

Michael E. Auer  
Tiia Rüttermann *Editors*

# Educating Engineers for Future Industrial Revolutions

Proceedings of the 23rd International  
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Volume 2

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Michael E. Auer · Tiia Rüttnann  
Editors

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# **Engineering Pedagogy Education**



# Career Strategies Approach for the Digitalised World Requirements

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**Abstract.** In the conditions of global digitalization of business, which influence on the competitiveness of entrepreneurs, on complete regions and national economies, it is of great importance to implement graduates career strategies. In the paper authors offer the approach of development a successful graduates career strategy, aimed in the systematic implementation of the formation of professional competences of young people.

In the research the questionnaire was conducted among students regarding their motivation for study and employment, and in-depth interviews based on open questions were used to identify the main factors influencing the career development of managers and specialists who are associated with digitalization. The social features of the development of graduates career strategies are revealed. One of the main social barriers to the implementation of career growth strategies is the social stereotypes that exist in society and guide young people in ineffective career scenarios.

The authors proposed an effective model for the development of the successful personal career strategy based on the development of professional digital competencies.

**Keywords:** Career strategy · Digitalization · Social factors · Skills · Education

## 1 Introduction

The rapid socio-economic transformation in modern society, a change in the human worldview is associated with significant uncertainty in anticipation of the future. The scientific and technological revolution has led to the emergence of new technologies that blur the boundaries between the physical, digital and biological spheres.

The works of K. Schwab and N. Davis substantiated the features of radical changes in technologies that will entail changes in the labor market, in the economy and education [1, 2]. These forecasts testify to the growing role of human capital, its intellectual form, on the one hand, and on the other hand determine the requirements for specific resources that are necessary for its successful accumulation and capitalization. Increased competition in world markets and significant differences in socio-economic development in different countries of the world require special attention to



human capital and its intellectual assets. It is in these new circumstances that the intellectual assets of human capital become the main factor in competitiveness and leadership in the global economic space.

Intellectual assets is a specific component of human capital which the set of cognitive, creative, emotional competencies of the economically active population, providing value creation and progressive dynamics of profitability and value. All intellectual assets have an intangible form and competency content, that is, they are considered in the system of productive qualities of the carrier/owner. Their performance provides current and future benefits for the bearer/owner and all levels of the environment [3]. The development of human capital and its intellectual assets, as well as their effective use, are ensured in the process of forming the conscious priorities of the individual through a highly developed technological level of the educational process stimulating the continuous development of a person throughout life. The main factor affecting career strategies and the development of intellectual assets of human capital is the conscious choice and formation of an active life strategy, its implementation in a practical plane.

## **2 Purpose or Goal**

The value approach determines the social characteristics of a career as a social phenomenon. It is important to determine the set of values of a person who plans or implements a career strategy, and it is important to differentiate this value according to established priorities. The components in its value set can lead to some value resonance, which should be taken into account when planning and implementing career growth strategies when developing professional competencies of youth.

The decisive changes caused by the consequences of the scientific and technological revolution require fundamental changes in the worldview of young people, the formation of a new vector of personality development aimed at developing career strategies and the formation of professional competence.

It is the quality and timeliness of determining the personal inclinations of youth and a more conscious approach to career development that affects the success of personal realization in modern society.

## **3 Findings to the Study of Human Capital and Career Strategies**

The problems of the formation of human capital and its effective use have been the subject of discussion for many decades. Particularly increasing attention to this issue at a time when there is a massive intellectualization of most processes of human life.

The relationship between intellectual capital, innovation, and sustainable development was investigated by F. Matos, V. Vairinhos, S. Durst, and R. P. Dameri [4]. A. Bounfour and L. Edvinsson [5] point to the significant value of the modern development environment, which is closely related to knowledge and intellectual capital and determines the productivity and competitiveness of the business and the

public sector. The policy of creating a “smart city” and developing an appropriate “smart” strategy is justified by R. P. Dameri, F. Ricciardi and B. D’Auria as the only basis for the development of intellectual capital [6, 7]. P. McLaughlin, B. Kennedy, A. Galluzzo and M. Donato reveal the importance of new fast-growing STEM skills related to adaptive thinking, coding and technology knowledge, project thinking, integrated problem solving and analytical thinking [8]. It is the quality and timing of determining one’s inclinations and a more conscious approach to career development that affects the success of the realization of the potential of the individual.

