

LEGAL COMPONENT IN PROBLEMATIC STRUCTURE OF PROGRAMMES OF SCIENTIFIC-TECHNICAL ECONOMIC PROGRESS

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Abstract

Formation of information society, rapid development of science and technologies predetermines considerable changes in society, both negative and positive. The changes give way not only to new possibilities but also to dangers.

Science and new technologies (including aspects of creation of information society) are created and implemented by executing programmes of scientific technical economic progress. However, implementation of scientific technical economic programmes precondition not only crucially important results for society but also stipulates activity of certain criminal tendencies, for example, frequency of computer crimes rose due to widely accessible internet. Issues of computer crimes are solved considerably efficiently in Lithuania nowadays, though they were treated inadequately at the initial stage of internet development. Disintegrated approach towards the mentioned problematic issues can be cited as one of the major reasons conditioning such situation. The authors of the article argue that, scientific technical programmes, usually, lack important legal components in themselves, that should be reckoned with due respect.

The articles aims to reason the importance of legal component in scientific technical programmes and innovations meant for mass usage.

The following innovative cases and facts were analyzed in order to implement the objective of the article:

- disintegration of approaches towards programmes of scientific technical progress;
- usual disturbances of computerization and automatization (negative impacts) regarding society's criminality;
- possible rise of level of disturbances of computerization and automatization (negative impacts) in society in the context of globalization;
- preferable prevention means for disturbances (negative impact).

Keywords:

Technics, science, progress, programs, law, structure, globalization, crime.

Introduction

As it is noted in the Lisbon strategy, globalization and the challenges of the knowledge economy require a radical transformation in the European economy. The EU has to realize these changes taking into consideration the society values, development conceptions as well as the envisaged EU enlargement. With a rapid and continuously speeding up pace it is vital for the EU to act in such a way as to better use the occurred favourable circumstances and to make a bigger profit. It is also essential to overcome the emergent threats that are always present in the implementation of new technologies.

The EU enlargement has already occurred, a great deal of all the substantial tasks raised in the Lisbon strategy have been settled; however, some of

them remain unsettled. Nevertheless, the most important thing is that the key priority work directions including information society development have been chosen in a right way and, undoubtedly, have been justified. There has been done pretty much in that direction and successfully is carrying on.

In order to implement objectives of the Lisbon strategy scientific technical programmes and diverse projects mainly focusing on the settlement of technical, technological, economic, financial, sometimes, social tasks are being prepared. However, quite often some relevant legal issues are not sufficiently touched upon. In our opinion, the latter should be paid considerably bigger attention to.

It should be emphasized that in the majority of the substantial documents designed for the

information society development, especially in Lithuania, and partly in the common EU documents, it is analysed mainly what possibilities provide the information society development and the implementation of the new technologies. However, generally, there is not paid a sufficient attention to potential threats that can be raised and often are raised by the implementation of new technologies. There is no doubt such threats will definitely emerge. Norbert Wiener has sharply referred to them in his book [1]: “Pretty before Nagasaki and before the society became aware of the existence of the atomic bomb, it struck me that we were standing in front of the other social power hiding the possibilities of good and evil. Factory machines, assembly-lines without workers will appear so quickly provided we make our minds up to make as much efforts to create them as we made, for example, in creating radiolocational technique in the course of the World War II”.

