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Maker infrastructure based on Fab Lab as a new hobby of citizens and a tool for creating start-ups

Parallel session 6:

The 'Lab factor': Living Labs, Fab Labs and STPs

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"Maker infrastructure based on Fab Lab
as a new hobby of citizens and a tool for creating start-ups"

Modern pace of life is speeding up. It is particularly apparent in big cities. Complexity of systems, density of information and communication, rate of changes – everything grows multiply. Flexible models and objects which can change according to requirements of the moment become the most demanded ones. It is relevant both for city infrastructure and technologies used in it. **Maker** movement and worldwide **Fab Lab** centers have appeared due to the revolution in the area of digital production and 3D printing. Fab Lab centers as birthplaces for **new start-ups** attract creative youth and inventors. Openness, cooperation and mutual aid are the core of such centers. A set of equipment is common and allows to create almost everything you want quickly and at a low cost.

Growing in popularity **maker centers** become new leisure-time activity for the entire city and all its citizens. "Makering" is considered as one of the paths of the technological development in the 21st century. Every maker can create new product in a few hours using laptop and 3D printer, tell about it via the Internet and become popular and demanded all over the world. Many successful ideas and solutions recently came from **startup-makers** not large companies. Such decentralization and downscale create new markets. Consumers lost interest in "off-the-shelf" products – identity and uniqueness has come to the fore. That's why makering goes from hobby to business that is not limited to local markets. It also has social impact besides economic potential: there is a changeover from a consumer society to a productive one. Modern technologies remove the barrier of specialized skills, allowing everyone to become a creator!

The mission of the Moscow State University Science Park is to establish an environment for setting up and early development of high tech enterprises. In modern conditions the talented young people play an important role in creating innovative **businesses**. Young makers are not only capable of generating the idea but can also consistently implement it by putting together a team, overcoming difficulties and creating a profitable business. Such projects supported by science and technology parks become after all their best residents and in future help to promote new projects thus inspiring new **young people**. An important element is to maintain innovative environment, informal business, where young makers have good chances for early development, exchange of experience and onward succeeding in business. To implement such a model a strategy of **Innovative elevator** has been designed starting from school, continued by university studies support and resulting in new **companies**.

In Russia, for several years now there has been a network of **Youth Innovative Creativity Centers (YICC)**. Their equipment is similar to the Fab Lab one, but it is more flexible and various. So far, there are 285 centers located in 39 Russian regions, 70 of which based in Moscow. There are both state and private centers among them. Some of these centers are based on innovative companies, the others – on colleges and universities. In the **MSU Science Park** work its own YICC, created one of the first in the country in 2012. Its mission is to grant opportunities for execution of innovative and creative **ideas**. The peculiarity of YICC is its hospitability both for residents and out-side innovators, as well as focus on children and young people engagement.

Our results:

• Over 5000 visitors for all time

• 50 youth projects per year

• The most effective **YICC** on the competition of the Department of Science, Industrial Policy and Entrepreneurship of Moscow

Working together children who were not familiar with each other before would be able to create project teams and resolve current issues. Later on such projects can result in individual startups and businesses and talented children would become valuable personnel **resource**. The aim of Science Park is to monitor such talented children, provide support in developing individual educational path and implementation of their own projects; and in case of promising results arrange for business incubation of prospective ideas with attraction of investments and market entry. Such projects in future can prove to be the best residents and partners!

The activities with young peoplie are supplemented by cooperation with partner's network, **namely**:

- Regular children's scientific-technical camps where children execute their own projects
- Cooperation with schools at MSU
- Cooperation with all-Russian youth competitions
- Cooperation with operating innovative companies

Summing up our experience:

