Introductory Word

As written by EPLL's Executive Director

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Our present is made of demanding challenges and winning answers. The nightmare scenarios that emerge from countless studies on the future of the planet outline the possibility of terrifying consequences, the imbalances in natural equilibrium which would then result in a social and economic disaster that should make us all worried. There are real possibilities, thanks to the digital innovation and to the newly arisen intellectual sensitivity of the social and environmental questions which could result in a higher productivity of the resources, the better circularity of the flows which would consequently diminish our ecological footprint. Our future is threatened by economic, social and environmental crises; however, we are still on time to react, prevent and actually make a huge step towards resolving the current status of huge inequality and environmental imbalance. The recent natural disasters such as terrifying hurricanes, lack of rain, extreme temperatures, floods and other are all mainly caused by meteorological imbalances.

There is a growing sense that the natural imbalances are here, that they are out of our control and that the clock is ticking. It's time to emphasize the present, to act now, not to wait for the future. In my opinion, the objectives set by the United Nations' 2030 Agenda are essential at least for two main reasons: first, because we need to improve the trajectory of the global economy and second to be successful in doing that we need a global coordination and collaboration of the key global institutions and countries. For example, Croatia, while working with the EU needs to set a leading tone in the South-East Europe to solve the rising social, climate and economic questions. We need to collaborate and emphasize the growing impact of energy insecurity (environmental imbalances), jobs creations and rapidly changing demographics that are threatening our region with deep social crises on all levels. There is no country today, no matter how big, strong or developed that is not worried about the social and environmental issues and its impact on their society and everyday lives.

Our local community perceived as the territorial unit with clearly set borders should be strategically defined as a sustainable community. In definition, sustainable community is a place where the population wants to live now and in the future. That is a principle of sustainable development on a local level, which includes environmental, economic and social components of the modern society. It satisfies the necessities of this and future generations, respects the needs of other communities in the region making them better and more sustainable. A sustainable community is active, inclusive, developed, safe, well-connected, well-led, understands its relations with the other communities, and finally is equal to everyone. In short, development of the sustainable

community is a development of the "smart" community which enables its participants to grow opportunities for everyone and to further develop the human possibilities. "Smart" community manages innovations, uses and treats knowledge as a tool to include and develop equally the whole local society. Further, it understands its responsibility towards territory and its population in order to make the community more attractive for this and future generations. Finally, the "smart" community uses knowledge as a basic unit in developing a better quality of life and a prosperous future for every participant of its society.

In order to find a balanced form of development, we need a long-term vision together with the ability to challenge the "old" paradigm. Great management is crucial so that we can transform the old ideas into the new ones that can trigger the enormous potential connected with the digital and clean resources "revolution" that is ongoing. In October of 1976, Amory Lovins, an American physicist, and environmental scientist wrote the article which was published in the well-respected Foreign Affairs magazine in which he expressed his radical opinion against the predominant "hard" energy model and instead outlined the "soft" model of renewables and efficiency. In the essay" Energy Strategy: The Road Not Taken?" is being anticipated the great transformation that revolutionized the energy landscape of many countries. Thirty-six years later, in December of 2012, the same magazine published the article named "How to Make (Almost) Anything - The Digital Fabrication Revolution", written by Neil Gerschenfeld, in which he described a different disruptive model, the applied digital revolution which would have a significant impact in fabrication (manufacturing). Gerschenfeld is a Director of MIT's Center for Bits and Atoms. This cross-disciplinary center broadly looks at the intersection of information to its physical representation. Basically, it explores the transformation of data in physical objects and vice-versa. Since 2009, some of the crucial patents have expired, therefore this area has seen a notable growth of "open source hardware/software community".

The community is based on the exchanges of the ideas, sharing models and technology, which results in the acceleration in the development of the technology and the reduction of its cost. I proposed to the management board of FER the creation of the energy open innovation association, Energy Platform Living Lab (EPLL), which was accepted by the board. EPP is based on two premises. The first, experimenting in real life environment and second, the inclusion of all the stakeholders through the whole "life-cycle" of the R&D innovation project. In the last decade, the energy sector has been disrupted by innovation and huge advancements in technology.

Today, the role of the Government and the Parliament is not to innovate. We rarely see a direct innovation coming from the Government, however, they play a crucial role in developing our society and implementing all the innovation smoothly into our

society so that it can solely benefit the people. The Government sits in a place where it must understand both the positives and the negatives of any innovation and try to find a satisfying solution so that the regulation/deregulation proposed benefits more than it harms people. The innovation itself should come from private companies, universities and civil society, moreover, it should come from the collaboration of all of them. I really love and enjoy the academic environment, in some shape or form I have been part of it for 20 years already. In my opinion, the academic world offers profound knowledge, expertise and it's disrupted internally each year by new students that join with their different, often brilliant and idealistic views, therefore the academic world is obliged to rethink its ideas, its views and what it stands for year after year. For all the reasons mentioned, the academic world offers apolitical views on innovation and development of the society and has the possibility to think long-term because it's not bothered by any short-term politics. When it comes to private companies, it's crucial to understand that the leaders of today's world are companies that only think long-term, that are ready to go through hard short periods in order to succeed and to lead in the future. Many companies that were big, and important 20, 30 years ago or even 10 years ago, now don't exist, it's mainly because they didn't want to embrace the innovation, they wanted to stop it in order to survive, but, they miserably failed.

While technology is a fundamental driver, it has become increasingly clear that the availability of technology is not itself sufficient to accelerate a clean energy transition. Customized public policy and regulation need to be deployed together with market reforms, private sector engagement. Furthermore, the importance of sophisticated analytical tools and data-driven strategies remains high. While developed countries are expected to lead with example, the government commitments to research and development, to innovative regulatory framework still remain crucial for both developed and developing countries. Different countries have unique needs; therefore policies, strategies, and regulation have to be customized based on those needs. Specifically, energy use must transition from resources and technologies that emit volumes of GHGs to those with limited or zero emissions. A "clean energy transition" refers broadly to a substitution of technologies and associated resource inputs across the full set of energy subsectors and consumers of energy, both as intermediates and final goods. This is the "clean energy transition" as is going to be referred in the title of my new book.

Modern and high-quality business model which has been presented to the governing bodies of EPLL is a pragmatic guide that will help in shaping and implementation of the competencies of an organization like EPLL. Bringing these competencies to a certain level usually takes up to a couple of years. The high-quality, modern business model is here to help the management of the EPLL in constant improvement of the institution itself and serves to the scientist in helping them understand the "black box" i.e. the internal structure of the institution.