
TANGO
controls

TANGO CONTROLS MOVES TO INDUSTRY

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on behalf of

TANGO Collaboration

CROSSING THE BRIDGE

CROSSING THE BRIDGE

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THE BRIDGE

SUSTAINABILITY

SOFTWARE SUSTAINABILITY

"*Sustainability* means that the *software* you use today will be *available* - and continue to be *improved* and *supported* - in the *future**."

https://www.software.ac.uk/about

Future = 20 to 30 years

DESIGN FOR SUSTAINABILITY

Distributed Devices are still modern after 20 years *e.g.* ***agents*** *and* ***microservices*** *are* ***modern*** *(again!)*

IT TAKES MORE THAN TWO TO TANGO …

- **40+ sites** depend on Tango Controls
- **Original core developers** sometimes move on
- All projects need **renewal** in order to be **sustainable**
- Minimum of **3 to 4 core developers** needed
- **Collaboration Contract** helps guarantee sustainability

THE TANGO CONTROLS COLLABORATION

- **10 members** = 5 core + 5 collaborating members
- **100 000** euros / yr, **5 yr contract** (ESRF financial rules)

- **Steering Committee** votes on decisions and strategy

THE TANGO CONTROLS COLLABORATION

- Collective decisions
- Simplified Procedure to join
- GOAL is MORE + BETTER SOFTWARE

CORE INDUSTRIAL PARTNERS

- **Core industrial partners** are industrial partners who can work in the Tango **core**

- Minimum Requirements:

  1. **Power Tango users**,
  2. **Experienced developers**,
  3. **Professional and affordable**

- Identified 4 partners:
  - **Startups - IK, 3Controls,**
  - **Service companies – STFC, Nexeya**

EACH PARTNER HAS EXPERT SKILLS

- Following partners had skills in :

1. **IK**
   - Tango, ava, C++, JS, web design, s/w quality ...
2. **3Controls**
   - Tango, documentation, VM, ...
3. **Nexeya**
   - Tango, Windows, CI
4. **STFC**
   - Tango, Python, C++
5. **Webu**
   - Django, web hosting
6. **Jetbrains**
   - sponsored development tools

