

Why developing countries need to use and create Free Software

IDLELO

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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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15-40%
60-85%

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**Labour
costs**

60-85%

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- Associated software costs
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- **Integration**
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...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 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**

Licence costs seem low...*

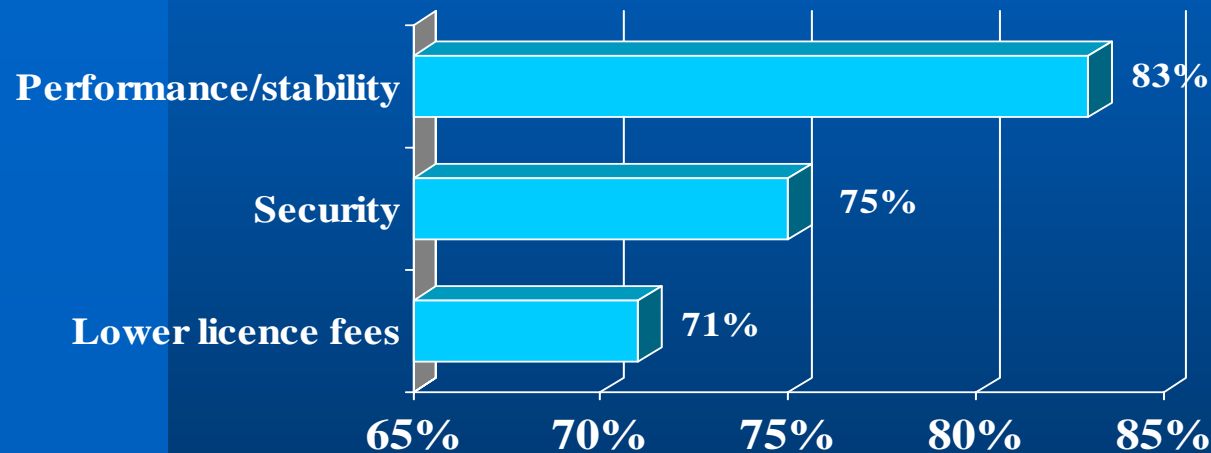
Licensing Cost of Windows XP + Office (USA):
\$560**

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

**The view from the rich world!*

...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/

But in Africa...

Licensing Cost of Windows XP + Office* in the US:
\$560

But in KENYA:

GDP/capita (average annual income) \$371

Effective cost of Windows XP + Office (per capita)

18 months' GDP

(I.e. the cost of a single copy is 18 months average income)

*Standard Edition

...Cost really DOES matter

Licensing Cost of Windows XP + Office in the US

\$560

KENYA: GDP/capita \$371

Effective cost of Windows XP + Office (per capita)

18 months' GDP

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

**Effective cost in \$ equivalent for a *single copy* of
Windows XP + Office in Kenya: \$53 283**

...Cost really DOES matter

Country	GDP/cap	PCs ('000s)	Piracy	WinXP Cost:**	
				Effective \$	GDP months
Congo, Rep.	886	12	n.a.	22288	7.6
Ghana	269	66	n.a.	73442	25.0
Kenya	371	172	77%	53283	18.1
Mozambique	200	63	n.a.	98978	33.7
Nigeria	319	889	71%	62014	21.1
Senegal	476	182	n.a.	41539	14.1
South Africa	2620	2962	38%	7541	2.6
Africa	652	7636	n.a.	30297	10.3
Egypt, Arab Rep	1511	1010	58%	13075	4.4
Thailand	1874	1698	77%	10540	3.6
United States	35277	178326	25%	560	0.2
European Union	20863	116997	n.a.	947	0.3

GDP/capita in US\$, WinXP cost in \$ equivalent; * Africa (continental) average

**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

Why Free/Libre/Open (FLOSS)?

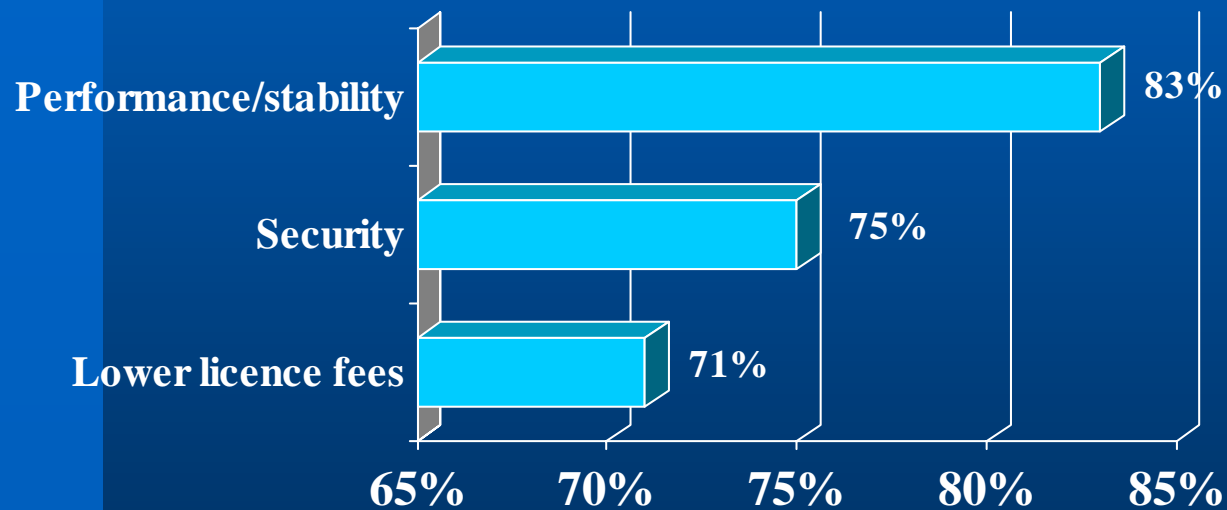
- **Cost – Total Cost of Ownership!**
The broad, socio-economic change long promised by ICTs would be limited to a tiny elite without FLOSS. Although other barriers exist (hardware, bandwidth) software licence fees are yet another additional barrier, but can be avoided.
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FLOSS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