It is evident, today some of these issues have been already tackled. Not only do mechanisms operated by the automatized systems replace little qualified (and even highly qualified) mechanical work, but they also more and more take over human work functions, make it more effective. The factories-machines introduced some time ago operate in addition to automatized designing systems. This raises some new and simultaneously the same problems – the implementation of the automatization, computerized systems leads to some alterations in the labour market, some problems connected with unemployment occur from new dimension, problems connected with criminality of new types occur as well. Partly, some occurred problems are dealt with as follows: for example, at the moment ‘lifelong learning’ is being advocated; mastering of some novel professions involving the ones associated with the newest information technologies; gradual implementation of pupils’ universal computer literacy; pursuing computer literacy to the broader population. Respective measures to fight criminality, which, besides is caused by the implementation of the new information technologies are envisaged in substantial information society development documents. The task entitled “Creation of a Cyber Security Task Force” together with the other key tasks is envisaged in the European Commission’s Action Plan “eEurope 2005: An information society for all” [2]. Nevertheless, it is more typical of well-prepared EU documents. Meanwhile, comparing with the EU recently acceded countries, for example, let us take Lithuania, there is still no integrated approach towards the new strategies being developed, scientific technical programmes and many other projects. In particular it involves some relevant legal issues that, in our opinion, should be paid much more attention to.

The articles aims to reason the importance of legal component in scientific technical programmes and innovations meant for mass usage.

Lack of Approaches towards the Complexity of the Scientific Technical Programmes (legal perspective)

Evaluating activation preconditions of the criminal trends and factors as the outcome of the implementation of the scientific technical programmes, certain inertia of the legal thought should be emphasized. It is a contradictory factor. On the one hand, quite often decisions are made in a hurry, legislation appears to be unsettled, and sometimes even flawed. On the other hand, some delayed decisions lead to the unacceptable phenomena that are “flourishing” and inveterating. In order to properly adjust some unacceptable trends in the society as well as some flawed relationship among social groups, more allocation, efforts, time and other input need to be allotted. One more circumstance should be taken into account. Employees of the law and order in addition to law enforcement systems may not be interested in the measures against little-known crimes. The recognition of a new crime form, description by means of legislation may impair, for instance, the indicators of the law enforcement activity (quantitative jump in the number of criminal acts will occur).

Such partially conservative attitude towards the prognosis of the potential new criminality forms and legal evaluation causes various problems. Particularly, all this is typical within the rapid societal progress. An attention is drawn to one of the most mobile directions of such progress – scientific technical progress.

The objectives of the scientific and technical progress have been concentrated on the material industrial needs for a pretty long period of time. One of the visual inscriptions of such conception is as follows [3]:

$$\frac{\partial S}{\partial t} > \frac{\partial T}{\partial t} > \frac{\partial P}{\partial t}$$

here S – science,
T – technical progress,
P – production,
t – time.

Under the market conditions as well as under circumstances when a miscellaneous priority is given to the economic factors such attitude may be acceptable [4]. However, it does not cover significant spheres of social life in the society [5,6]. Legal regulation of the relationship between the social groups and layers participating in the process of the scientific technical progress may be emphasized

among those spheres. Consequently, such attitude is not complex.

A perfunctory attitude towards the planning, coordination and cooperation of investigations is emerging in Lithuania. Such attitude may be considered flawed from many viewpoints [7], in particular from legal viewpoint [8]. First of all, it would be relevant to check whether the functioning system of legal acts will be able to properly regulate:

- the compatibility of the new technique measures and new production forms with societal interests (collectively) and with public interest (separately);
- the compatibility by the new measures and means generated production with environmental protection, consumer health, person rights protection (moral perspective) and other interests [9, 10].

Law and order will not stop technical progress even when it threatens to breach the attitude towards the angular legal principles. It seems that as an example can be organ transplantation, animal and human cloning and other achievements. Having joined the innovative dynamic sally of the scientific technical progress, law and order as well as law enforcement may prophylactically reduce negative outcomes spontaneously brought into the society life by the uncontrolled implementation for the mass use of the evolutionary progress.

Let us analyse how legal issues related with innovation development are reflected in the Lithuanian important documents. Knowledge society appears to be among long-term priorities in the long-term development strategy of the Lithuanian State [11]. Essential development directions of the knowledge society are discussed in the Strategy. However, legal issues of this societal development have not been touched upon.

