

SOCIAL RESPONSIBILITY OF AUTONOMOUS HIGHER EDUCATION INSTITUTIONS IN POLAND: THE CASE OF EDUCATION IN GEODESY AND CARTOGRAPHY

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The autonomy of the institutions of higher education shall be ensured in accordance with principles specified by law.

The Constitution of the Republic of Poland of 2 April 1997, Article 70(5)

Introduction

Polish public and non-public higher education institutions of different types, universities, universities of technology, academies and other educational institutions operate within a higher educational scheme determined in the *Law on Higher Education* of 27 July 2005 (Journal of Laws No 164, item 1365 as amended). That Act, directly referring to the Constitution of the Republic of Poland, states that *an academic institution is autonomous in all fields of its operation under the rules specified in that act*.

Already implemented or considered amendments to laws and regulations reflect discussions on the optimal extent of autonomy of the Polish academic institutions.

It is assumed (Luty, 2009) that autonomy of an academic institution involves the freedom of scientists to choose a subject and a method of research, as well as a way and a content of education, and the freedom of students to choose their field of education. The autonomy also manifests itself in the self-governing management.

It is recommended (Chmielecka, 2013) that each higher education institution, while creating its mission and development strategy, shall start with a question on intended identity, and associated with it the type of stewardship and social responsibility. For the development of pure knowledge and for constructing the economies and societies of knowledge, academic institutions of a different nature are necessary, and their missions should cover a wide spectrum. Respectively, ethos and social responsibility should be considered.

It is emphasised (Józwiak, 2013) that the interdependence of three factors should be taken into account:

- academic values and rights of autonomy,
- state and its regulations, and
- labour market and education market.

It is stressed (Eliasz, 2013) that universities *cannot isolate themselves from external influences, they have to meet social needs taking into account the changes of civilisation*. The preservation of autonomy of an academic institution has its undeniable sense, but its understanding is distorted. Universities have to preserve freedom of disputes, debates and choices on the direction of basic research, as well as the independence from political and ideological pressures. However, it cannot mean that social needs are ignored in planning the education of students or in targeting the funds for research.

In this study, especially in its conclusions, an opinion of a formal legal expert of the Polish Accreditation Committee shall be taken into account (Stachowiak-Kudla, 2012):

There is no doubt that the autonomy of academic institutions should be balanced by their responsibility towards the government and society for the quality and efficiency of education. Assessment instruments used by the Polish Accreditation Commission, providing an adequate level of higher education, should not be based on a simple executive principle but should use self-regulation mechanisms in an optimal way. Then they will not be considered a threat to the traditional autonomy of academic institutions.

The contents of the article go beyond the situation described therein relating to the field of study of geodesy and cartography.

Geodesy and cartography example

The current state of higher education in Poland was shaped under the influence of three trends developing during the last two decades (Strategia, 2010):

- popularisation of studying,
- emergence of private higher education institutions and fees in public ones,
- extension of autonomy of a higher education institution and self-government of academic community.

In the training of surveyors and cartographers, these trends have led to a vigorous development, the course and effects of which arise concern and criticism. The state of education in geodesy and cartography in 2013 is described with the following data (Banasik, Walo, 2013):

- 1) the number of institutions educating in this field equals 27, including 14 state ones,
- 2) the sum of admission limits established by all of them for the first degree study equals 4500 and for the second degree – 1300,
- 3) the profile of study in 25 institutions is of general academic knowledge and in 2 of practical,
- 4) monitoring of graduates is in the first development stage, random data indicate that in most cases graduates cannot find work in accordance with the acquired skills,
- 5) the quality of education is criticised, and attention is drawn to the difficulties connected with an almost fivefold increase during the last two decades, in both the number of institutions, and the number of students, while the academic staff is of limited number and aging.

The education system in geodesy and cartography

At present, the education system in geodesy and cartography in Poland is dominated by the education market created by: a) higher education institutions using their autonomy and offering educational services, and b) qualified candidates interested in those offers. Figure 1 presents that system at a high level of abstraction, as a diagram of use cases prepared in UML. Human-shaped icons are presented on the diagram, and each of them represents a specific *actor* in his role which he is playing towards the system, e.g. a student studying the given major, an employee interested in employing a graduate, or an academic institution providing educational service within the system.

