PM #2: Standards

"universal plug & play"

- Standards for interfaces to encourage re-use & avoid re-invention
- Equipment that can take publishable data → is it calibrated? is it quantitative?
- Design constraints
- Standards are important to interact w/ others (electrical engineering background)
- How do you standardise a design - make it consistent?
- Different standards for different regions
- Are standards needed for bio stuff
- Do standards have the same problem as a kit - lock in / ownership

kit but can build your own

- Do standards break equity

Formal or legal standards for manufacturing, sale, certification - and how we deal with that

Legal

Standardising hardware performance and interfaces

Voluntary

(expensive) certification often expensive & closed

do we want our own standards → how could we get this adopted? interoperability & reuse

Quality control, safety, ethics

interoperability & reuse

Equity & accessibility

- standard for centrifuge force
- communications protocols
- EMI standards

safety

accuracy

What do standards do

best practice

compatibility

→ c.f. roadmap for the "idea-to-product process: could we have a flowchart for which standards you need to hit, with helpful hints/examples/contacts?

Action

Action Does GOSH need a

#ctu standards group?
↳ what standards should we create?

There are some standard bits of kit

- Centrifuge
- Pipette
- Thermocycler
- Microscope

↳ map out standards for these?
(↳ summarise for non-university folk
↳ release implementation - that's as-good-as

shouldn't need to be a journal

library of ~~standard~~ testing protocols

not officially endorsed
allow test protocols to be referenced

create an environment to allow standards to emerge

- File formats often not standard/open
  - PCB design
  - 3D shapes
    - is STL enough to be "open"
    - OSHWA standards for openness

- Recommendations vs Standards - often more appropriate for us?
- Example of open standards: Open Geospatial Consortium vs GeoJSON
  took off because of good libraries
  ↳ grassroots - not from GSC
- where do standards live — GitHub?
  - own server?
- how do you "peer review" hardware
- Political standards (e.g. public lab/health/environment monitoring)
- Sloan report on open hardware standards

(?) How do you define interfaces (e.g. HW control or data sharing)

without being too prescriptive (e.g. defining the top-level SW environment)
- go for higher level description
- standardise data formats

(?) What will we **do**?

- Make lists of bio lab standards (Jenny) → review these
- Standards are created by the community — we should think about standards & protocols for testing
- Public Lab working on performance standards
- Make protocols for our equipment
- Look at some HW & analyse what needs standardised
- Establish basic/local working practices → E.g. DropBot
- Pomeet: if I design something, include tests/protocols
  - choose the design that has a test
- Richard: document my tests explicitly