Technology Transfer in IT Department *

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* For more: see http://cern.ch/it-tt

The Scope of Technology Transfer

- **TT Objective**

  "To make known and available to third parties under agreed conditions, technical developments achieved in fulfilling the laboratory's mission in fundamental research"

- **Transfer of expertise, know-how to**
  - industry
  - academia
  - public institutions
  - the society at large

More?

http://cern.ch/it-tt

Areas of ICT Expertise

- **High-performance computing**
  - Mix of cutting-edge / commodity technologies
  - Large-scale integration

- **Operation**
  - Large-scale, round the clock

- **Innovative administrative computing solutions**
  - Work-flows, HR management, …

- **Innovative general-purpose computing solutions**
  - Web, email, desktop services, …

- **Software**
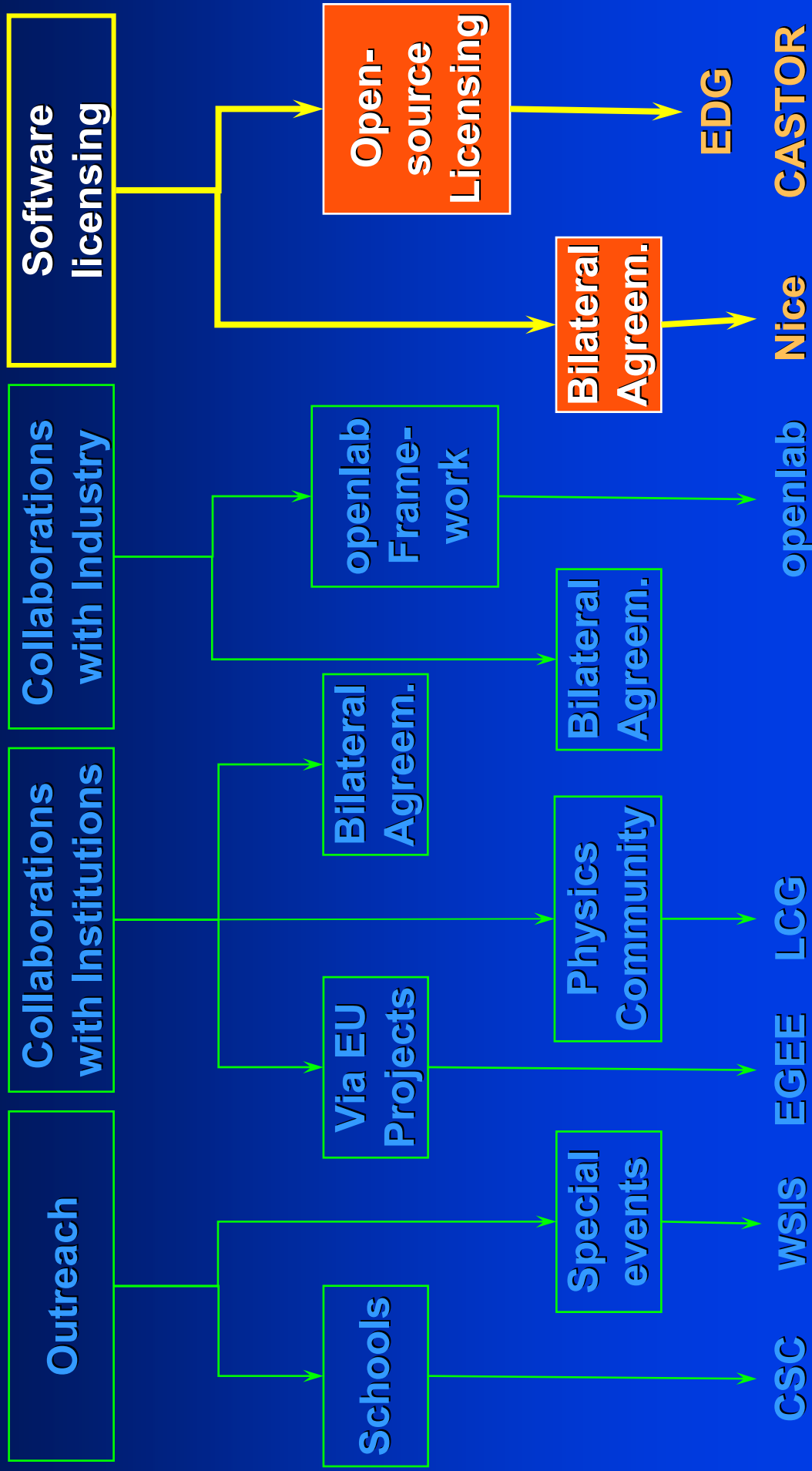 - Large-scale development, distributed SW engineering

