organisations "totally" or "somewhat" agree that employees can work on FLOSS projects on employer time**

- **These are not software companies! 16% of low IT-intensity companies (retail, automobiles, tourism, construction) "totally agree" with this**

Source: Free/Libre/Open Source Software (FLOSS) Study of Users

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…but don't pay for it.

- **FLOSS communities are like informal apprenticeships – but apprentice/students and master/teachers contribute their own time for free**

- **Nothing in life is free; but this is a social cost borne voluntarily by the participants themselves and not paid for directly by those who benefit (employers, society at large)**

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"To each according to need…"

- Everyone can benefit equally from this training, though not everyone invests equally in it – many "teachers" may have been formally trained at university or at work (which is explicitly paid for)

- In the larger perspective, this training system represents a subsidy – or technology transfer – from those who pay for formal training to those who don't (or can't)

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"To each according to need…"

- **Within countries, this represents a technology transfer from big companies to SMEs, who can less afford formal training**
- **Globally, this represents a technology transfer from economies who can afford formal training, to those who cannot**

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"To each according to need…"

- **Sectoral benefits: poor countries may have formal computer training during computer science degree courses, but perhaps not in other subjects (biology)**

- **FLOSS usage provides students of other subjects to *informally* learn computer skills, programming skills and enhance their competence in their formal training**

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But do we all want to program?

- How will we know, unless we can try?
- HTML is a programming language – the web only took off because it was open, so people could learn to write their own sites just by copying and changing other sites
- "Programming" covers a very broad range of skills from HTML to C; FLOSS allows entry at any degree with little investment in time or effort

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But do we all want to program?

- **In a proprietary environment, you have to decide to be a programmer, then buy development software, then spend lots of time and effort – all of which is a risk and entry barrier**

- **With FLOSS, you can *tinker.* You don't need to buy tools. You can use them to the extent you choose.**

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But do we all want to program?

- **Learning skills in FLOSS, you risk losing only your time and effort**

- **However, since the barrier to entry is low (HTML!) you can control the degree of your investment – paddle at the shallow end or dive in deeper.**

- **In proprietary environments, the dividing line between user and developer is much sharper – the pool has only a deep end, you have to dive in or stay out altogether.**

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Building *local* ICT competencies

- Be passive users of "black-box" software or active participants in global ICT?

- Being active requires being able to create, locally – and choose with the least barriers the level of creativity

- Skills development requires access to the ability to create – you don't have to be a programmer, but you *should* have the choice.

- Relative local value addition is much higher with free software, as compared to proprietary (where the vendor controls and provides the most value)

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Extremadura: Free software society

- **Poorest region in Spain, one of the poorest in Europe**

- **Agricultural and remote with limited transport infrastructure**

- **1999: EU telecoms liberalisation threatened a digital divide**

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Extremadura: Free software society

- **Decided to "leapfrog" into the information society**
- **Strong political support at the highest level of government**
- **Principle of universal access and universal active participation**

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Extremadura: Free software society

"We could use proprietary software to provide access to all government officials, even all doctors and lawyers, but to provide access to all *citizens* – to *everyone* – we had to use free software"

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Extremadura: Free software society

- **Public Internet access points in every village, 2mb connectivity**
- **Public libraries in every village**
- **A computer for every 2 students in every school**
- **Free "digital literacy" training for pensioners, unemployed, housewives**

"Economically possible only with FLOSS"

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Extremadura: Free software society

- **Government-supported gnuLinEx project: Linux distribution adapted to local language *and* culture**
- **Universally adopted by entire public sector**
- **Over 70 000 desktops (running now)**
- **Promoted for private sector too**

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Extremadura: Free software society

- **78000 people trained in "digital literacy" programme – Linux is obviously not hard to learn!**
- **Training is participatory – creation of multimedia "local knowledge" archives, regional Internet radio…**
- **School students using gnuLinEx**
- **Teachers trained to use gnuLinEx**

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Extremadura: Free software society

- **Business incubator provides business plan assistance**

- **Encourages new local startups to provide services and support**

- **Locally developed (private-sector) applications include FacturLinEx, free software invoice/billing system**

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Extremadura: Free software society

- **From a backward, poor region to a leader in many key indicators of ICT access – in FOUR YEARS**

- **Won the European Regional Innovation Award (April 2004)**

- **Agreements to share model with Andalucia, Brazil, El Salvador…**

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Free software's social potential

"Access [to ICTs] is not enough, it is the ability to create, to add value, that is important"

Free software can make practical:

- **Access** – *for everyone*
- **Participation** – *active, by everyone*

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FLOSS lets developing countries:

- *Rapidly* deploy information technology

- *Affordably* deploy information technology

- *Universally* deploy information technology

- Develop a *local* ICT software and services skills base and foster a *local* ICT software and services economy

- Develop an ICT infrastructure while respecting IPR, limiting "software piracy"

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More information…

The FLOSS project pages & final report
http://flossproject.org

Licence fees & GDP/capita paper:
http://firstmonday.org/issues/issue8_12/ghosh/

Paper on FLOSS as Official Development Aid,
By Jordi Carrasco Munoz

http://www.i-today.com.vn/itoday/open_source/baocao/

jordi_europeancommunity.ppt

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