

## CONSTRUCTS OF ANALYSIS AND ASSESSMENT MODEL OF TRANSFORMATION RESTRUCTURING IN STEEL PLANTS

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The article presents the assumptions for construction of a transformation restructuring model which describes, in a complex way, the range of changes implemented in metallurgical enterprises in Poland in time of economical changes. The model was prepared on the basis of thorough research studies concerning restructuring in countries where transformation of the economy system took place, which is change from central planning economy into market economy. It was also based on scientific research and own experiences. Besides the presentation of the methodological assumptions of designing a model of transformation restructuring in metallurgical sector the article also shows the issue of transformation restructuring and the areas of implemented changes in particular ranges of activity in metallurgical enterprises, which allowed them to function in conditions of market economy.

*Key words:* steelworks, restructuring, model, changes, market economy

### INTRODUCTION

Restructuring of metallurgical enterprises in Poland and in other countries in which transformation of economy took place, was understood as the process of adjustment of enterprises to new conditions of market economy. These were practical activities based on government and business repair programs. The range of restructuring included all areas of activities of enterprise. Changes had a deep and radical character. Restructuring was preceded by privatisation of state owned enterprises. Foreign capital became the owner of key steelworks in Poland (ArcelorMittal, CMC, Celsa, Sella, ISD) [1]. Transformation restructuring allowed to achieve efficiency of functioning in enterprises in conditions of market economy. It can be defined as the overall set of all changes conducted in all areas of functioning in enterprises which created the basis to build business balance in conditions of market economy. Business balance should be understood as the right proportion of changes conducted within an enterprise in reference to changes in the surrounding with coincident direction of transformations. Striving at balance is performed by levelling the differences between aims as well as actions of the enterprises and the expectations of stakeholders in the surrounding. Transformation restructuring was a form of eliminating deformations in structures and activities of the enterprises and in time also of the attempt to reduce the gap between enterprises in countries of economic transformation period and the enterprises from countries where market economy reached a certain point of maturity [2].

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### CONSTRUCTS OF THE MODEL OF RESTRUCTURING IN STEELWORKS

It is very common in research processes of various phenomena and areas of changes which take place in enterprises and their surrounding that the scientists make some simplifications and generalisations creating the model of phenomena proceedings together with accompanying transformations. Scientific models are forms of verification of theses and scientific hypotheses of researchers analysing particular phenomena. Models allow to acquire information about phenomena in particular conditions. Structure of models is most commonly a simplified form of imaging the complex range of transformations occurring inside and outside the organisation [3]. J.C. Linder and S. Cantrell claim that business model is a coordinated plan of actions based on optimal use of resources and relations in order to create a strategy which meets the expectations of the customer [4]. Adopting the above mentioned approach to the model it was assumed that transformation restructuring was a process of coordinated actions allowing the enterprises to adjust to conditions of market economy. For the purpose of identification, diagnosis and projection of market changes in steelworks it was suggested to use the scheme of research methodology based on four steps. First research range (first step) was literature study which allowed to conduct comparative analysis of the notion of restructuring used in countries where construction of the rules of market economy was performed in reference to definition of restructuring in such enterprises which were functioning in conditions of market economy. It was concluded on the basis of foreign literature that restructuring is a permanent process of re-