The Need for Collaboration

- **IT Department activities**

  - **focus on fast changing technologies**

  - **often require that developments are conducted in collaboration with external partners**

- **As a result, the main channels for TT in the Department are _collaboration_ and _partnering_ with external organizations**
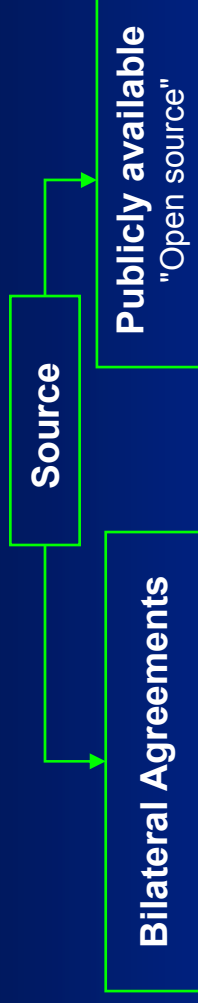
Technology Transfer Channels in IT

1	**Software Licensing**	**Via Collaboration Agreements**
		Via open source
2	**Collaborations with Industry**	**openlab framework**
		Other industry projects
3	**Collaborations with Institution**	**EU-funded collaborative projects**
		Other publicly-funded projects
		Bilateral collaborations with institutions
4	**Outreach Activities**	**Schools on ICT**
		Conferences, publications
		Other outreach events on ICT

Technology Transfer Channels in IT

Software licensing
- Open-source Licensing → EDG
- Bilateral Agreem. → Nice CASTOR

Collaborations with Industry
- openlab Frame-work → openlab

Collaborations with Institutions
- Bilateral Agreem.
- Via EU Projects
- Bilateral Agreem.
- Physics Community → LCG EGEE

Outreach
- Schools
- Special events → WSIS CSC

Bilateral vs. "Open Source"

Source → Publicly available "Open source"

Source → Bilateral Agreements

Features	Bilateral Agreements	Publicly Available
Development style	Developed within CERN	Developed with external partners
Motivations for external release	Improvements available to CERN	Improvements available to partners
Scaling	Does not scale	Scales well