For the formation of socio-emotional competence of the individual, which is a necessary critical factor for targeted actions in the future, preventive impacts in the learning process are necessary [9]. Important is the study conducted by A. Godwin, G. Potvin, Z. Khazari and R. Lok, which proves that a person’s career choice is confirmed by gender characteristics and his ability to develop over a certain period [10]. Conclusions E. Ruzek, C. Hafen, J. Allen, A. Gregory, A. Mikami and R. Pianta, make it clear that emotional support from the teacher contributes to the development of a greater ability to be independent in matters of everyday life and have a more positive relationship with peers [11]. That is, behind the conclusions of White R.W., motivation promotes the learning process, effective interaction with the environment and the development of relevant competencies [12]. The conclusions of E. Deci, A. Olafsen and R. Ryan are important, which reveal the characteristics of internal motivation of an individual and externally controlled motivation and influence the choice of priorities for career development [13].

C. Christensen noted the significant success not only of companies, but also of individuals in the development and implementation of development strategies [14, 15]. Subsequently, C. Christensen, along with J. Allworth and K. Dillon, proposed a series of guides on finding the meaning of life and happiness. C. Christensen points out the importance of using knowledge and time in training for developing a life strategy [16]. Christensen C. also substantiates the leading role of universities in personality development, the development of its key skills and intellectual capital as a whole based on innovative changes [17]. When planning a career as a person, as R. Sutien points out, it is important not to go out of fashion, but to find a field of activity, a profession in which a person can be better or better than others [18, 19]. In accordance with this, an important role in this area should be given to professional competence and personal career strategies – the ability to generalize and implement them and find a field of activity, a profession in which a person can be better or better than others. Career strategies due to the systematic process of coordinated actions have a high probability of optimal investment of time and money.

The effectiveness of the choice and implementation of a career strategy (or a group of them) is determined by the quality orientation of young people and the conscious determination to form appropriate professional competencies. Career success, which is described by two indicators: the goal - the manifestation, which is wages and career advancement, and the subjective - career satisfaction is provided mainly by professional competencies, although soft skills are important. Of particular note are the following 6 career competencies that affect the integral assessment of career success [20]: the ability to update your career; career reflection; ability to relate to career aspirations and values; study of work; career planning and the ability to evaluate the

impact of training and work processes on its course; the ability to build the necessary contacts and connections for career development. Thus, the formation of a career should take into account the individual characteristics of the actors involved in the process, and the corresponding promotion strategies, as well as a system of measures for building your own and unique career history, focused on the personal needs of the system.

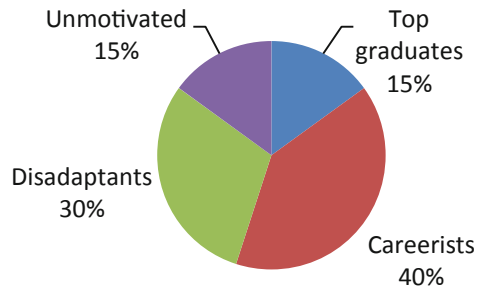
Increasing the rate of intensification of socio-economic interaction is changing the very essence of career strategies. This process directly depends on the reproduction of labor, as it forms certain career archetypes. They form the image of a successful career strategy, which is taken as a template when planning its personal form [21]. In particular, today the nature of the reproduction of labor has changed, it is required mature personality with a high intellect, modern culture and a high level of commitment to effective work. That is, new career strategies for Ukrainians should be based or adjusted taking these factors into account. In the end, a person's career strategy is part of his image and, therefore, can influence the planning of youth career development strategies that are adequate to the current conditions of social development. To prevent social imbalance, it is necessary to develop certain sociocultural codes and, more specifically, update a specific type of culture, which should include sociocultural reflections on career strategies. In our opinion, this type of culture may be a technological culture, which we propose to consider as a special type of culture that combines social technologies for the development of social interaction in certain areas of sociocultural life.