storing the enterprise to its internal and external balance and as a consequence building the business value through increasing the efficiency of business activities as well as business supporting activities [5,6]. In market economy restructuring was (and is) presented as the form of answer of enterprises to the signals which came from the surrounding. True growth of enterprises is possible by the achievement of customer satisfaction [7]. In conditions of transformation of economy system it was not possible to talk about customer satisfaction. Enterprises were in the first place forced to create the basis to achieve any economic efficiency. In order to understand how many deformations occurred in metallurgical enterprises in times of central planning economy an analysis of situation was conducted before transformation of the enterprises (another component of the model, second step of analysis). Applying the structure of A. Lipowski [8] analysis four basic areas of deformation were identified: production, finance, organisation and decision-organisation sphere. In the category of production the basic deformation in steelworks was so-called unwanted production, which was obsolete from the point of view of market criteria terms. Production of steel was achieved with relatively low productivity of work (machines were operated by too many workers) and the manufacturing technology itself was old-fashioned in economic terms and degraded the natural environment. Assuming a degree of generalisation it can be stated that production in steelworks in times of central planning economy was irrational from the point of view of rules of economy. In financial sphere the danger to functioning of enterprises in conditions of market economy was excessive debt towards various institutions and economic entities. Debt of state owned enterprises in countries of Central and Eastern Europe was so high that they were unable to function efficiently. As stated in E. S. Savas "many state owned enterprises were in such a bad condition and with such poor perspectives that selling them was not an option and giving them away for free would be a sad joke" [9]. State owned enterprises in central planning economy did not have any stimulus to introduce technological or organisational changes and, first and foremost, to reduce the costs of conducted business activities. They assumed many aims, often contrary to one another or politically influenced. Mentioned weaknesses consolidated due to their monopolistic position in the economy which was artificially kept running (lack of danger of going bankrupt) because of huge participation in produced added value in centrally planned economy. Deformations in organisational structure of the enterprises were connected with expanded organisational structures which were loaded with additional functions realised by production enterprises, i.e. social (steelworks owned flats, holiday homes, health centres), administrative, supplying, repairing and merchandising. In structures of production enterprises before transformation of economy system there were no

units responsible for finance management, marketing activities and distribution with excessive supply section (concept of being self-reliant). The last category of subject range in restructuring was connected with ownership of enterprises. State owned enterprises and those owned by co-operative societies had to transform into private enterprises. Before system transformation the biggest enterprises were state owned. As time went on the share of state owned enterprises (public ones) was decreasing and the number of private enterprises (not owned by the state) increased.

All deformations in steel plants in Poland before restructuring process were identified. With the use of statistic data the identified deformations were thoroughly analysed. Additionally, the achieved data was compared with situation of other industrial enterprises in Poland before system transformation in the economy. Such form of analysis allowed to achieve the real picture of the condition of state owned metallurgical enterprises before the initiation of the restructuring repair programs. Another range of analysis (three step) was comparison of diagnosed situation of metallurgical enterprises in Poland with the situation of steelworks in chosen countries of transformation period which were Hungary, the Czech Republic, former Yugoslavia, Slovakia, Bulgaria, Ukraine and the countries of the former Soviet Union. On the basis of such reference a confirmation of this research thesis was achieved (one of the theses of this research) that the transformation restructuring has common features, typical for countries in which the change of the system of economy took place. Those common features were, among other: monopoly of the state in industry; economic unprofitability of the conducted business activity (liquidation of the existing ready market: the so-called socialistic countries market); excessive range of steelworks activities terms of additional functions such as production service, social and recreational functions, administrative and connected with the enterprise; excessive employment (all mentioned countries employed several thousand of workers); low efficiency of work (relation of production size to the number of employed workers); debt of state owned enterprises; unfinished technological investment; extensive use of tangible assets (implementation of new financial investments from the budget of the country was conducted at the cost of reduction of assets for renovations and modernisations); ineffective use of work time by workers; relatively high number of absences of employees at work, both justified and unjustified. Overall assessment of the situation in steelworks before economic transformation in reference to new rules of market economy was unsatisfactory for metallurgical sector. Taking into account the complexity of the situation in each of the countries before market transformation every government had their own method of repairing the metallurgical enterprises. Despite some individuality of transformation changes it was possible to identify common areas of changes in the enterprises. Those areas were pri-

Table 1 Metallurgical sector in Poland before and after transformation restructuring [10]