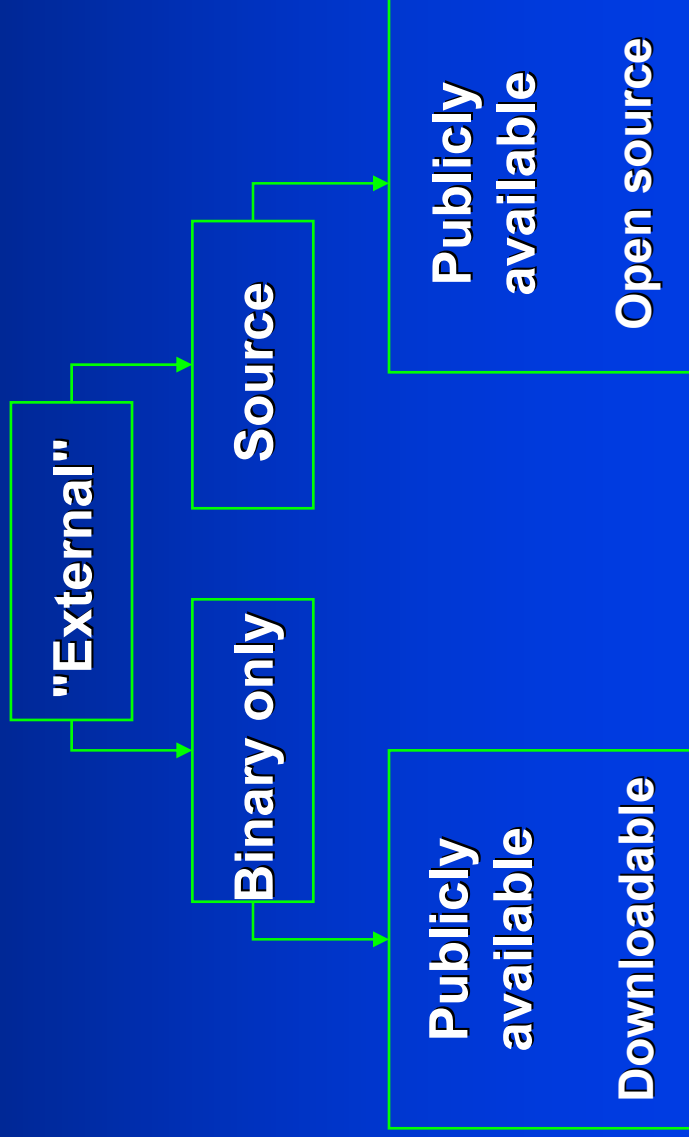# Making SW publicly available

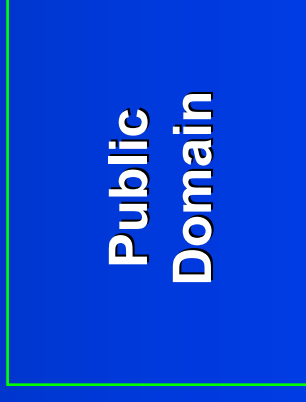"Open Source"

(Free Software)

does not mean

Public Domain

Publicly Available vs. Public Domain

Retain IPR

```
           "External"
          /          \
    Binary only    Source
         |             |
   Publicly       Publicly
   available      available
   Downloadable   Open source
```

Relinquish IPR

Public Domain

Open Source principles

- **Author keeps copyright**
  - to prevent third parties to turn free software into proprietary software, and deny users the rights to freely use the material

- **Author gives a free of charge, perpetual license to anyone run, copy, modify, … the software**

- **Licensees may only publish (modified) versions under same open source conditions**

Distribution of CERN WWW software

Francois Fluckiger (*fluckiger@vscrna.cern.ch*)

Messages sorted by: [date][thread][subject][author]
Next message: David Koblas: "How about an "IF" markup construct..."
Previous message: dolesa@smtp-gw.spawar.navy.mil: "Windows Help to HTML conversion"

Dear Colleagues,

Some of you asked about the conditions for the distribution of new versions of the CERN WWW Library of Common Code (libwww), the CERN Line Mode Browser (www) and the WWW HTTP Daemon (httpd). The new versions will remain freely available, for general use, and at no cost.

The only change is that the material distributed will remain copyrighted by CERN. As a consequence, a copyright notice will have to appear in copies, but also, the rights of the users will be protected, in particular by preventing third parties to turn free software into proprietary software, and deny the users the rights to freely use the material.

These principles are those used by most distributors of free software, including the X consortium.

The proper copyright notice is being ratified and will be available in a few days.

We hope all those who have trusted CERN WWW software will continue to do so, and will appreciate that these conditions not only maintain the free distribution but better protect it.
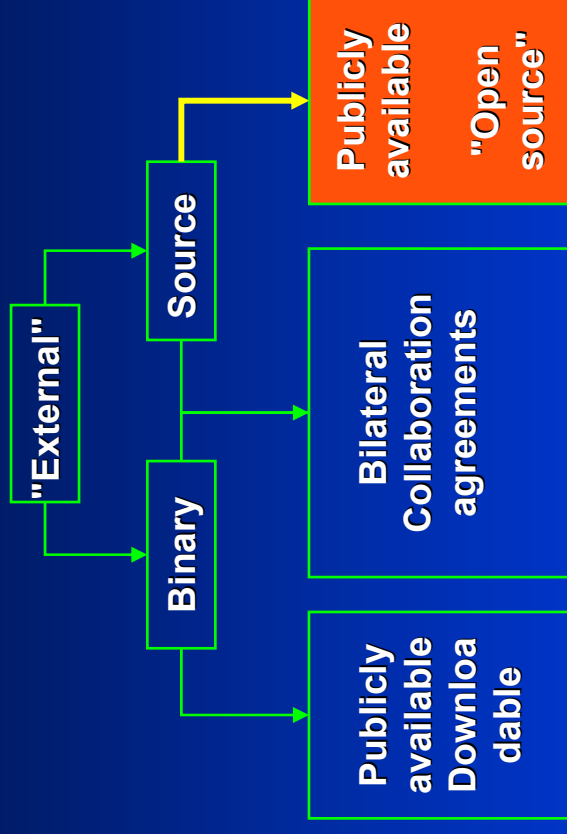
Francois Fluckiger
Leader, WWW development, CERN

