

Open Data, Open Innovation: Data, Science and Industry across paradigm shifts. Can we learn from medieval scholastics?

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Introduction

Open innovation is an approach where the development of new products or part of them, by industrial companies, is outsourced to external entities. The rationale for this approach is rooted in several economic trend analysis. A first reason for this is to keep up with the speed with which new technologies emerge. Investing in the full cycle of development of a product can be very risky since can take a lot of time and resources. Only very rarely R&D departments of a single company have the know-how to follow the development of the the full set of product parts. New ideas and products are therefore easier to be assembled leveraging alliances with other entities sharing therefore the risk and the costs of such development.

Open innovation can potentially become a great opportunity for universities and research centres, in fact, being them at the heart of new ideas and trends they seemingly are the perfect partner in open innovation.

Unfortunately beyond this point some issues emerge. The main difficulty is that Universities and Research centres on one side and industrial companies on the other have different missions and approaches. While the constantly under-funded scientific sector has great expectations in the possibility to have incomes from the private sector, the latter needs to protect the investments done with the former.

Open Data

Open data is a trend where data acquired by scientific institutions is shared within the scientific community and theoreticall with any possible stakeholders. Reasons for this approach span a wide spectrum. On one hand the ideals on which Science is built dictate that any finding and how they are found is shared with the scientific community and the society at large. Scientific reproducibility has always been at the very kernel of the scientific method so that results described in a scientific publication should be available for later re-analysis. Data acquired with public funding, in addition, should be accessible to other scientists or projects to reduce costs sustained by the society, and maximise results and impact of investments. The open data approach triggered a great numer of initiatives, technologies and is changing the way researchers actually work.

The issue

If Open data can be considered a paradigm shift in data accessibility and therefor management, however, there are resistances. The main problem has to deal with the sensibility and economic interest behind certain types of data. In the case of an un-limited and not-controlled open access to

some types of data, these can be used by commercial companies to add value to their products without any investment. This is, at least, unfair, since unbalance the relationship between the public and the private sector. In fact, from these data, some commercial entities can acquire competitive advantages, save money not investing in new acquisitions, exploit tax payers money moving revenues outside the fiscal area of the data originator, while often imposing, at the same time, protection on their data. In addition, the dangers of the exploitation of sensitive data such as environmental or some socio-economic data are evident and have been clearly highlighted by some recent cases of scandals in social media data usage frauds.

Standing on the shoulders of giants

Alcuin of York (735-804 AD), presented us with the puzzle to take across a river a wolf, a goat and a bunch of cabbages (illaesos ultra fluvium transferre lupum et capram et fasciculum cauli). The solution he proposes is creative yet rigorous. Can we imagine something similar to take data, researchers and people from the industry, across the paradigm shifts of Open data and Open Innovation.

First of all it must be realized that open data does not mean unsupervised total possibility to download everything. While in some sectors this is needed, such as in the case of some governmental agencies, in the case of Research Institutions and Universities some filtering can be applied. This can avoid any misunderstanding on the FAIR (Findable, Accessible, Interoperabile, Reusable) principles. Filtering can take place where data (persistent) identifiers redirect users to the data, intercepting users in landing pages where descriptions and previews of the data are made available (maybe with further copyright protection) and from where data could be made accessible on a user by user approach, depending on a licensing mechanism that has to be negotiated between the data holder and the user. Several license type can be used depending on the data holder policy, such as for example leaving full access to research institutions, or scientific paper reviewers, while allowing access to industrial companies only after the subscription of a full license of use contract, which could introduce also a fair income for the data holder.

SNAP

In the perspective mentioned above, Istituto Nazionale di Oceanografia e di Geofisica Sperimentale – OGS, tailored its web based data management tool named SNAP, to balance Open access and commercial involvement in the domain of Geophysics. This domain is currently living a particular economic trend. The low price of Oil and the recent strict environmental regulations result in the tendency to avoid new surveys. Oil and gas companies then need data they try to obtain from the world of research institution and Universities. SNAP aims at bridging the needs and interests of the commercial word with that of research, supporting at the same time Open Innovation and Open Data.

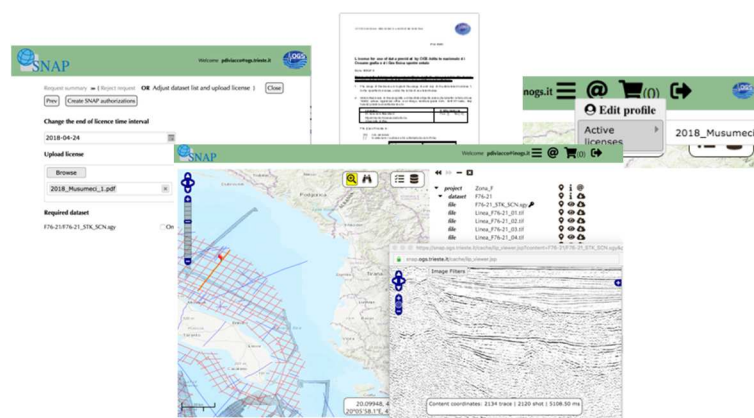


Figure 1: Snapshots of previewing and licensing facilities offered by SNAP