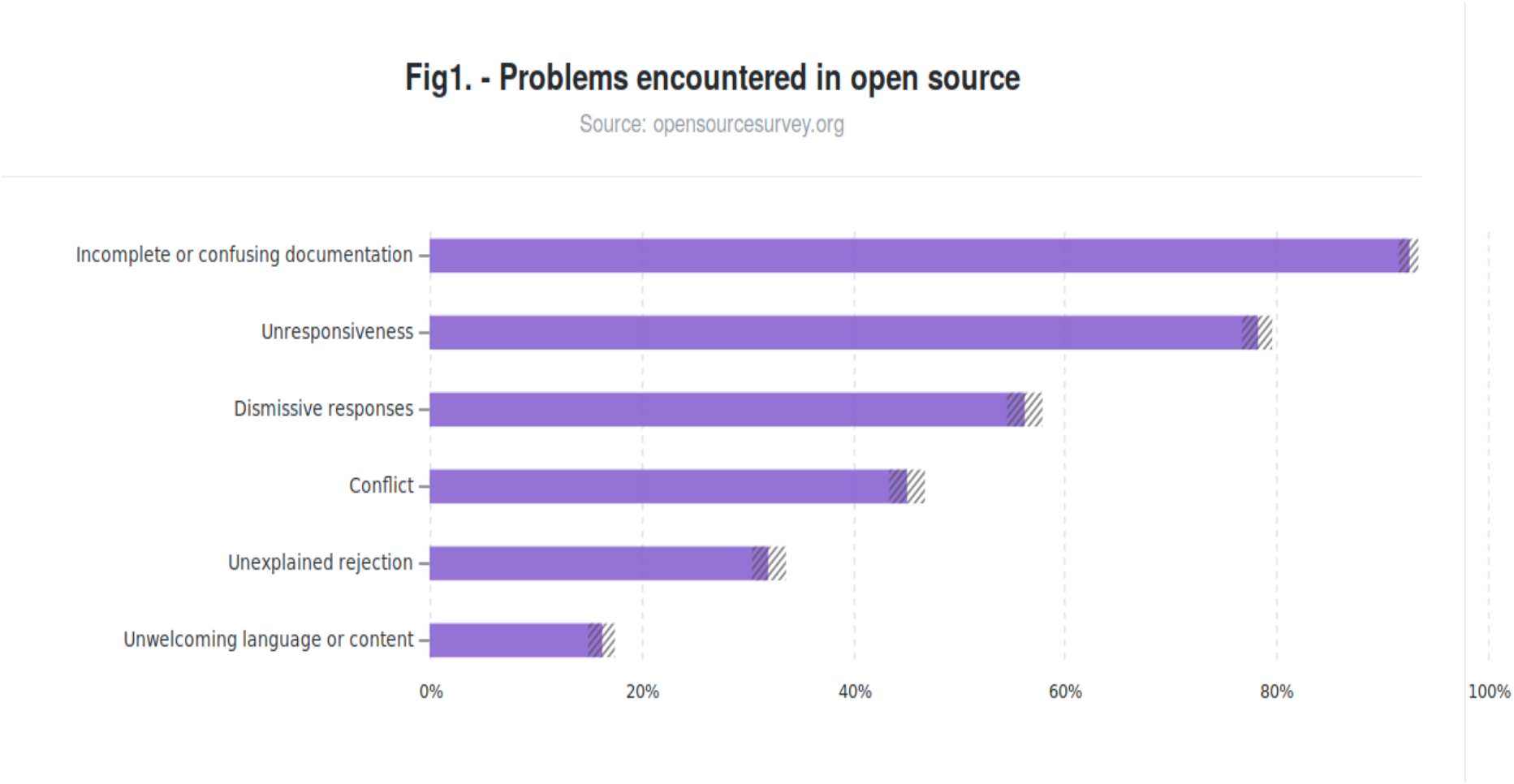
TASKS SUB-CONTRACTED

- Following tasks were sub-contracted:
  1. **C++** and **Java core development** (LTS + V10)
     - move to github, LTS + V10, CI, QA, ...
  2. **Restructuring documentation**
     - move to Sphinx, readthedocs.com
  3. **Continuous integration** for Linux+Windows
     - Travis for Linux
     - AppVeyor for all Windows compilers
  4. Missing features for **PyTango 9.2**
     - Pipes, enum types, i/f change event
  5. **Web site** hosting + improvements
     - new website is even better
  6. **Device server catalogue**

EVENTS SPONSORED

- Tango **Write-the-doc** camp
- **Streaming** of **Tango meeting**
- **Russian** Tango meeting in Moscow