Next message: David Koblas: "How about an "IF" markup construct..."
Previous message: dolesa@smtp-gw.spawar.navy.mil: "Windows Help to HTML conversion"

A (small) piece of history

Licenses for "Open Source" at CERN

"External"

Source → Publicly available "Open source"

Binary → Bilateral Collaboration agreements

Binary → Publicly available Downloadable

- **Either**
  - **a CERN specific licence**
    - e.g. EDG license

- **Or**
  - **a Public License**
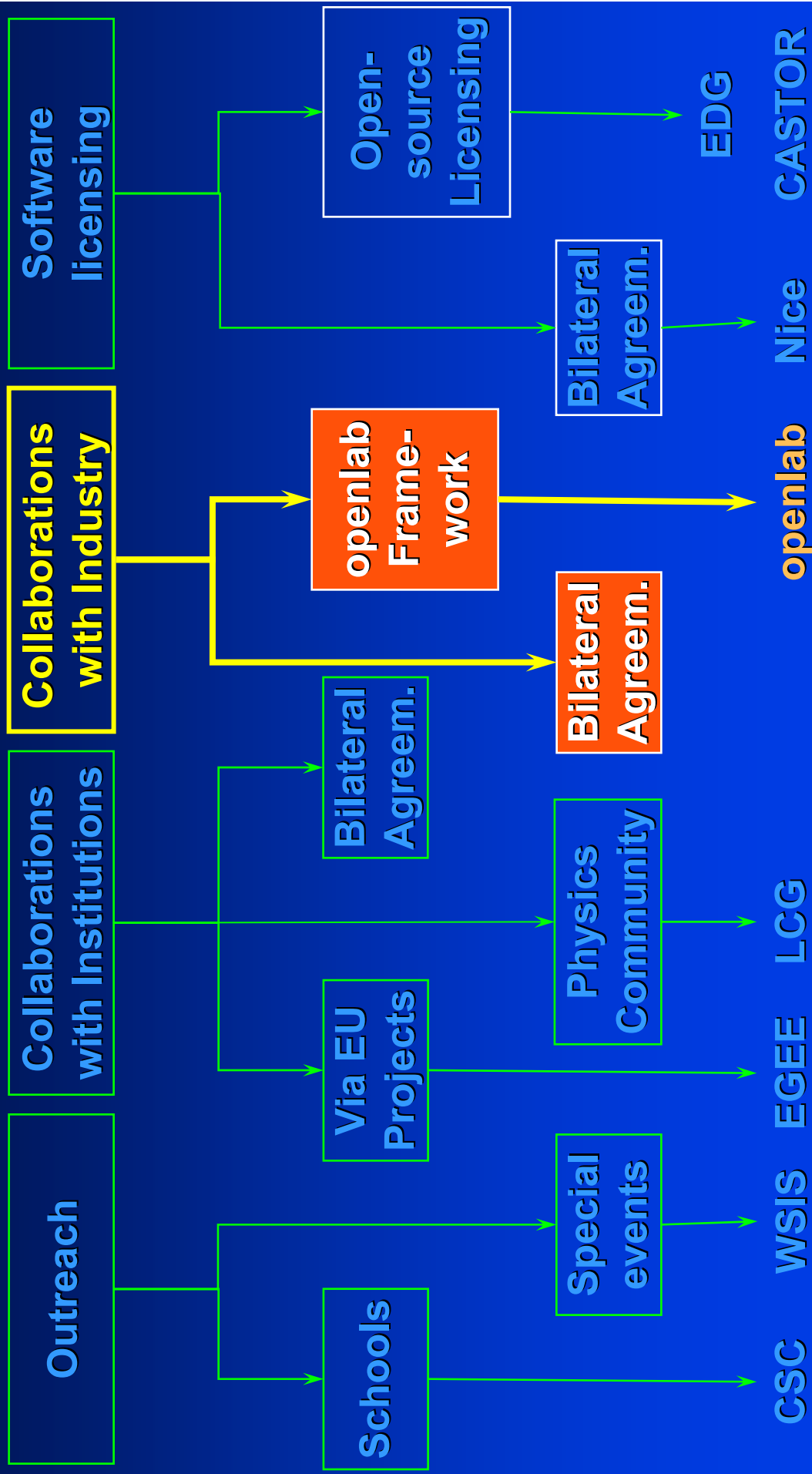   - e.g. GPL, LGPL

Conventional SW Licensing to Industry

■ **Though less frequent, conventional licensing / IPR transfer to industry is in no way ruled out**

■ **Note:**

Open Source licensing does not preclude licensing to industry for commercial exploitation

■ **A given SW module may be open-source licensed as well as licensed bilaterally to a partner, allowing the distribution of modified versions under proprietary license**

Technology Transfer Channels in IT

What is the openlab?