“Lithuanian Science and Technology White Paper” [12] prepared and published by the Lithuanian scientists turns out to be a fundamental work. The book aims at defining the long-term science and technology development strategy. Thus, the work has analysed strategic matters in detail; nevertheless, legal issues have only been briefly mentioned.

The development directions of information society, priorities and the key works were analysed and regulated in detail in the Lithuanian information society development strategy [13]. However, the establishment of legal basis and legal issues were not examined.

It may be concluded, that legal issues related with innovation development are reflected in these documents insufficiently and such attitude is not complex.

The national implementation programme of the Lisbon strategy [14] does not directly deal with the

establishment of the legal basis but big attention is paid to the employment encouragement and investment in human potential. The key objectives of employment policy are as follows: to attract and retain more people in the labour market by assuring qualitative and safe employment, modernising the systems of labour market and social security; to improve the employees’ and companies’ skills to adapt; to reduce structural unemployment, to invest more into people. Dealing with these issues timely may help to solve those problems that arise due to the computerization and automatization and that were emphasised by Norbert Wiener.

Typical Disturbances of Computerization and Automatization in the Society Life from the Criminogenic Perspective

Recently a more complex, broader than G. Dobrov’s [3] written attitude towards the investigation problematality has become more topical. Analogically, some time ago comparative scientific investigation began to penetrate into the positions necessary for forming of the complex attitude. Eventually, comparative science investigation may become one of the most important elements of such methodology. A great deal of objective and subjective factors will make an impact on it. In the nearest past the unification needs and tendencies of algorithms were among those that were presented in the most intensive way. Later on – the needs of the structured development of information technologies and computer programmes. They were connected with the disturbances of information systems development. Among those disturbances, disturbances caused by programmers’ spontaneous activity and their insufficiently compatible results should be mentioned [4]. The programme compatibility was missing. It is significant that the signs of such manifestation limit any system’s including mechanical, social, information functioning and development possibilities and its effectiveness. It reduces its reliability, increases vulnerability, breaking fears. It should be emphasized that a complex attitude towards concrete problematality and common problematical area plays a significant role in settling the tasks of research management.

A rapid development of new information and communication technologies, in particular, internet not only provides with new opportunities for citizens, but also evokes disturbances in the society. With the use of modern information technologies, in particular, internet, the so-called computer crimes are committed. With the use of internet or modern communication measures as tools, some conventional crimes as, for instance, robbery, etc. may be committed. The thing is that these crimes are being committed in a new way and even “more effective” from criminal’s

perspective. Quite often an attempt is being made to defraud money from ordinary citizens (and it happens!) by phone and often by mobile phone, having fooled a trustful person, telling him/her that his/her relative has had an accident or has been arrested by law enforcement officials and that he can only be saved having paid a solid sum of money as a bribe. Such 'trivial' crimes are undoubtedly painful for victims and, unfortunately, recently cases of such crimes have occurred in Lithuania. However, some crimes are being committed of more modern nature and 'higher' level when an attempt is being made to rob the passwords of client's electronic accounts in banks via internet and, therefore, to steal money in such a way. No doubt such and similar criminal actions will further "improve" that is why a legal basis needs to be enhanced, to become more flexible, more adjusted to life, more adaptable, adequately reacting to the development of new technologies, in particular, information and communication as well as to their new characteristics and provided opportunities so as to somewhat preventively block the way to crimes that could be committed by the means of these new technologies.

Widely advocated and rapidly circulated payment cards are one of the vulnerable innovations. In various countries this automatized service quite often is turned into stealing tool. ATM bank slots may have some reading equipment installed. It happens that cheaters copy the data from the card's magnetic stripe while paying for the goods or services in the shops, hotels, restaurants. Crimes of this kind were detected not only in the Western Europe; there were occurrences even in Lithuania.