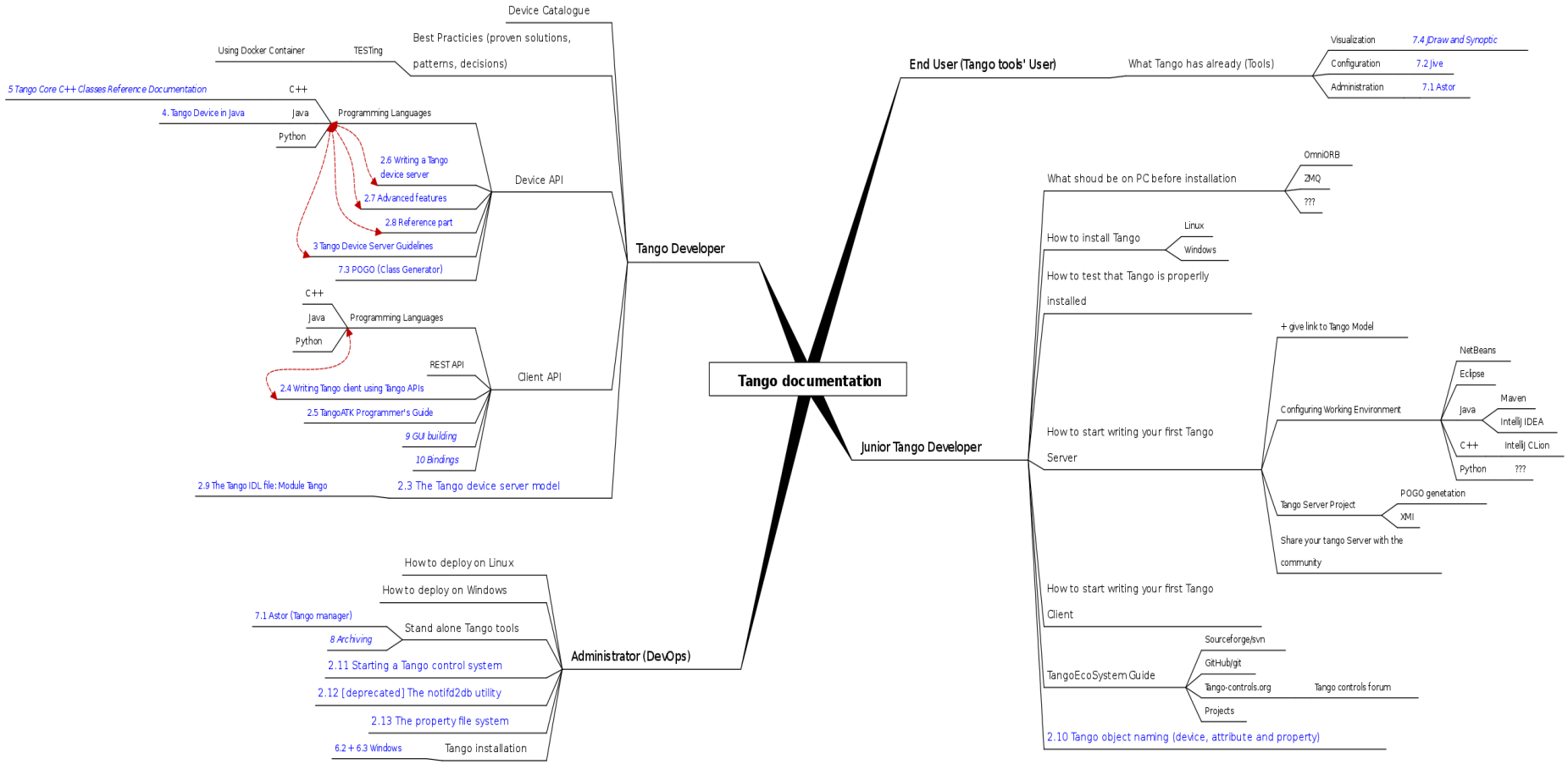
PROBLEM WITH OPEN SOURCE



http://opensourcesurvey.org/

DOCUMENTATION RESTRUCTURED

- **Mindmap** by **Olga Merkulova** enabled us to restructure the documentation:



In blue - taken form Table of contents of existing documentation, written but may need some changes
In blue italics - taken form Table of contents of existing documentation, not written

