

CLAIRE Scientific Backbone - Working Notes

The CLAIRE Core Team invites us to set up a task force to develop a working model for the **Scientific Backbone of CLAIRE**. Note that 'till now Scientific Backbone, which is in paper the greatest strength of CLAIRE and makes the initiative authoritative and universally appreciated, has been somewhat neglected one, except for specific initiatives dictated by contingencies, such as COVID-19, or contacts with ESA which have been quite successful in fact.

This task force has to come up with ideas for developing the **scientific backbone of CLAIRE** itself.

First, what we need to do is to spell out initiatives that set up the **added value** of CLAIRE as a PanEuropean Scientific Community. Here are some examples:

- **Recruiting PhD students all over Europe exploiting CLAIRE visibility** A big advantage of having a CLAIRE is that through its visibility it may facilitates **recruiting PhD students all over Europe** and, while single researchers, even the best ones, may not be known by the students, an Pan-European initiative as CLAIRE could have the needed visibility and means to promote research in AI to candidate PhD/MSc students.
- **Encourage students in their MSc and PhD programs to spend time in CLAIRE partner sites, and co-supervision from researchers at other CLAIRE sites.** Moreover CLAIRE can be used to advertise and encourage students in their MS and PhD programs to spend time in CLAIRE partner sites, and co-supervision from researchers at other CLAIRE sites. CLAIRE can provide fellowships to support this activity possibly in conjunction with the ICT-48 projects. One could even think of setting up a sort of **ERASMUS** program dedicated to AI for graduated students.
- **Build CLAIRE supported European PhD and MSc programs in cooperation with degree-granting universities.** The participating degree-granting institutions will allow and encourage their students to spend time in CLAIRE partner sites, and co-supervision from researchers at other CLAIRE sites. Also courses can be developed to be used at different sites with guest scientists giving them, CLAIRE can provide fellowships to support this program possibly in conjunction with the ICT-48 projects.
- **Organize a yearly CLAIRE Summer School.** We could model the CLAIRE Summer School by following the prominent example of **ESSLLI** Summer School <<https://www.esslli.eu>>, and probably coordinated with ACAI, EurAI's summer school. A CLAIRE Summer School of two weeks with very many courses offered by the best scientist in AI, bringing together all competences of AI within the same campus (a very much CLAIRE feature!). We could start from

2021. In addition, CLAIRE could also support/endorse (possibly with a CLAIRE label of excellence) AI summer school organized by its CLAIRE SCIENTIFIC UNIT or member of its network.

- **Support visits of PosDocs/Researchers of any career stage to CLAIRE partner sites.** We could set up a sort of program for visiting CLAIRE partner sites, possibly exploiting mechanisms similar to the one proposed for the **connectivity funds** in the ICT-48 TAILOR proposal. The point is to promote and support visits of length going from 3 weeks, to 3 months, to 6 months, or even one year (e.g., for a sabbatical). CLAIRE could advertise the program, put a CLAIRE label of excellence to certain exchanges and even support financially through the resources of CLAIRE partner sites as well as specific money given to CLAIRE, possibly in conjunction with ICT-48 projects.

- **Set up a sponsorship program for Industrial stakeholders.** We have seen that last year in Italy several companies were ready to sponsor CLAIRE but we did not have a mechanism that was convenient enough for them. Consider that Companies need to exploit fiscal advantages when sponsoring something, and we need good mechanisms for this but this will be done this year and indeed there is a task force dedicated to this, which From our point of view as Scientific part of CLAIRE, such sponsorship could also involve some exchange program in which:
 - A company sponsors stages of 3/6 months on AI themes for AI PhD students or even MSc Students
 - A company opens a collaboration with a CLAIRE SCIENTIFIC UNIT hosting a PostDoc/Researcher in its labs for 3/6 months.
 - Also, companies could have hiring campaigns in the various CLAIRE events (e.g. the CLAIRE Summer School), or in any case find in CLAIRE a way to access young scientific talents.
 - Moreover, companies may set up collaboration with CLAIRE SCIENTIFIC UNITS on specific projects, using CLAIRE as a facilitator for meeting the right competences (possibly with specific instruments to be set up yet). I imagine that there are a lot of other initiatives that can be done together with Industry, proposals are welcome!

- **Set up some explicit cooperation with the ICT-48 projects.** We know that 3 of the 4 ICT-48 projects that have been approved + the CSA are related in a way or another to CLAIRE. Is there a way to make this explicit, and leverage them for promoting CLAIRE itself? There are many other things that comes to mind: giving the CLAIRE label to online MSc/PhD courses on specific subjects, or invited talks, and make them available in some CLAIRE repository, organize workshops on specific themes (actually we are already doing this) also online, and many other things. More importantly, the specific tasks that I mention here are only examples and I am sure that with a little brainstorming and work much more can be proposed.

