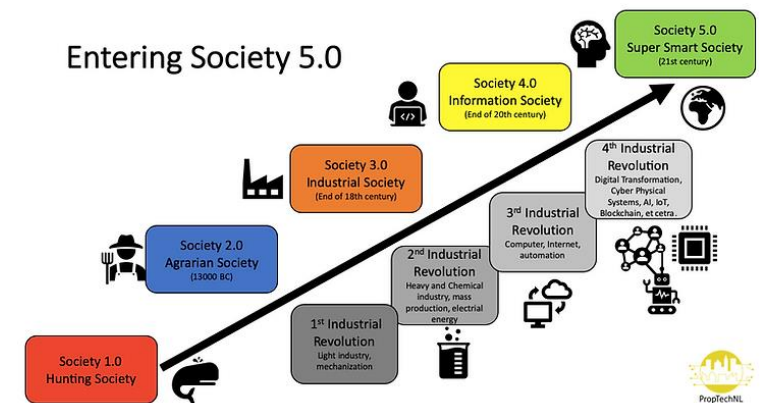
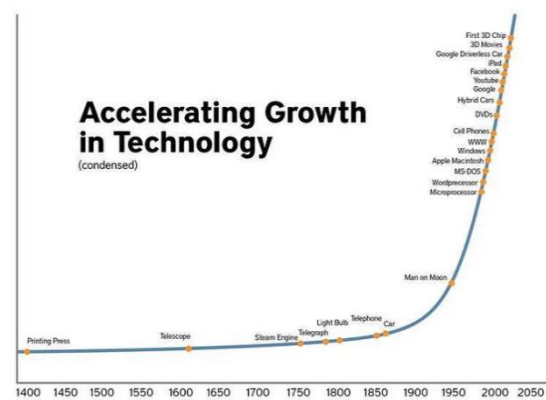
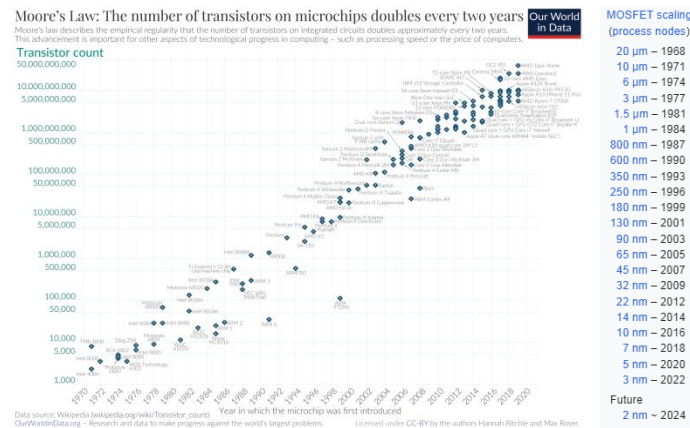


Open S.T.E.A.M. – the way for sustainable development of the society

It is my pleasure to announce the idea for creating of a (plat-)form for communication between enthusiasts (scientists, professionals, men of arts, students, scholars and even children) who have free resources such as knowledge, motivation, personal and/or machine time and space, hardware, software tools and the like and are willing to invest them for free in common projects based on ideas like S.T.E.A.M. and Open Source in their broad sense to create generally useful, high-tech and free products, including educational such in the field of electronics, computer science and robotics.

Both initiatives the Open Source and S.T.E.A.M. (Science – Technology – Engineering – Art – Math) are a pretty pair born by the informational society. On the one hand the movement started as "Open Source" by the computer professionals and spread in almost all aspects of the human life is the only real answer to the madness of the globalization. On the other hand S.T.E.A.M. idea comes from the need of the society to make the globalization trends a base for its sustainable development. Their union traces a reasonable way for the worth-life on the edge of next industrial revolution and the beginning of a new “Super Smart Society”.