- **A framework for "R&D" in collaboration with Industry**

openlab
framework

- *Partner* commitments
  - 3 years
  - Contributions may be a mix of
    - In kind (HW, SW, services, …)
    - In cash (in general for fellows)

- *Contributor* commitments
  - 1 year
  - Lower level

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Outreach
- Special events → WSIS
- Schools → openlab

CASTOR

Agreements with Institutions in IT (1)

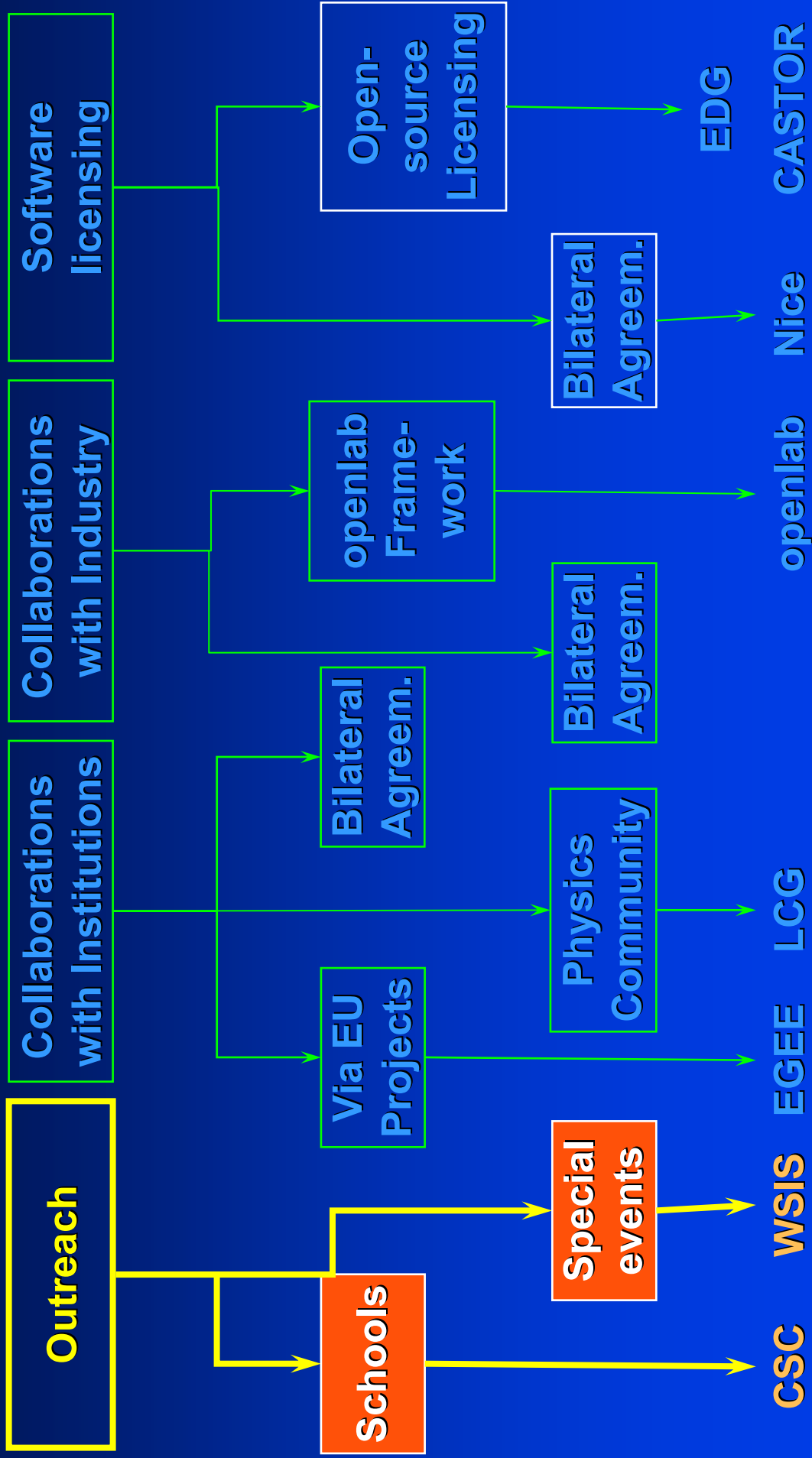| Technology Domain (2)	Activity Name	Description	Formal agreement (4)	External Org.	Comment
Application Software	INTAS Collaboration	Collaboration with Russian HEP institutes on SW development and support	3 years agreement	Russian institutes	Framework agreement. Topics of interest include Grid Middleware, Fabric management
General	Collaboration framework with Bulgaria	Collaboration with Bulgarian HEP institutes for training	3 years agreement	Bulgarian institutes	Framework agreement
Storage Technologies	CASTOR Software package	Software package developed by IT division for the management of storage systems	Software available under the GPL License	NA	Software available from CERN servers on an open-source spirit.
Application Software	Collaboration framework with India	Collaboration with Indian IT institutes on Application Software		Indian institutes	Framework agreement
Data Bases	Pool	Pool of persistent objects for LHC		Institute of Advanced Technology Indore, India	Collaboration on Pool part of the Indian contribution to the LHC
Internet Services	CERN Printing Package	Software developed by IT division to administrate printers in a local windows environment	Specific license and copyright statement	See list	Software downloadable from CERN server. A list of organizations having downloaded is maintained