WRITE-THE-DOCS CAMP

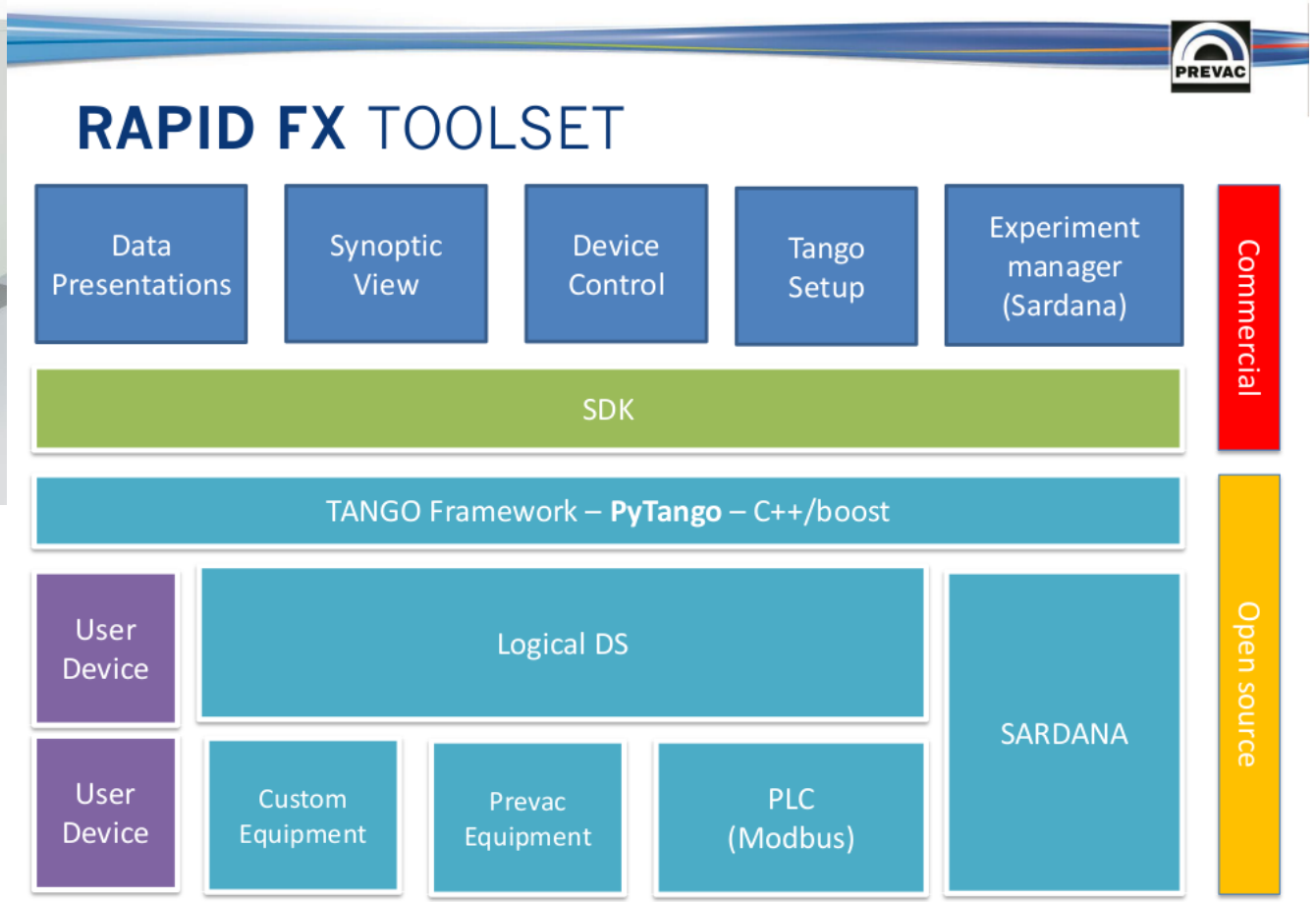
BUILD TRUST

Trust is built on **transparent communication + results**

- ✓ Forum
- ✓ Mailing list
- ✓ Annual meeting
- ✓ Local meetings
- ✓ Kernel meetings
- ✓ Steering committee
- ✓ GitHub workflow