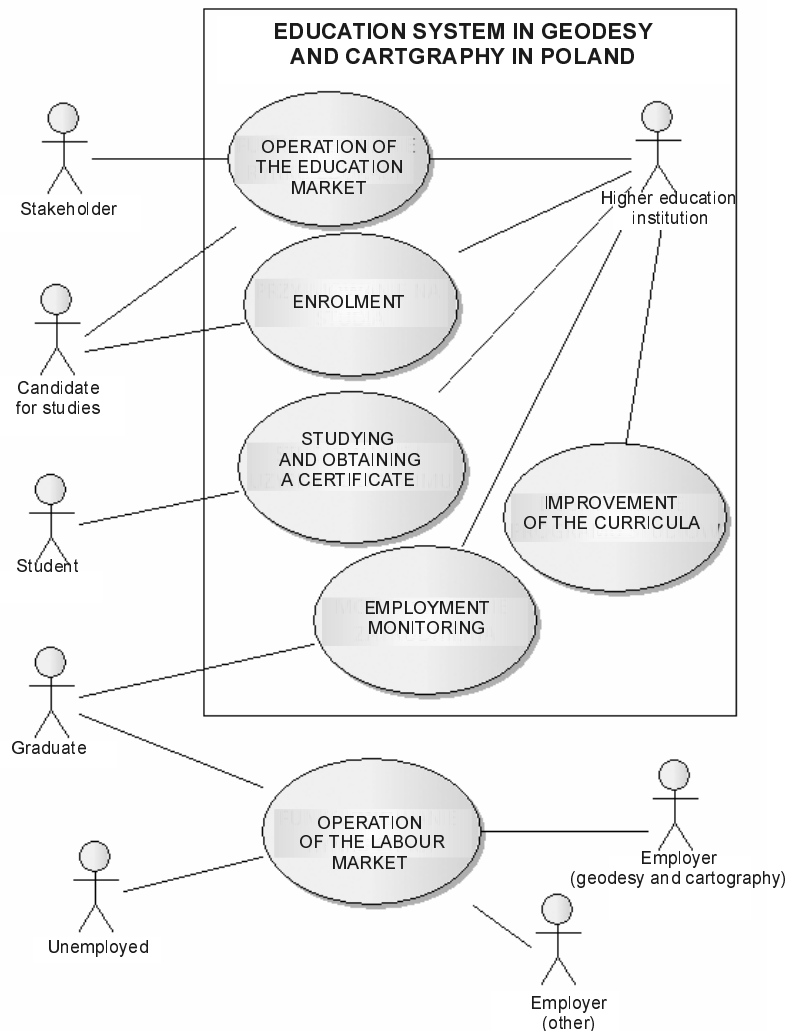


Figure 1. The education system in geodesy and cartography in relation to the labour market in Poland

A stakeholder is, generally speaking, a person interested in studies in geodesy and cartography, who tends to read the terms and conditions of studying programs at various academic institutions, among others, in order to decide on being a candidate to study, choice of major and academic institution. Future students more and more often expect a possibility to choose what, how, when and where they are learning (Komunikat, 2013). Their decisions are influenced by various factors: family reasons, financial factors, passions, current popularity of a given major constituting a kind of fashion, influence of the environment, and finally, ideas on the possibilities of choice of employment and future career.

They verify their decisions only after graduation, that is after a few years, when a graduate becomes a participant in the labour market, looking for a job suited to his aspirations and acquired professional qualifications. In the absence of employment opportunities of geodetic and cartographic nature, a graduate has to be satisfied with the work that does not conform to the qualifications or – as unemployed – wait for an advantageous change of the situation in the labour market.

This several-year period in the life of a young person between the making of important decisions and the verification of their validity is also present in the case of an academic institution as an institution delivering the studies. Then it is the time between decisions concerning the offered courses (in terms of the program and the recruitment amount) and their observable effects on the labour market in relation to graduates whom these decisions have concerned.

The challenges arising from a rapid development of geodesy and cartography

As it follows from the above observations, trends in the market of education are reflected in the labour market with several years of delay resulting from the cycle of studies, which undoubtedly complicates the functioning of the education system. An additional difficulty is a considerable variability of the demand for graduates in *geodesy and cartography* in time, both in terms of their number, and qualifications. The reasons for this variability are among others:

- revolutionary progress of geospatial technologies used in geodesy and cartography,
- increasing needs of the information society in the field of geospatial information,
- changes in economic conditions in Poland and the European Union,
- impact of national and EU laws on public administration in terms of geospatial information management.