It is predicted that in the future these cards will become (and already are becoming) more intellectual. Some additional spheres of their application appear. There are some that require 'strong security and/or mobile access (e.g. fixed or mobile access to medical data, corporate intra/extra-nets)' [15]. Undoubtedly, such complicated security and reliability issues are tackled, first of all, at the European level; however, the Lithuanian practitioners should get involved in issue tackling process as well. If no adequate measures are taken, these threats will increase in the future.

We can analyse how the legal basis of the information society was being created in Lithuania within the framework of the European Union. In the European Union legal reforms related to computerization mainly occurred in the eight decade. In many western countries legislation on the person data protection was adopted since a rapid development of information technologies including internet as well as fast access to the data induced danger to interfere with private human life. In Europe legislation in this sphere was adopted at different

time – from 1978 (in Austria, Denmark, Norway) to 1991 (in Portugal) [16]. In the ninth decade in Europe the object of the legal regulation became abuses applying computerized systems and infringement on that systems. The so-called computer crimes appeared in many countries' criminal codes. In 1989 Committee of Ministers of the Council of Europe adopted the recommendation R89(9) for the governments of the EU countries where proposals were put forward to refer to the report by the European Committee on the computer related crimes in revising or drafting legislation [17].

In general, at that time in Lithuania only the first steps were being taken in that direction. In 1991 in the prepared "Conception of the State Informatics Development on the Basis of Computerization" [18] together with other substantial tasks, the necessity to establish and implement regulatory mechanism (legal acts, system of economic lever) of the state Informatics development was foreseen. Therefore, in that significant document an attention of the authority people and scientific technical society was drawn to the fact that the works were relevant and they had to be accomplished and implemented immediately. At that time there was no legislation regulating Informatics sphere. Only in several years the first legislation regulating Informatics sphere was prepared and adopted at the Seimas of the Republic of Lithuania in 1996:

- Law on Legal Protection of Computer Programmes and Data Bases [19];
- Law on Legal Protection of Person Data [20];
- Law on State Registry [21].

During the following decade there was made a considerable progress. Some serious theoretical works have appeared. The newest – a textbook entitled "Informatics of Law and Law of Informatics" [22]. This provides with presuppositions to prepare specialists of this sphere in a qualified way.

On the 1st of May 2003 a new Criminal Code (CC) of the Republic of Lithuania entered into force with an appearance of the new chapter entitled "Crimes against Informatics". The statistical report "Data on the Criminal Acts committed in the Republic of Lithuania (Form 1-G)" by the Department of Informatics and Communication under the Ministry of Interior provides with the information on crimes against Informatics:

- Erasure and alteration of computer information CC Art. 196
- Erasure and alteration of computer programme and disturbance of the computer network, data bank and information systems work CC Art. 197
- Pirating and dissemination of computer information CC Art. 198

- Illegal connection to the computer or computer network CC Art. 198, Par. 1
- Illegal possession of equipment, computer programmes, passwords, log in codes and other data intended to commit crimes CC Art.198, Par. 2.

This information is provided on the website of the Lithuanian Centre for Criminality Prevention [23].

An overall number of the recorded crimes against Informatics in Lithuania is not big. In the latter three years it has not changed considerably (Table1).

Table 1

	2004	2005	2006
Recorded crimes in Lithuania: CC Chapter XXX. Crimes against Informatics	15	18	19

As foreign experience demonstrates, even now only a small part of crimes fall into the view of criminal justice (a few or several percent) [24]. The statement appears to be more correct referring to computer crimes. Consequently, it can be assumed that a number of crimes against Informatics committed de facto is much bigger in Lithuania. Nevertheless, even in such cases it is comparatively small. Evidently, it is an impact of several factors: including at the moment operational legal basis, preventive activity performed by law enforcement and even insufficient “qualification” of the criminal world representatives, etc. Undoubtedly, it can be expected that with the expansion of the information technologies employment, crimes of this kind will increase.