## 4 Approach

A survey was conducted of students of Ukrainian universities with digital knowledge skills ( $n = 440$ ) and the types of motivation to study and find a job were identified (Fig. 1). The first group (about 15%) includes the "best graduates" who have developed business and personal qualities and, as a rule, by the time they graduate, already have a small private business or have several current offers from different employers. They are a kind of benchmark for the rest of the student population. The second group (about 40%) are "careerists," who are oriented toward success in their professional activities, have their own work experience and positive employment practices. The third group (approximately 30%) is students who are not able to develop their careers, the so-called "disadaptants". As a rule, they are not ready to make efforts to find work and are independent in making their own decisions, employment in general. The fourth group (approximately 15%) was formed by unmotivated student youth with vague plans for professional growth.

Thus, almost half of the graduates have some conflict between the desire to work in their specialty and the degree of readiness to fulfill this desire. Many students want to get a job by profession, but because of their own passivity, they do nothing for this. The possible reasons are that they do not plan to work in their chosen field of study at all, passively waiting for employers to "pay attention to them". At the same time, more than half of graduates have clear career growth strategies, with young specialists

focused not only on the size of their wages, but also on the possibility of further career growth in the labor market.



**Fig. 1.** Groups of students according to the career strategy

Interviews of managers and specialists who are associated with the implementation of digital skills confirms the presence of these 4 groups among potential candidates for employment. At the same time, a group of factors is justified, among which one of the most important is the presence of career strategies among young people regarding the acquisition and effective use of digital skills in the work process.

The authors modeled career strategies for students who take into account the level of their personal activity:

- an individual-career strategic behavior model, which is characterized by the desire to achieve personal success in life. Graduates who choose this model of career strategy, as a rule, simultaneously study and work. They focus only on themselves and try to achieve everything on their own. Many young people are interested in such active and proactive youth;
- an indefinite strategic model of behavior, characteristic of young people who have not decided on their own professional life and did not realize what exactly they want, sometimes not completely adequately assessing their capabilities. Employers usually lose interest in those candidates who unreasonably overestimate their requirements for the required job or are ready to consider offers for various positions in various fields of activity;
- a non-independent strategic model of behavior typical of graduates, in most cases very capable and prepared, but not guided by the requirements of the modern labor market, not possessing job search technologies.

Educational institutions should influence the ratio of active and passive career of student youth. Universities should create a highly effective corporate culture that will encourage students to learn and form their own career strategies. It is important to use six main motives: play, goals, potential realization, emotional impact, economic impact and inertia [22].

The pattern of forming a strategy for a successful personal career based on the development of professional competencies is proposed (Fig. 2).

