MOLECULAR SCIENCE VIRTUAL RESEARCH COMMUNITY

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Life is characterized by a great deal of given and received donations. There is, though, a clear asymmetry in this. People from which one receives differ from those to which one donates. During my youth, as usual in academia, I received generously knowledge and support from senior colleagues (slide 2) offering them back enthusiastic dedication to the research proposed by them. More recently, instead, I have been more in the position of offering knowledge and support to my collaborators and receive from them dedication (slide 3). To both groups of people goes my gratitude together with my thanks also for the organization of the symposium that Gabriele has hosted at the Molecular Discovery venue. The high value of the mentioned donations, however, are not taken into account by the "marginal productivity" accountability used by official statistics [1] (which refer only to real estates that since the last two world-wars steadily grow in value and fuel inequality between the top 1 percent and the rest of the population (slides 4 and 5) and neglect the above mentioned mutual enrichment of the human capital. A proper evaluation of the human capital would, instead, completely redesign welfare and related policies.

Yet this is what the present evolution of ICT technologies can provide us with thanks to its ability to empower a great deal of knowledge sharing and to significantly enhance competitive collaboration. In this context mutual help has become not only "the sexiest thing to do" (slide 6) but it is also the only way to grow in innovative science and related multi-scale complex applications. This is indeed the case of leveraging on the Grid Empowered Molecular Simulator (GEMS) [3] sketched in slides 7 and 8 and Virtual (Grid) communities and organizations (slides 9 and 10) enabled by the initiatives of EGI.eu. Key to the success of virtual communities is the support of public compute platforms (slide 11) and the adoption of business models based on shared mechanisms of evaluating the quality of the work done (slide 12) and of associating the evaluation to a proper reward of credits [4] as shown in slide 13.

Typical benefits of such approach are for example the growth and continuous increase in quality of learning objects implemented on distributed repositories like GLOREP [5] (see slides 14 and 15 for the case study of Perugia and Thessaloniki molecular sciences learning objects) and the industrial application for storing renewable energies as methane [6] (see slide 16 for a scheme of the PROGEO apparatus designed and implemented in a collaboration between some Italian Universities with ENEA and a cluster of small companies for the production of methane from carbon dioxide).

References

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