At the same time natural tendencies to modernise curricula (Gaździcki, 2009; Eckes, 2009) are revealed (Standardy, 2010) even to create new majors in the field of geospatial information (Stateczny, 2009). It is claimed that the geodetic profession encounters a global crisis manifested, inter alia, in lack of a definition of that profession tailored to the 21st century's needs (Hannah et al., 2008). There are new areas of geodetic and cartographic activity, and those that have played an important role so far, undergo transformation and are subject to restrictions. Requirements for surveyors and cartographers, expressing the number and variety of desired competencies, are increasing.

Responsibility for the training of surveyors and cartographers

Law on Higher Education Act in Article 6(4) and 6(5) determines the powers of an academic institution in terms of education as follows:

A higher education institution shall have, in particular, the right to:

- 4) *provide degree programmes of the first, second and long cycle, as well as doctoral programmes, in compliance with their authorised powers, including:*
 - a) *defining the conditions of admission to degree programmes, including the number of students who may study in given fields and profiles of study, with the exception of the fields of medical and medical-dental programmes to the extent the provisions issued under Article 8(9) apply to them,*
 - b) *developing curricula and programs of study; giving due regard to intended learning outcomes for areas of study as defined in regulations pursuant to Article 9(1)(2) and in compliance with the National Qualifications Framework for Higher Education, hereinafter referred to as the „National Qualifications Framework” ;*
- 5) *providing non-degree postgraduate programmes, extension and training courses;*

It follows that any academic institution that offers education in geodesy and cartography sets both the admission limit, and the study programmes. This means that within the country:

- the total number of students who may study in a geodetic and cartographic major reflects the sum of admission limits determined independently by each of the institutions providing such studies, taking into account the restrictions set out in Article 8 of the Law on Higher Education,
- study programmes can be quite significantly different.

Thus the education market is created, where at the supply side mainly particularistic, currently prevailing opinions and interests of the individual academic institutions are taken into account, rather than the changing socio-economic needs of the country as a whole.

It should be remembered that the Act granting academic institutions powers within the scope of their autonomy, clearly imposes on them a responsibility for the use of these powers. Moreover, the European Association for Quality Assurance in Higher Education (ENQA), in its key document (Standards, 2009), emphasised the fact that the consequence of the autonomy of the higher education institutions is their far-reaching responsibility for the quality of education.

The quality of the education system in geodesy and cartography

There are many definitions of quality differing from each other in terms of their generality and purpose. In a well-known family of ISO 9000 standards for quality management systems, the following definition is used: *quality is the degree to which a set of inherent characteristics fulfils requirements*. The quality here refers to a certain object in question, e.g. a product, service or system, the inherent characteristics define that object, and are inseparably connected to it, and the requirements result from the needs. Using the given interpretation of the definition for the purpose of this paper referring to geodesy and cartography and Poland, one can specify that *the quality of the education system in geodesy and*

cartography in Poland, is the degree to which a set of inherent characteristics of the system fulfils requirements within the country.

Similarly, you can determine the quality of education within the given major in the given academic institution.

General education needs are justified with civilisation background, the development of the country, or social determinants. When considering the system for a specific major as shown in the given diagram (Fig. 1), the needs should be analysed in conjunction with the *actors*. Each of them has their own needs, which may not be relevant to the needs of others. The following table is an attempt to identify some needs for the actors distinguished in the diagram, i.e. persons or organisations performing their roles.

It is worth noting that the above defined quality of the education system comprises as some characteristics overall recommended admission limits within the country and, consequently, the numbers of graduates entering the market, which should correspond to the needs of the country. The indications for individual academic institutions should result from the approved national limits.

Table. The needs of actors presented in the diagram of education system in geodesy and cartography