The above thoughts are dictated by the realization of the fact that the industry's gluttony for a bigger and bigger profit by increasing the productivity while cutting the costs, especially for the skilled labor, is leading to an increase in the share of technology. Technological acceleration, in turn, accelerates the emergence and use of more and more new technologies. The dominance of such synchronous processes and the absence of counteraction lead to an exponential growth in the computer sciences, information technologies, artificial intelligence, automation, robotics etc. which can be seen in the graphs below.



Today's exponential technological growth, rapid society development and industrial revolutions frequency lead to lowering of the life quality and stressed people

The above processes leads to a narrowing of the natural habitat of the smart and skilled people in our society which, in turn, decrease the quality of industrial products, services, human life and society at the end. One possible counteraction of the society is to increase the share of smart and skilled people, and the education is the only instrument for that.

The victory of open source over the closed products of the computer industry in recent decades has led to the expansion of this idea into many human domains and has proven to be a powerful means of countering many negative trends in globalization. That is why a logical and natural way for sustainable development of the society is S.T.E.A.M. education enriched with the ideas of Open Source in their broad sense. This is also the mission of the currently offered Open S.T.E.A.M. initiative.

How the Open S.T.E.A.M. initiative will work?

Open S.T.E.A.M. is an initiative that will be practiced in real conditions and will be based on the following principles:

- Loyalty to foundation principles (S.T.E.A.M. and Open Source in their broad sense) and the good relationships between participants are a must;
- The initiative is open to every participant regardless of nationality, gender age and profession, and the English is common language of communication;
- Only related to the education, entertainment and required infrastructure activities are acceptable (no business, political, religious and other none related such);
- Every participant can be a donor, recipient or both and the infrastructure subject of donations or workmanship is free for usage by any participant;
- Any form of donation (personal time and space, material, nonmaterial, financial etc.) is acceptable and subject to public visibility incl. its usage;
- Activities of the participants performing organizational and/or management roles will be treated as donations and will not be paid;
- It is main duty of every participant to return back to the infrastructure the results of the activities achieved thanks to its free usage;
- Companies (incl. universities and schools) can also take part in the initiative as donors only but their staff will be treated as recipients;
- Recommended form of participation of the companies (especially the universities and the schools) is in the scientific, educational and entertaining processes;
- The only acceptable payment is for the participants spent their personal time and effort for education and/or entertainment of other participants on a regular basis (studies, classes, lessons, school works etc.). Promotion of paid activities is the only part that can be included in the initiative itself and the infrastructure will be available for free use as long as the participants are registered donors or recipients.

Donating blood means to donate a life; donating knowledge means to donate a better life!

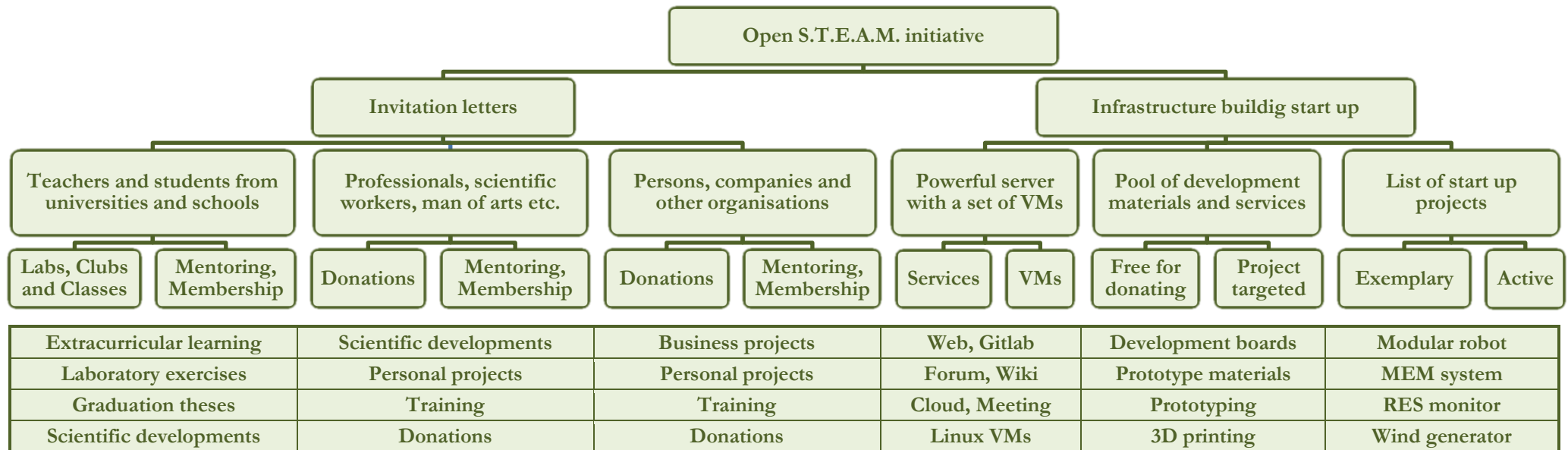
Donors	Activities	Infrastructure	Activities	Recipients
Private persons Association Companies Professionals Scientific workers Man of arts Students of any kind Scholars of any class Children or relatives	Donations Education Placement Installations Maintenance Management Subscriptions	Computer servers and workstations Mobile devices and LAN equipment Internet and service subscriptions Technical instruments and technologies Technical equipment and materials Software technologies and subscriptions Hardware and software projects Hardware instruments and workmanship Mechanical and art designs and ideas Mathematical models and program languages Scientific works, ideas and publications	Free usage Installation Maintenance Development Workmanship Cooperation	Professionals Scientific workers Man of arts Students of any kind Scholars of any class Children of any age