Besides, it is not only the quantity of crimes that counts. It is also very important to assess the damage computer crimes may cause and possible danger they may bring. The possible damage may be really huge. Thus, several well-organised computer crimes, in particular, directed at the infringement of the financial system activity may lead to the occurrence of enormous losses. By the same token, information and communication technologies become the most substantial driving force of economic progress. Thus, if we interfere with the functioning of the driving force, it will undoubtedly have a negative effect on economy in a really considerable way. That is why it is emphasized in the paper [25] that 20 percent of made efforts yield 80 percent of the results. Properly selected efforts can yield incredibly big results. That also stands in the event of computer crime and its caused damage.

Potential Activation of Disturbances within the Context of the Globalization Development

It is likely that globalization processes may intensify, reinforce tendencies already discussed. The more psycho-physical features (intellect data) of the concrete candidate will be limited to get employed, the less his/her possibilities to get employed in the automatized production will be. It is probable that quite soon automatization in the globalization process will also usurp public services, will begin to prevail in it. Hence, individuals of lower than average and even average capabilities will end up on the outskirts of the society in terms of traditional material provision. It can cause some substantial psychological shocks. At the moment their living assurance happens to be even a more complicated task.

The our civilization has not accumulated weighty experience sufficiently to practically settle such tasks.

The Ford line idea of individuals’ of limited capabilities involvement into modern production process will loose its initial practical meaning. First of all, the idea will loose humanitarian component. As Norbert Wiener envisaged, industrial operation machines perform better and considerably faster in modern factories in comparison with the ones – people of limited capabilities. Besides this, they will liberate employers from many problematic relationship with employee trade-unions, etc.

Europe had a similar situation during the first Industrial Revolution. In order to control the situation by adequately reacting to the rapid development of information technologies it is not enough to think only about computer literacy. It should be also taken into consideration that not all people, especially, of the elder age are able to fully master modern information technologies and acquire knowledge necessary in modern production.

There is no reason to reject the version that at that period some conflicts will considerably intensify between:

- inhabitants and government;
- employees and employers;
- more talented members of the society eligible to work in the automatization production or public services in the globalization century, - and not able to settle in it, having less capabilities, individuals of slower orientation;
- the self-sufficients and the deficient.

Lack (besides, competition as well) instigates irritation, conflicts, fight for the existential quality. Therefore, it is very realistic that at that period diverse crime forms will get intensified. It is unlikely that those forms will be controlled only by the means of force structures. Obviously, legal thinking will have to be referred to. Stabilization of the society life and group relationship could be achieved by the means of modern legislation and public relations programme

responding to the time. The programme's fundamentals need to be considered in advance if there is an intention to forestall complicated cataclysms in countries that are remarkably lagging behind the countries which dictate and will dictate forms and pace of globalization.

The paper [26] is dealing with a new state governance essence and ten principles that can be employed for the substantial authority reform, with one of the principles being described as "Preventive authority: instead of adjusting the situation, to occlude the way". It really suits our case being described. Certainly, we will not totally prevent crimes but we can reduce these risks by taking respective measures on time.

Conclusions

1. Development conceptions, strategies and programmes of new technologies creation, implementation should be prepared by complex groups of practitioners from various areas including scientists, engineers and other practitioners representing not only the main programme direction but also, by all means, lawyers having legal knowledge as well as the perception of the issue in question in a broad sense, for instance, practitioners of Informatics Law.
2. It is not sufficient to think of the implementation of computer literacy while preparing the conceptions of the implementation of new technologies in addition to scientific technical programmes. It is essential to take into consideration that not all people, especially, of the elder age are able to fully master modern information technologies and acquire knowledge necessary in modern production.
3. It should be emphasized that a complex attitude towards concrete problematality and common problematical area plays a significant role in settling the tasks of research management.
4. A legal basis needs to be enhanced, to become more flexible, more adjusted to life, more adaptable, adequately reacting to the development of new technologies, in particular, information and communication as well as to their new characteristics and provided opportunities so as to somewhat preventively block the way to crimes that could be committed by the means of these new technologies.

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