Benefits from using F/OSS



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

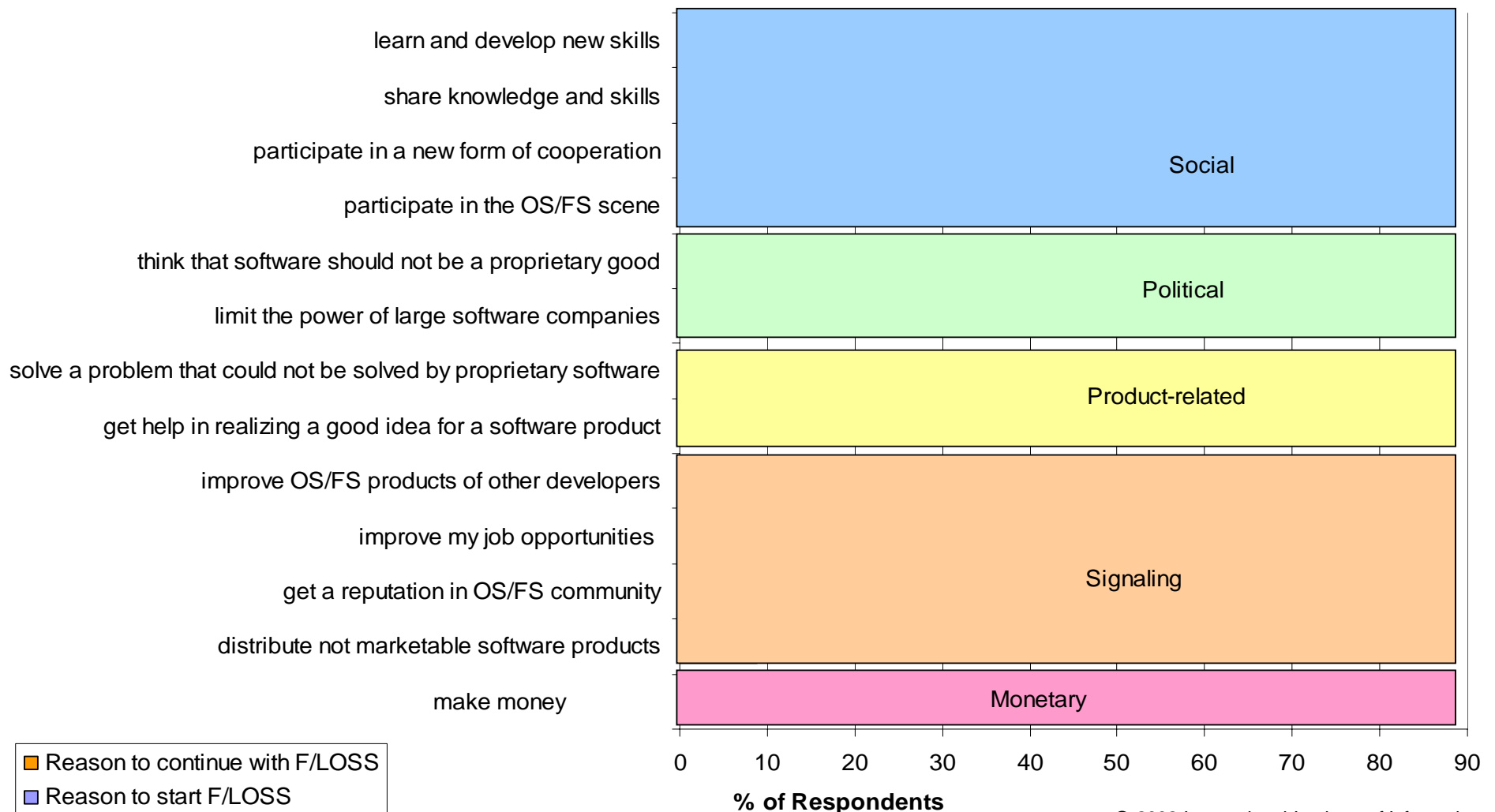
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FLOSS develops local skills

- Not skills to use FLOSS applications, but skills learnt through participating in the FLOSS community
- 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*

What motivates FLOSS developers?



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

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

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

...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)**

“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
- 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)

“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**

“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**

But do we all want to program?

- How will we know?
- 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; FLOSS allows entry at any degree with little investment in time or effort

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.

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.

Building ICT competencies

- Be passive users of “black-box” software or active participants in global ICT?
- Being active requires being able to create – and choose with the least barriers the level of creativity
- Developing countries need to avoid being locked out of skills and competencies
- Skills development requires access to the ability to create – you don’t have to be a programmer, but you *should* have the choice.

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FLOSS is the best way for developing countries to:

- *Rapidly* deploy information technology
- *Affordably* deploy information technology
- Develop an ICT infrastructure while respecting IPR, limiting “software piracy”
- Develop a *local* ICT software and services skills base and foster a *local* ICT software and services economy

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](#)