- **Many others to be proposed! :-)**

Apart from looking for added value, we also have to think about how to **structure the Research Pillar of CLAIRE and understand what resources we can count on**. Obviously the CLAIRE vision is clear and well summarized in the CLAIRE website: “CLAIRE is an initiative by the European AI community that seeks to strengthen European excellence in AI research and innovation. To achieve this, CLAIRE proposes the establishment of a PanEuropean Confederation of Laboratories for Artificial Intelligence Research in Europe that achieves “brand recognition” similar to CERN”. Moreover, CLAIRE is by now potentially a very powerful initiative having behind almost the whole European Scientific Community in AI, including most of EurAI members, coming from diverse areas of AI, and some of the very best researchers worldwide. It is also important to keep in mind that within CLAIRE we want to avoid at all costs an elitist flavor. In fact (differently from ELLIS) the CLAIRE initiative wants to be inclusive and focused on the whole AI, and as such has much better chances of having a widespread impact at the PanEuropean level. Keeping these ideas in mind we now need to **give some structure that can make CLAIRE Research Pillar work effectively for the time being**. Here is a possible proposal:

- **CLAIRE SCIENTIFIC UNITS.** A possible way to go is to establish some sort of **CLAIRE SCIENTIFIC UNITS** formed by the academic nodes, which would form the backbone of the **CLAIRE scientific network**
 - Becoming a CLAIRE SCIENTIFIC UNIT should require the presence in the unit of **prestigious PanEuropean scientists in AI**, as assessed from:
 - publications at the top venues,
 - participation in editorial boards of the best AI journals,
 - participation in the scientific organization of the top AI conferences,
 - etc.
 - Becoming a CLAIRE SCIENTIFIC UNIT should imply a **significant financial commitment**, i.e., a CLAIRE SCIENTIFIC UNIT should show the availability of certain financial resources and (at least informally) commit to use such resources for science within the CLAIRE initiatives. E.g. possibly some ERC projects or other projects from the EU could be partially used by taking advantage of opportunities and synergies coming from CLAIRE. Note that these are virtual money, which will never leave the site where the money is. Details need to be worked out and they possibly could be in synergy with the ICT-48 new projects.
- **CLAIRE Academic nodes.** Apart from CLAIRE SCIENTIFIC UNITS, CLAIRE scientific network includes other academic nodes, which may not be SCIENTIFIC UNITS for lack of scientists or funding, but are still doing serious scientific research. It is important to stress that we want the

development of the whole AI community so we do not want to focus on CLAIRE SCIENTIFIC UNITS only.

- **CLAIRE Industrial Research Labs.** Beside academic nodes the CLAIRE scientific network includes industrial labs that have a particularly tight relationship with the CLAIRE Scientific Pillar. In fact Top Industrial Research Labs to be CLAIRE SCIENTIFIC UNITS as well, however for them it might be more difficult to “informally” commit resources. What we require from them and the added value that they have to exhibit to become part of the CLAIRE Scientific Network has to be detailed.
- **Other forms of CLAIRE network nodes!** We may think of several other forms of nodes in addition to the above! :-)

Generally speaking CLAIRE wants to promote at a PanEuropean level science in AI at all levels:

- Long-term basic research (mostly academic or in research lab, bottom-up)
- Mid-term research (academic + industrial, both bottom-up and top-down, possibly derived by challenges)
- Short-term research (academic and industrial, typically top-down)

Indeed it is science and research that is going to be the glue between universities, research centers and companies. In doing this we should also consider that Europe essentially has no giant companies in AI/CS (such as Google, Amazon, etc). Instead the European AI/CS industrial landscape is based on SMEs. So maybe for Europe it is more advantageous to develop “Fog”/ “Edge” technologies rather than “Cloud” ones. Note that this is also related with the notion of resilience that is coming up strongly lately (see recent talk by Moshe Vardi at Univ. Berkeley (June 2020) “Lessons from COVID-19: Efficiency vs Resilience” <<https://www.youtube.com/watch?v=L50SvoF9e5k>>, and a related short article on CACM <<https://cacm.acm.org/magazines/2020/5/244316-efficiency-vs-resilience/fulltext>>).

Board:

- Ronen Brafman
- Giuseppe De Giacomo
- Luc De Raedt
- Thomas Eiter
- Hector Geffner
- Fredrik Heintz
- Malte Helmert
- Holger Hoos
- Kristian Kersting
- Jérôme Lang
- Gerhard Lakemeyer
- Bernardo Magnini
- Michela Milano
- Barry O'Sullivan
- Alessandro Saffiotti
- Torsten Schaub
- Carme Torras