



Welcome to the Pharmaverse: *Breaking boundaries through open source collaboration*

PHUSE EU Connect 2022





*clinical reporting
(CRF -> Submission)
forms a small part of
a large chain in
bringing a treatment
to patients*



*this space can be
considered “post-
competitive” - as it is
our treatments that
set us apart*



*thanks to CDISC we
have industry
standards that mean
we all face the same
challenges*

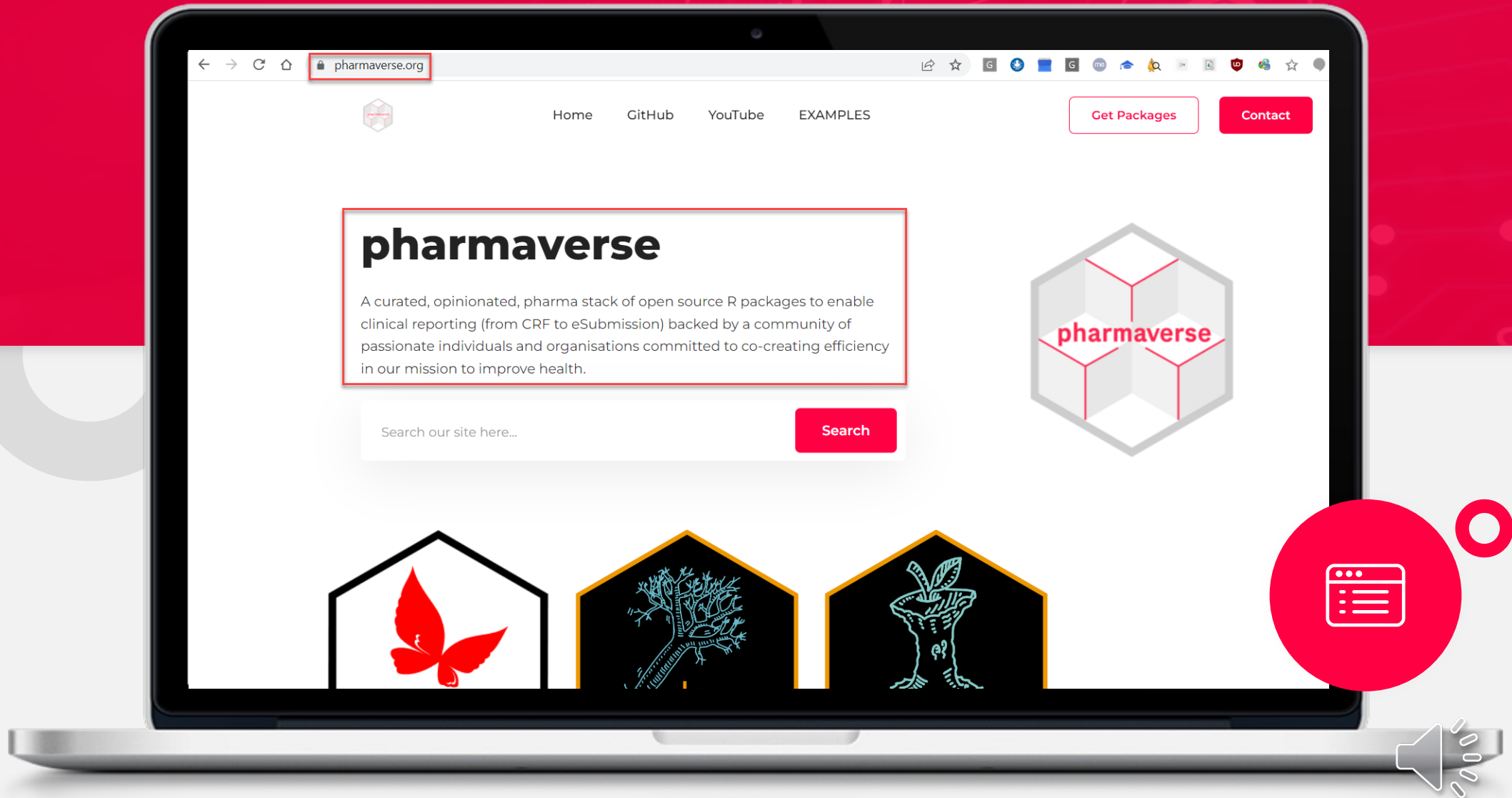


*we have much more
to gain (than to lose)
through industry
collaboration around
open source*



With all that we collaborate on, why not code?