ACTOR	NEEDS
Stakeholder	Easy access to reliable information on geodesy and cartography, which: a) describes geodesy and cartography as a scientific discipline, highlighting its current state and the expected development, b) presents a profession of a surveyor and cartographer, and expected employment opportunities after graduation, c) allows to compare offers of various academic institutions in terms of forms, programmes and the studying conditions in this major, d) shows the opportunities to study in the related majors.
Candidate for studies	Obtaining detailed information defining the procedures and conditions for admission and possible assistance during the entrance examinations
Student	Implementation of study plans and training programmes at an appropriate level of quality by an institution. Using the rights of a student in accordance with the Law on Higher Education and the institutional regulations of studies, including the right to scholarships, accommodation in a dormitory, and other forms of assistance.
Graduate	Comprehensive help by academic institutions in the search for employment corresponding to the interests of the graduate and his acquired qualifications, taking into account training and individual consultancy in terms of working possibilities in the country or abroad.
Higher education institution	Using the powers of an academic institution, including those related to its autonomy, according to the Law on Higher Education Act and its executive regulations. Obtaining authoritative results of comprehensive analysis and forecasts of the state and the labour market of geodesy and cartography, constituting a basis for the modernisation of education programmes and determining the admission limits.
Employer (geodesy and cartography)	Hiring employees with the knowledge, skills and social qualifications fully corresponding to the existing and anticipated requirements in the scope of geodesy and cartography interesting to the employer.
Employer (other)	Hiring employees in workplaces that do not require knowledge and skills in geodesy and cartography.
Unemployed	A comprehensive job search assistance from a higher education institution and specialised offices and agencies.

In the quest to improve the quality of education by higher education institutions, internal and external quality assurance systems are applied. The first of these include the activities carried out within the academic institution, the second are associated with the activities of the institutions outside the academic institution. The Polish Accreditation Committee is of utmost importance, as it is responsible for evaluations of the quality of education in the fields, levels and profiles of higher education (programme assessments), as well as activities of basic organisational units of the institutions (institutional assessments). The autonomy of an institution is taken into account in these assessments.

The issue of education quality is increasingly taken into account. A good example in this respect is the Jagiellonian University www.jakosc.uj.edu.pl

Conclusions

A natural consequence of the autonomy of the Polish higher education institutions is a tendency to consider and analyse their activities individually for each academic institution. However, in cases where the social and national effects of the activity are important, a systemic approach is necessary in relation to an academic community in the country.. This has been demonstrated here on the example of surveyors and cartographers training.

To optimise the operation of the system – without violating the autonomy of an academic institution – the activities covered by three specific conclusions are proposed below. Their essence constitutes the broad application of a principle of information openness as an effective instrument of self-regulation rationalising decision-making processes within the system and its environment, by higher education institutions and the students.

1. Information support for the education market of geodesists and cartographers

Each institution involved in the higher education of geodesists and cartographers participates in the education market associated with this major. It is connected with the need of possessing suitable information systems by such institutions (Standards, 2009) and with using the results of comprehensive analyses and forecasts of the state and the labour market in geodesy and cartography, constituting a basis for the modernisation of education programmes and determining the admission limits. At the same time, people interested in taking up studies in this major need reliable information which: a) describes geodesy and cartography as a scientific discipline, highlighting its current state and the expected development, b) presents the profession of a geodesist (surveyor) and cartographer, as well as projected employment opportunities after graduation.

In both cases the authoritative information is the point; up-to-date, sufficiently detailed and nationwide, forming the basis for socially important decisions concerning the future of an institution and the fate of individual candidates. A separate development of appropriate analyses and forecasts by each of these academic institutions is unreasonable due to time and cost. The competent authority in this regard is the Surveyor General of Poland, who has already taken an initiative of executing the project *Status and needs of education in geodesy and cartography in conjunction with other disciplines involved in the geospatial information in Poland until 2020*, following the disposition included in Article 6 of the Spatial Information Infrastructure Act of 4 March 2010. After completing this project, its results and recom-

mendations should be communicated to all interested institutions and popularised among people interested in them. These results and recommendations should be updated every two years.

That conclusion, resulting from the content of the article, refers directly to the recommendation included in the Communication of the European Commission (Komunikat, 2011), the essence of which is:

Promoting the use of forecasts in terms of skills and growth, and employment data (including the effects of the employment of graduates) in the development, implementation and evaluation of curricula; adaptation of quality assurance systems and funding mechanisms to reward good preparation of students to enter the labour market.

2. Monitoring the labour market in the field of geodesy and cartography

The implementation of the first conclusion mentioned above is associated with the need to monitor the labour market in the field of geodesy and cartography, taking into account:

- market share of graduates of secondary vocational schools educating surveyors and graduates from other majors providing acquisition of certain geospatial qualifications, e.g. in the field of forestry or spatial planning,
- regional division of this market.