All activities will be based on projects aimed at a real free-to-use product including its mathematical methods, program source code, electrical schematics, mechanical plans, manufacturing technology, etc. It is recommended that products produced with free resources be returned to infrastructure for free use by the members.

The Open S.T.E.A.M. initiative can be registered as non-profit organization in future and the structure can be changed to match the new realities without deviating from the principles described above.

Some startup ideas and actions

The initial activities and participants necessary for the implementation of Open S.T.E.A.M. initiative are presented in the following figure:



Brief description of some of the active projects and prospects for implementation within Open S.T.E.A.M. the initiative:

- [Intelligent modular robot](#) with fully open source programming, technical and mechanical components. The goal is the development of high-tech modules for movement, communication (wireless, audio and visual), control, programming, etc. The modules can be easily combined into robots with different qualifications (balancing, dancing, drawing, following voice commands and visual cues, showing emotions, etc.). The final prototypes will be programmable at all levels and can be used by users of any age for scientific research, education, even for fun. Since all components are fully open source, the work can be performed by anyone with the necessary skills and motivation, including for business or educational purposes. The project is in the initial phase and only part of the investigations has been done.
- [Multi-channel Energy-Monitoring \(MEM\) system](#). The system is based on the [OpenEnergyMonitor](#) project and is designed to measure both the total electricity consumption of a household and the consumption of individual appliances in order to minimize energy bills. The information is constantly collected and visualized through a local internet application including statistical analyses. To improve the accuracy of the measurement, a special test bench has been designed to allow the calibration of the sensors. In perspective, the application can integrate external and internal climate sensors as well as sensors for monitoring the supplied and/or produced electricity from local RES. A socially significant possibility is the creation of a public service (like air pollution control systems) to which all interested parties can anonymously send data about their personal consumption in order to control suppliers and/or the efficiency of local production of the electricity. The system can also be used for production sites. The project is in an advanced phase and some of the prototypes have been made and tested.
- [System for monitoring the production of electrical energy from RES in combination with meteorological data](#). The system can also be used for RES parks, and some of its components can be integrated into the MEM system described above. The project is in an advanced phase and some of the prototypes have been made.
- [Electric generator with medium power \(5kW\) for electricity production through wind turbines](#). It can also be used as a module for installations with greater power. For the purposes of its investigation, a test bench has also been created and can be modified and used as an experimental and/or laboratory system for its study, both as a generator and as an electric motor, including in combination with batteries and accompanying controllers. Technically and technologically, the generator is suitable for production. The project is a completely original as development and is in an advanced phase, with detailed study of the prototypes.