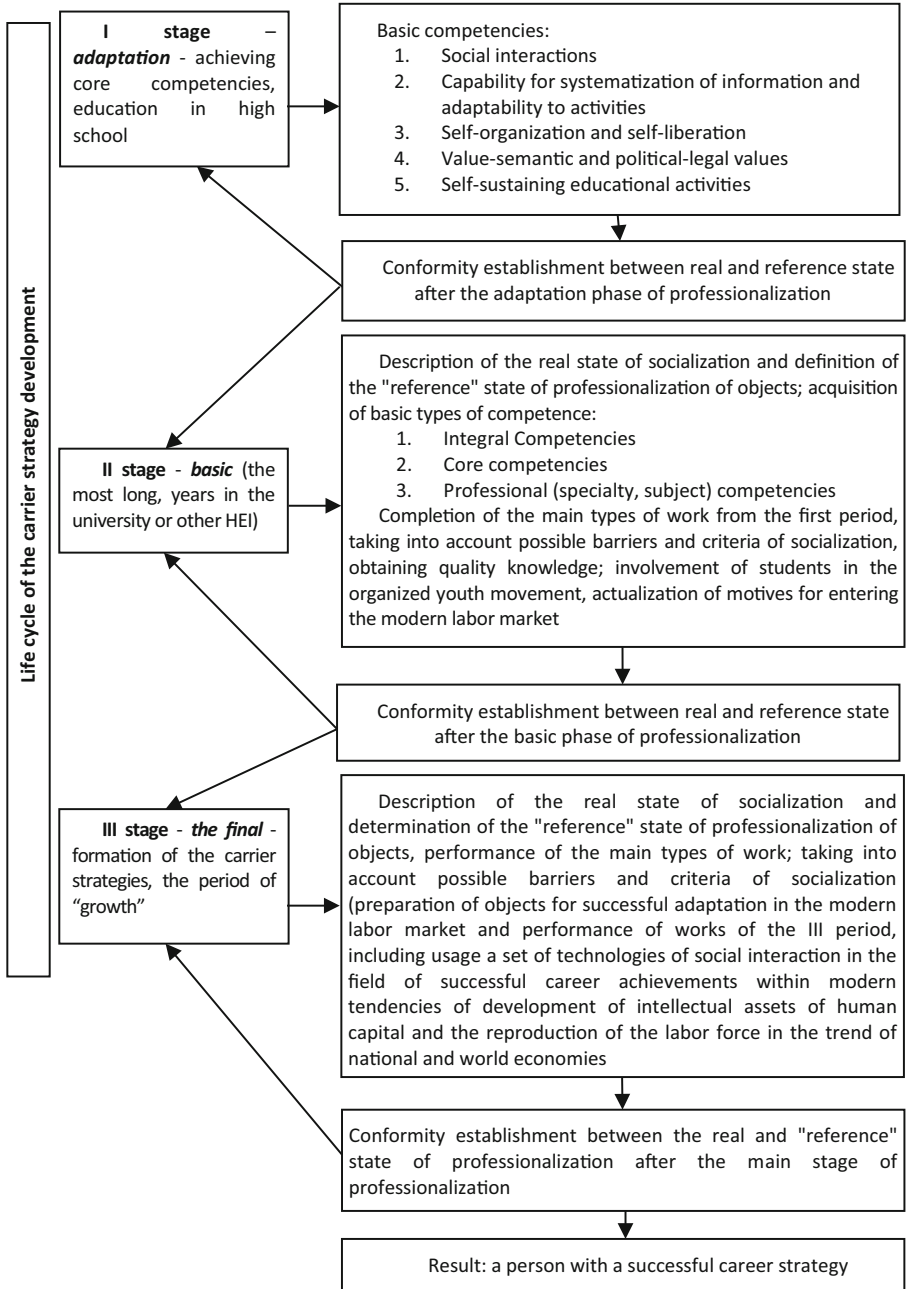


Fig. 2. The model of a successful career strategy development of a person

Despite the elements of social transformation that exist in modern Ukrainian society, it should be noted that today society is undergoing several global transformation processes. All these social transformations significantly change the conditions for the implementation of career strategies of members of modern Ukrainian society, but for better orientation in the new conditions for the implementation of career strategies, society requires specialized institutions – universities. The education system and, in particular, higher education should be the key to ensuring the implementation of career strategies. Education and higher education should be of high quality and meet the basic requirements of the labor market and economic development for this. Educational technologies should develop competencies, knowledge and skills that will help students find effective algorithms to implement their own career strategies.

## 5 Conclusions

In the process of global digitalization, there are taking place global changes in the reproduction of the workforce and new social conditions are developing for the implementation of personal career strategies. The authors have disclosed the social features of the development of personal career strategies are. One of the main social barriers to the implementation of career growth strategies is the social stereotypes that exist in society and guide young people into ineffective career scenarios.

The most powerful factor influencing the strengthening of youth career strategies is education. Educational technologies today should primarily develop digital skills, knowledge and skills that will help young people find effective scenarios for implementing their own career strategies. Universities must create a highly effective corporate culture that will encourage students to learn and shape their own career strategies.

The authors proposed effective technologies for the formation of successful personal career strategies based on the development of professional digital competencies.

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