What Can Pharmaverse do for You?

Packages focus on
modularity

Solve a problem
and solve it well

Monoliths are
hard to share

Several
components are
generic

Break problems down into
pieces

Use more building blocks,
less black boxes

A lot of the same, a little bit different



Functions != Macros (necessarily)

- In practice, macros tend to solve one big problem
 - `%make_my_demographics_table(adsl);`
- R is built for functional programming
 - Speak in verbs, not in nouns

No function should be longer than what can be printed on a single sheet of paper in a standard reference format with one line per statement and one line per declaration. Typically, this means no more than about 60 lines of code per function.

Rationale: Each function should be a logical unit in the code that is understandable and verifiable as a unit. It is much harder to understand a logical unit that spans multiple screens on a computer display or multiple pages when printed. Excessively long functions are often a sign of poorly structured code.

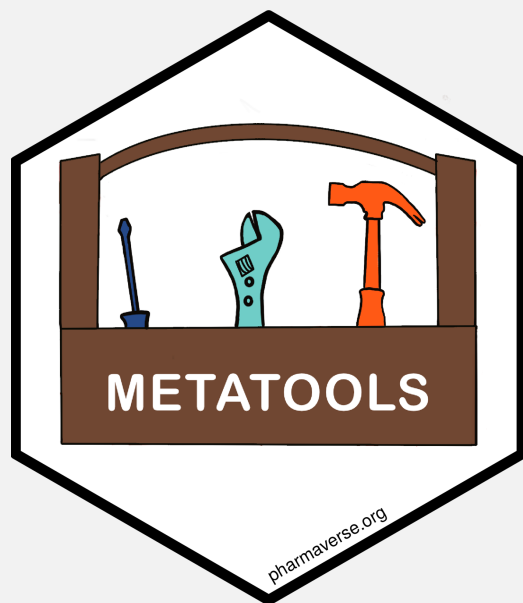
– Gerard J Holzmann, The Power of Ten – Rules for developing safety critical code



Fitting Pieces Together



Store metadata from
your specs



Generic metadata driven
CDISC operations and
checks



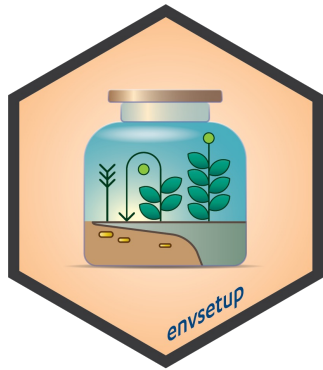
ADaM specific algorithms
and derivations