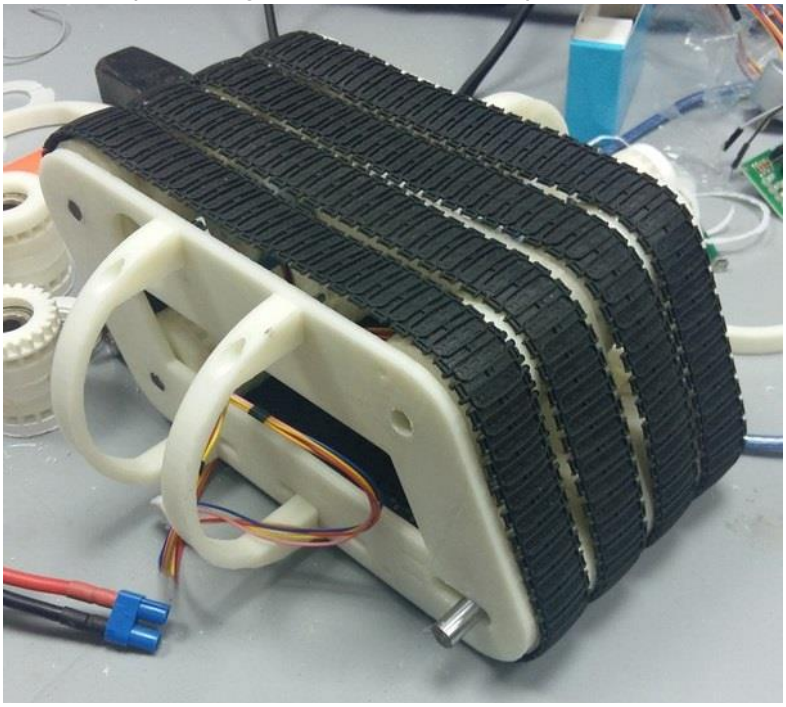
• The system works well with industrial partners who are mentors or business angels

• Necessarily need an author of ideas and facilitators who direct and set deadlines to the makers

• World experience says that the cost-effectiveness of a particular location is below payback. At the same time, various schemes work well, when several partners divide costs and take advantage of their activities.

• Students and students may not have enough experience, but there is a fresh look, creativity, a lot of energy, time. And they are ready to work on enthusiasm!

Device for processing details made on a 3D printer



Caterpillar tracker

To work well, the **maker ecosystem** must have a set of qualities:

• This should be a comfortable place, with rooms for conversation, privacy and assembly workshop. • It must boil life from other creators, new people appear

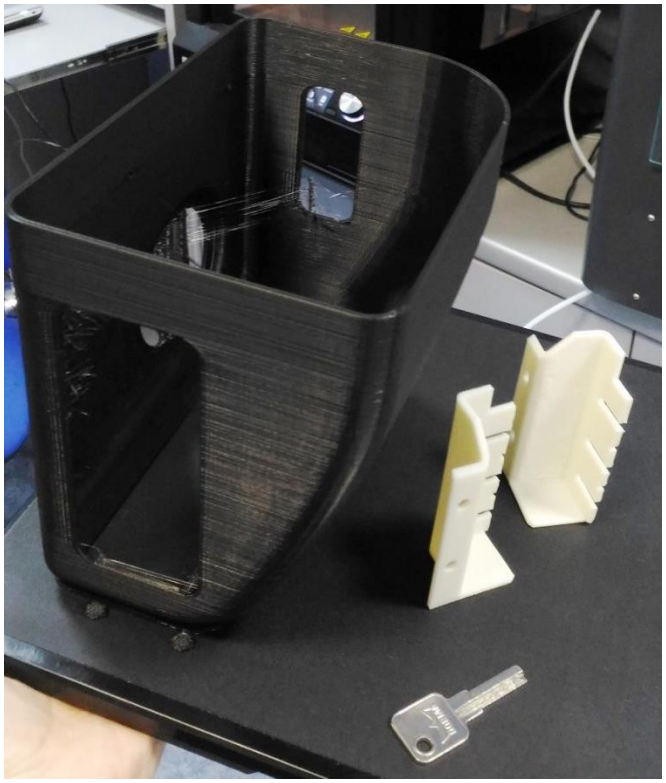
• Major events should occur and informal communication

• appear bright personalities and success stories

• Technical consultants, project mentors and business angels / investors should work on an ongoing basis

• For residents, access to equipment and supplies

Development and support of **maker ecosystem** allows MSU Science Park to maintain manageable, flexible and self-support structure that can not only set up new businesses but ensure inflow of young specialists and new projects. Thus, involvement of young people from school days would provide the Park and City with high-tech firms-residents and would become a successful development formula in future.



Prototype camera body