It is advisable that monitoring in this regard is the task of the authorities of geodetic and cartographic services specified in the amended *Geodetic and Cartographic Law*. The data collected by the Social Insurance Institution (Study 2014) are an interesting source of information. Regardless of that, the fate of graduates should be monitored by each of the academic institutions providing training in the field of geodesy and cartography as well as each secondary school of surveying.

3. The interaction of autonomous higher education institutions within the education system in geodesy and cartography

The concept of academic institutions autonomy covers their independence and self-management. However, given the fact that they function together within the education system being considered here, they actually are interdependent and jointly responsible within that system used by the entire country. In cases requiring joint discussions, consultation, agreements, statements and actions, they should transfer a part of their autonomous powers to a higher level – the association of academic institutions educating in this field and constituting a part of the system. At that level, specific matters which concern the overall quality of education, including recommendations to admission limits should be examined and agreed on.

An example of a supremely useful joint action could be the recommended creation and maintenance of a website dedicated to the system of education in geodesy and cartography, and containing all relevant information for stakeholders and candidates (Table).

As it is well known (Gaździcki, 2012), under the influence of a request made at the Forum *Education and professional development of surveyors and cartographers* in 2012, the Deans Convention of Geodetic Faculties implementing an agreement under the name of *Geodesy and Cartography in Poland – science and education* has been already operating. We should be wishing the Convention all the best, yet at the same time calling for an extension of its activities towards all institutions educating geodesists and cartographers – with none of the restrictions that are currently applied.

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Abstract

The education system in the area of geodesy and cartography functioning in Poland in its present state is dominated by the education market. involving, on one hand, the higher education institutions taking advantage of their autonomy and offering educational services, and on the other, the candidates interested in these offers. The resulting quality of education is criticised: attention is drawn to difficulties related to a nearly fivefold increase both in the number of higher education institutions and the number of students during the past twenty years with only limited growth of ageing academic personnel. Trends in the education market are reflected in the labour market with a delay of a few years resulting from the duration of studies. Significant changes in the demand for graduates both with respect to their number and qualifications provide an additional difficulty.

This education system is presented in the paper as a UML use case diagram at a high level of abstraction. The needs of the actors shown in the diagram are identified to draw three conclusions concerning:

- information support to the education market,*
- monitoring of the labour market,*
- cooperation of autonomous higher education institutions within the framework of the education system in the area of geodesy and cartography.*

SPOŁECZNA ODPOWIEDZIALNOŚĆ AUTONOMICZNYCH UCZELNI NA PRZYKŁADZIE KSZTAŁCENIA GEODETÓW I KARTOGRAFÓW W POLSCE

Słowa kluczowe: Prawo o szkolnictwie wyższym, Krajowe Ramy Kwalifikacji, geodezja i kartografia, informacja geoprzestrzenna

Streszczenie

W stanie obecnym funkcjonujący w Polsce system kształcenia na kierunku geodezja i kartografia zdominowany jest przez rynek edukacji, w którym biorą udział z jednej strony uczelnie korzystające z przyznanej autonomii i oferujące usługi edukacyjne, a z drugiej – kandydaci na studia zainteresowani ofertami uczelni.

Jakość kształcenia jest krytykowana, przy czym zwraca się uwagę na trudności, które wiążą się niewątpliwie z niemal pięciokrotnym zwiększeniem w okresie minionego dwudziestolecia zarówno liczby uczelni, jak też liczby studentów, przy ograniczonej liczbowo i starzejącej się kadrze akademickiej.

Tendencje występujące na rynku edukacji znajdują swoje odzwierciedlenie na rynku pracy z kilkuletnim opóźnieniem wynikającym z cyklu studiów, co niewątpliwie komplikuje funkcjonowanie systemu kształcenia. Dodatkowym utrudnieniem jest znaczna zmienność w czasie zapotrzebowania na absolwentów kierunku geodezja i kartografia, zarówno pod względem ich liczby, jak też kwalifikacji. System ten przedstawiono w artykule jako diagram przypadków użycia zapisany w języku UML na wysokim poziomie abstrakcji. Potrzeby aktorów w tym diagramie zostały określone, co umożliwiło sformułowanie 3 wniosków dotyczących:

- informacyjnego wsparcia rynku edukacji geodetów i kartografów,*
- monitorowania rynku pracy w zakresie geodezji i kartografii,*
- współdziałania autonomicznych uczelni w ramach systemu kształcenia na kierunku geodezji i kartografii.*

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