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**THE THEORY AND PRACTICE OF  
CORRELATION BETWEEN SUSTAINABLE  
DEVELOPMENT AND INNOVATIONS IN THE EU**

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The principles of economic sustainable development were established in the EU (European Union) in the 1990s. The Sustainable Europe Research Institute – a Pan-European institute exploring sustainable development options for European societies – was set up in September 1999. The first Framework Programme for Research and Technological Development was launched in 1984. All these facts indicate of imposing European history and big experience in these areas. And, to talk the truth, both of these areas always have a big correlation either in scientific researches, economic theories, academic journals, research doctorates or in usual business strategies of almost every European company.

Traditionally in modern economies unlike the native economies and the economies of some post-soviet countries (Russian Federation, Ukraine) the model of sustainable development includes three main components (“three pillars” of this concept): corporate social responsibility, ecological environmental policy and, of course, economy based on the drivers of growth and competitive advantages – innovations.

These principles of macroeconomic sustainable development were also established in the 8<sup>th</sup> new EU Framework Programme (or FP8). On 1 January 2014 the EU launched a new research and innovation funding programme called Horizon 2020. Over the next 7 years almost 80 billion euros will be invested in research and innovation projects to support Europe’s economic competitiveness, sustainable development and extend the human knowledge. The EU research budget is focused mainly on improving everyday life in areas like health, environment, transport, food and energy. Horizon 2020 will have a big focus on turning creative ideas into marketable products, processes and services, as its managers have said recently. Let’s explore and describe this ambitious programme in detail.

By 2050 the world population may reach 9 billion people with two fifths over 50 years old. Three quarters of the global population will live in cities, and over 60 % will live in small households – alone or with one other person. These profound demographic changes will take place in the course of just a few decades. This is why a substantial part of Horizon 2020 is also dedicated towards finding responses to issues such as stable energy supplies, global warming, public health, security of water and food resources. Investing in research and technology is the only way to support resource efficiency and diversity, protect the environment and exclude poverty – shortly, to create a better society for citizens.

Firstly, the EU research and innovation is an investment in people’s health as it will keep older people active and independent for longer, support the development of

new, safer and more effective interventions and help health and care systems to remain sustainable. Horizon 2020 projects (like NAD project) will give doctors the tools they need for more personalized medicine, and it will step up prevention and treatment of chronic and infectious diseases and help to fight antimicrobial resistance. The return on this investment will include new ways to prevent disease, better diagnostics and more effective therapies, as well as the uptake of new models of care and new technologies promoting health and well-being. These rely on a better understanding of the fundamental nature of health and disease.

Secondly, food security and sustainable use of biological resources is another main theme of Horizon 2020 projects such as Performance. Eating well, wasting less and knowing the origin of the food you buy for yourself and your family are the issues of concern to European citizens. With the world population growth there is a need to find ways to radically change our approach to production, consumption, processing, storage, recycling and waste disposal for minimizing the environmental impact. This will include balancing the use of renewable and non-renewable resources, transforming it into more valuable resources, the sustainable production of food, bio-based products and bioenergy. The bioeconomy holds the key to this shift towards a new post-petroleum society encompassing sustained changes in lifestyle and resource use that cut across all levels of modern society and economy. The welfare of Europe's citizens and their generations will depend on how these transformations are made.

Global demand for food is expected to increase by 70% by 2050, which will give a big pressure on agricultural sector. Feeding the world without damaging the environment is the important goal. That's why the EU is investing over 4 billion euros in research and innovation for a European bioeconomy, agriculture, securing of food production, sustainable management of natural resources and supporting this development in rural areas.

Thirdly, the investment in innovations to support a green economy (Ice2sea, AMPERE Project) – an economy that is in sync with the natural environment – is too significant. With natural resources becoming scarcer, encouraging a more sustainable use of our limited natural resources is essential for Europe's economic development. One way of doing this is by minimizing waste production, reusing waste as a resource, boosting innovative waste prevention, reducing Europe's dependency on imported raw materials.

Fourthly, innovations in sustainable energetics (Somabat, Labohr, ORION projects) are essential for the EU to spark a new industrial revolution that will deliver a low-energy economy, while creating a new standard of living and providing modern conveniences more secure, competitive, affordable and sustainable.

Fifthly, the efficient and innovative transport is a fundamental condition for sustainable prosperity in Europe. Everybody knows that mobility drives employment, economic growth and global trade, provides vital links between people and communities. However, modern transport systems and habits are not sustainable. Our current approach is too dependent on oil, giving us such problems as road congestion, atmosphere pollution impact on our health. If nobody solves these challenges, the

global economy could be severely restricted, the quality of our life could be eroded forever.

And in the end ensuring the security of citizens is one of the primary obligations of any country. Without safety and security as its basis, society cannot thrive. Governments keep citizens secure by fighting crime and terrorism, protecting them against natural or man-made disasters, providing effective cyber-security and protecting borders against illegal trafficking. But while ensuring the security of citizens is an essential task of any administration, it is also a highly sensitive area that needs to incorporate respect for privacy and the safeguarding of fundamental rights. The respect of privacy and individual freedom is thus at the heart of the EU security research and innovation projects as, for example, the Tabula rasa consortium.

As you can see, Horizon 2020 brightly demonstrates a high correlation between sustainable European development and innovations, which all in all gives a powerful multiplier effect. The cooperation of these areas is needed to recruit new talents for science, to marry scientific and innovative excellence with social awareness and responsibility and to deliver more breakthroughs, discoveries and world-firsts by taking great ideas from labs to market.

Innovations alone are rarely the key to unlocking economic and social value, but it induces really creative and useful ideas when they are combined with concept of the sustainable development. Research and innovations contribute to make Europe a better place in which people can live. They improve Europe's competitiveness, boost growth and create new jobs. They help make people's lives better by improving healthcare, transport and countless new products and services, planting the seeds from which new industries and markets grow. All innovative projects which were described theoretically in this article will lead Europeans and their generations to the sustainable development in practice in the nearest future.

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## **NEW CHAIN STITCHES**

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New chain stitching machines have been increasing their share in total nomenclature of sewing equipment from year to year for the sake of known advantage in comparison with shuttle stitching machines and also due to constant enlargement of assortment of sewing materials. These types of machines are manufactured by dozens of firms all over the world; the number of machine classes and their modifications is already measured by hundreds and constantly increases. At the same time technological processes, e.g. types of stitches made by this equipment are very seldom renowned. There are only 72 types of chain stitches, and