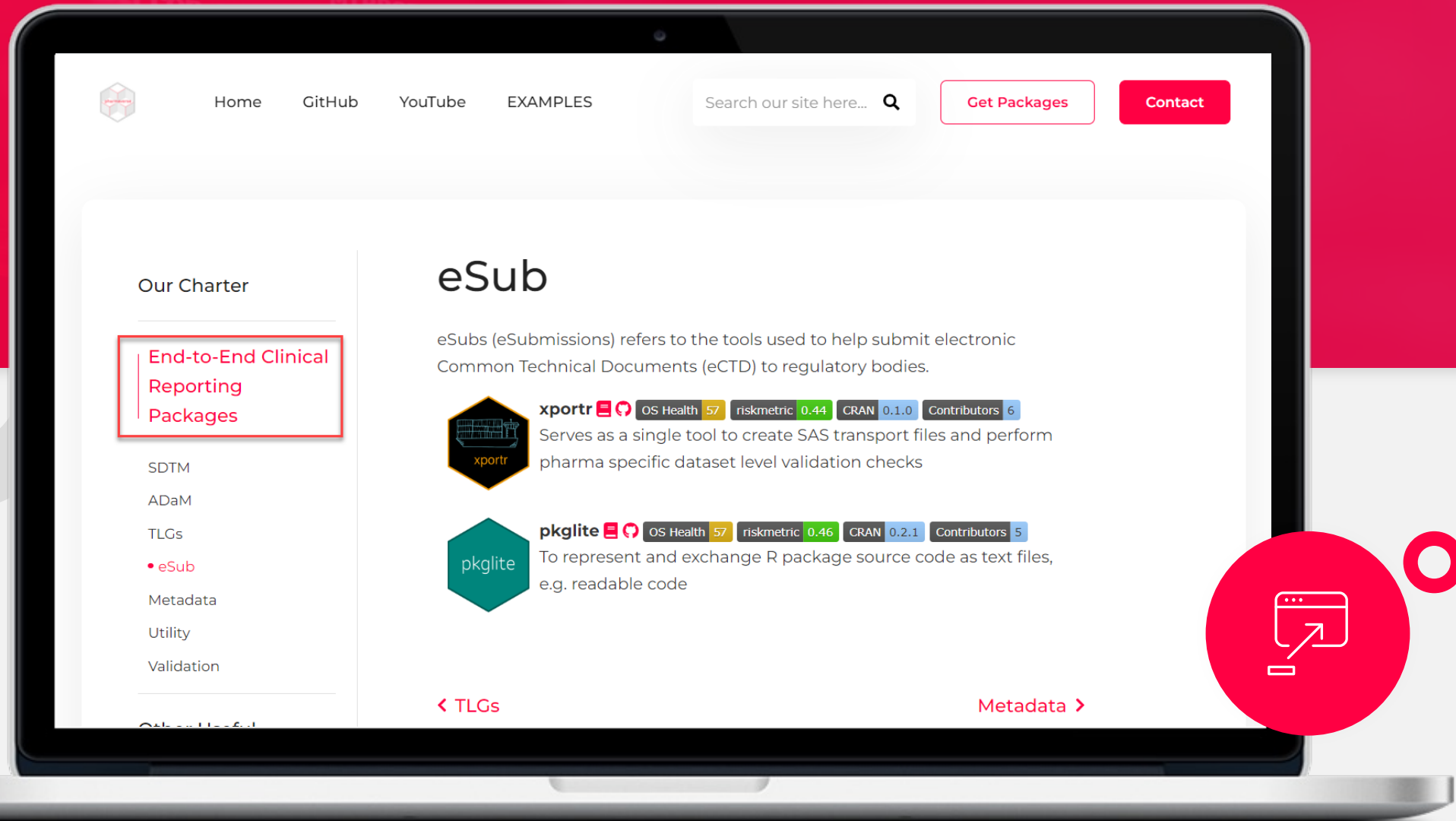


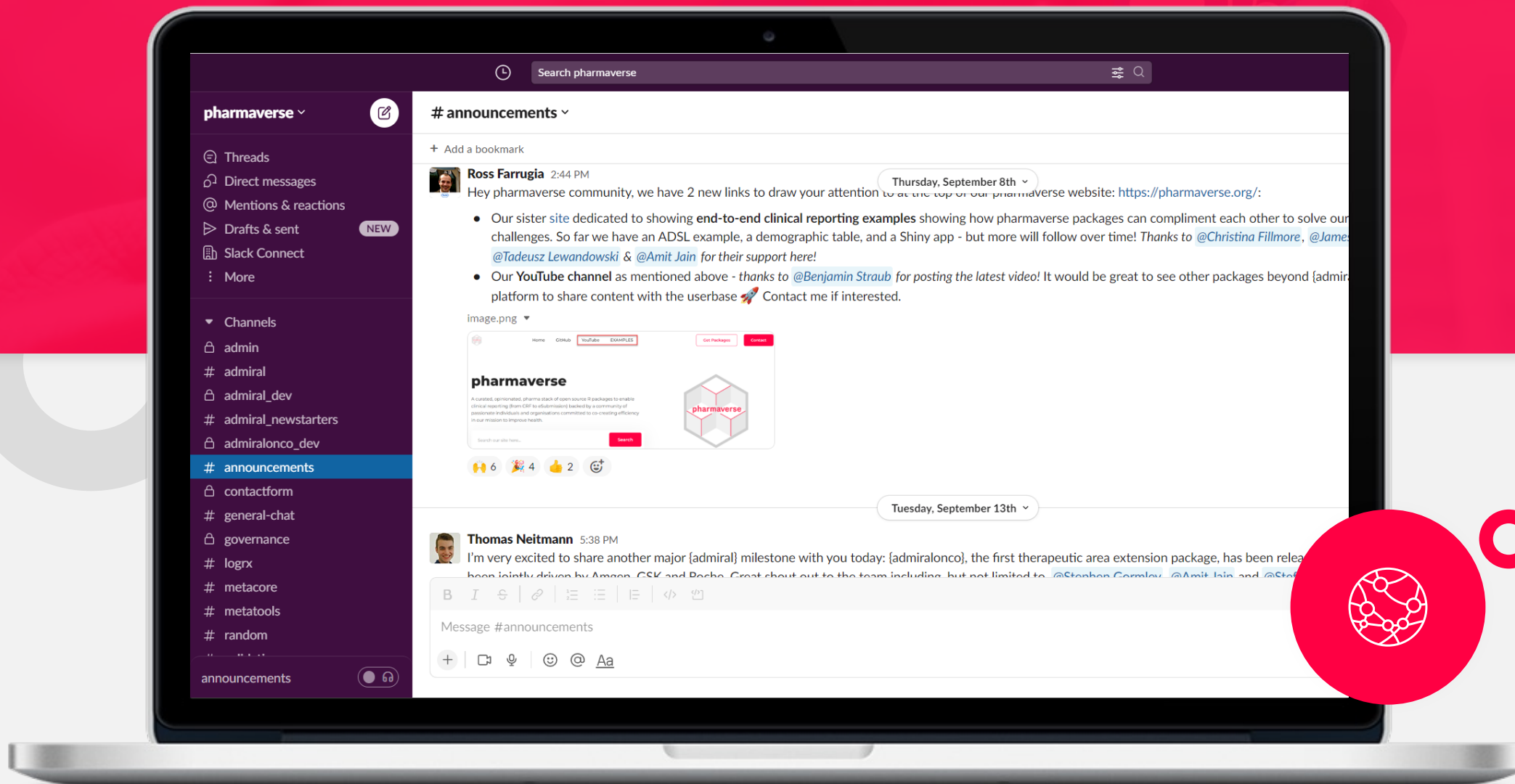
Apply CDISC metadata
and write to SAS version
5 Xport files











Imagine a world where...



every company (large & small), charity, academic group etc all have access to FREE solutions to support creating a clinical submission



regulators receive more consistent packages delivered using trusted code, thus speeding up approval times and patient access



less resource intensive clinical reporting leads to individual data science talents being freed to help generate new scientific insights



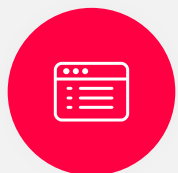
our regulatory pathways are revolutionised opening the doors for less paper-based submissions via interactive tools



we achieve all of the above TOGETHER (as Sapiens)!



useful links...



slack channel:

<https://pharmaverse.slack.com/>

(use this [link](#) to join our community, if you don't already have access)



website:

<https://pharmaverse.org/>



examples:

<http://examples.pharmaverse.org/>



open pharma:

<http://openpharma.pharmaverse.org/>



youtube:

<https://www.youtube.com/channel/UCxQFEv8HNqM01DXzdQLCy6Q>



linkedin:

<https://www.linkedin.com/groups/9126149/>