Agreements with Institutions in IT (2)

Technology Domain (2)	Activity Name	Description	Formal agreement (4)	External Org.	Comment
Internet Services	CERN Printing Package	Software developed by IT division to administrate printers in a local windows environment	License Agreement K804/IT	CIEMAT Spain	Source Software is made available under bi-lateral license agreements
Internet Services	"Nice 2000"	CERN Windows Infrastructure Management Software	License Agreement K805/IT	ISO Geneva	Source Software is made available under bi-lateral license agreements
Internet Services	"PC-based distributed Computing (NICE)"	CERN Windows Infrastructure Management Software	Cooperation Agreement Renewed 31-10-2002 for 2002-2003	JINR Dubna Russia	
Internet Services	VRVS	VRVS video-conferencing service	Agreement between Caltech-CERN	CALTECH USA	Collaboration for the joint development and operation of the VRVS system
Application Software	CAD Tools under windows	Collaboration on CAD tools under Windows	Cooperation Agreement	JINR Dubna Russia	
Application Software	CAD2000	Collaboration on CAD2000 leading to a CATIA pilot	Cooperation Agreement	JINR Dubna Russia	

Agreements with Institutions in IT (3)

Technology Domain (2)	Activity Name	Description	Formal agreement (4)	External Org.	Comment
Application Software	Browser for electronic	Development of browser for electronic components	Cooperation agreement	IN2P3 France	EST division involved
Application Software	Workshops on large clusters	Collaboration with FermiLab on sponsoring workshops and seminars on building large clusters	NA	Fermi National Laboratory USA	
GRID Middleware Storage Technologies	EDG: European DataGrid	European Union funded project	EU Contract	EDG partners	Completion 31/03/2004
GRID	EGEE	European Union funded project	EU Contract	EGEE partners	Project start: 01/04/2004
GRID Middleware	EDG Middleware	Software developed in the framework on the EDG project	Software available under specific license	NA	Software available under CERN specific open source license
- Storage Technologies - Security - Operating systems and compilers	CASPUR Collaboration	Wide range collaboration on storage, computer security, public domain software	Collab. Agreement	CASPUR Italy	

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Outreach
- Special events → WSIS
- Schools → CSC

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- Bilateral Agreem. → Nice

CERN School of Computing

- **2 weeks school**

  for postgraduate students, research workers with a few years of experience in elementary particle physics, computing or related fields

- **Theory and Practice**

- **Advanced environment (GRID cluster)**

- **This year: *26th School***

CERN School of Computing

- **25 nationalities (2003)**

- **Examination ->**
  CERN certificate of credit

- **Supported by EU (KEuro 600)**

Outreach, media events

- **Role of Science in the Information Society (RSIS) conference**
  - Event of the WSIS Geneva, Dec 2003

- **SIS-forum exhibition**
  - Inaugurated by UN SG, Web inventor

Conclusion

The major - though non exclusive - IT channels for Technology Transfer are based on collaborations with external partners

Transfer is by doing things together