TANGO LAB SYSTEM

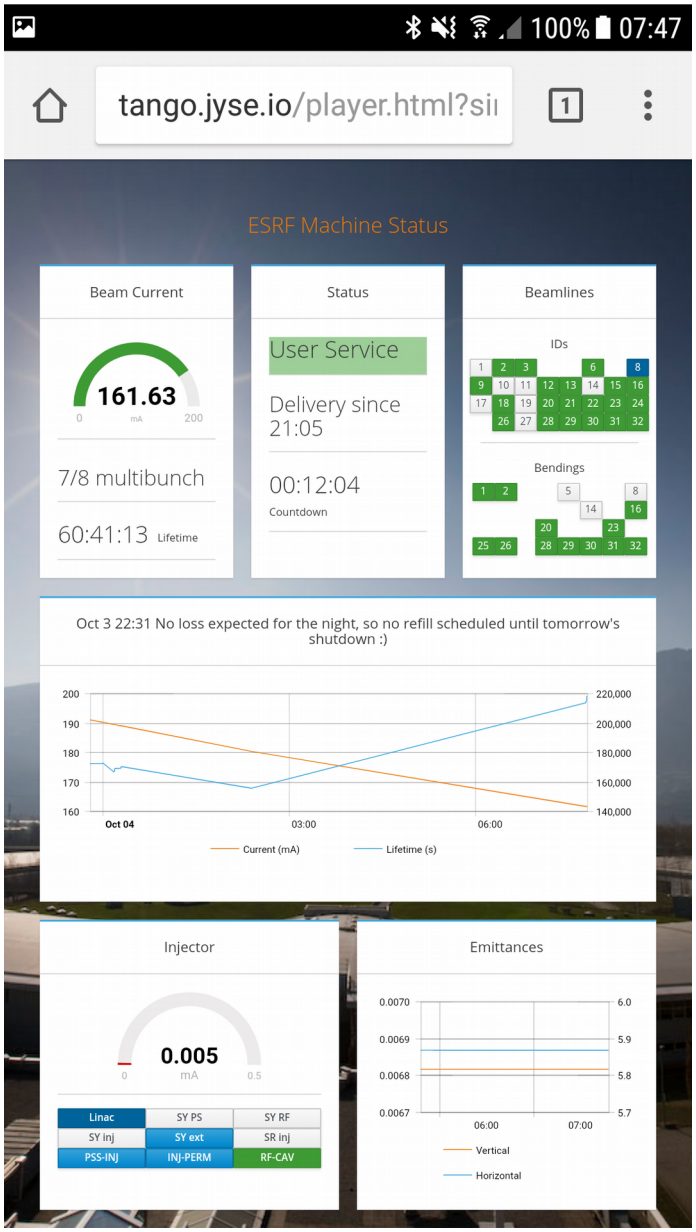
PREVAC developed the first Tango based lab system on Windows in Python, C++ and C#



prevac.eu

TANGO WEB DEV

JYSE is a Grenoble startup that has developed a web application for building ergonomic displays of data coming from Tango (and other sources) without programming.



TANGO INDUSTRIAL INERTIA

Why industry is slow to adopt Tango ?

- **Tango Controls** is a framework and **requires resources** to develop.
- Big **companies** usually already have **their solution**.
- **Lack** of ISO or GOST **certification**
- **Open Source** licensing is **not always** well **understood** by industrial partners
- **Tango Controls** comes from the **scientific** world

TANGO INDUSTRIAL PARTNERS FUTURE

How to secure and increase number of industrial partners?

- Continue to **sub-contract** specific developments
- Propose **longer contracts** for core development
- **Prospect** and evaluate new **partners**
- **Industry** helps us to do **continuous improvement**: code, web site, documentation, ...

LESSONS LEARNED

1. **Sustainability** requires constant work
2. **Plan for change**, developers move on
3. **Startups** are excellent *quality vs cost* value
4. **Money** is very useful even for Open Source
5. **Industry** is a good partner if well chosen

CONCLUSION

MORAL

Not enough to be Open Source

It needs to be Sustainable too !