Ownership	Before restructuring process
	Key enterprises were state owned ones – nationalised legal entities. Big steelworks were functioning as integrated conglomerates and the smaller were called steelworks.
Ownership	After restructuring process
	Key enterprises are owned by foreign capital. State owned ones were privatised. Newly formed entities are functioning as commercial law companies (joint stock companies, limited liability companies, etc). Capital groups in Poland are: ArcelorMittal, CMC, Celsa, ISD, Selerstatat.
Property related	Before restructuring process
	Social ownership of production assets. Property of non-production type was too extensive in reference to production type one. Steelworks owned i.e. company flats, worker hostels, factory canteens, holiday homes, health centres, community centres, transport companies, repair units.
Property related	After restructuring process
	Private ownership of production assets. Obsolete property was sold, liquidated or separated (outsourcing non-core business). Liquidation of steelworks which did not bring profit or which were not promising the improvement of financial situation.
Technology	Before restructuring process
	Open-hearth furnace technology of steel melting. New metallurgical investments, i.e. building Katowice Steelworks (another set of open-hearth furnaces). Small participation of converter or electric furnaces in steel production. Only some of the steelworks have devices for continuous steel casting.
Technology	After restructuring process
	Backing out from the open-hearth furnace technology of melting steel in 2002. Liquidation of obsolete production powers (decrease of the number of big furnaces). Increase of the involvement of converter or electric furnaces in steel production. Investing in devices for continuous steel casting.
Products	Before restructuring process
	Products (semi-finished products) with low degree of processing.
Products	After restructuring process
	Diversification of metallurgical assortment. Products adjusted to the needs of the markets.
Finance	Before restructuring process
	High level of debt in steelworks. In year 1992 a loss was noted down in financial results in metallurgical sector which equalled 454 400 PLN.
Finance	After restructuring process
	Steelworks' debts were removed; the liabilities towards contacting parties were paid off. Steelworks regained financial liquidity.
Employment	Before restructuring process
	In the sector there were 147 thousand employed in year 1990. For each employed there was less than 100 000 tonnes of produced steel in year scale. Extensive range of actions, operated by employees on so-called white collar positions (administration, production service).
Employment	After restructuring process
	Metallurgical sector employs 25 000 people (year 2011). For each employed worker there is 350 000 tonnes of produced steel in year scale. The increase of the number of workers with higher education was observed (by 20 %) Implementation of the assumptions of Lean Management and Lean Production.

vatisation of state owned enterprises and key ranges of transformation restructuring in steelworks. Those ranges were: property related, technological, product related, financial and employment related. Another component of the model then was the analysis of implemented repair changes in steelworks in each of the mentioned topic ranges. It was concluded with the use of statistic data what the situation of the metallurgical sector in Po-

land looked like in time of implementation of government and business repair programs. Effects of restructuring were put together in Table 1. The last component of the model (four step of analyses) is the direct research conducted in metallurgical enterprises. Tests allowed to refer to restructured metallurgical enterprises in terms of conducted changes as well as to show the key areas of changes in each of the enterprises in conditions of market economy. Achieved results of tests (survey, interview, observation) allowed for a definite confirmation of the correctness of implemented transformation changes in metallurgical enterprises in Poland. Tested enterprises assessed this whole process positively.

### GENERALISATIONS ACHIEVED ON THE BASIS OF RESEARCH MODEL

On the basis of literary studies, statistical analysis and empirical tests there were some generalisations formulated (and presented below) which are the simplified form of presentation of the complex process of restructuring transformations:

- Transformation restructuring of steelworks in Poland was historically conditioned. Change of economy system from central planning economy to market economy had its consequences in economy changes and in management of the enterprises. Steelworks which were part of traditional industry had to introduce changes resulting from new conditions of market economy.
- On the basis of literature studies it was concluded that the term “restructuring” had undergone an evolution. In countries, where transformation of economic system took place the whole period was treated as restructuring, as a set of activities of radical and deep character allowing the enterprises to adjust to new conditions of market economy.
- On the basis of analysis of market condition and sector analysis the de-stimulants of further development of metallurgical enterprises were identified (Table 1 – steelworks before transformation).
- On the basis of restructuring changes implemented in metallurgical enterprises in time of system transformation a generalisation was formulated which stated that new conditions of the market economy radically changed the functioning and management of the enterprises.
- Changes implemented in a complex way in all areas of activities in enterprises were confirmed by the results of direct tests. Taking into account the results of such direct tests it was proved that metallurgical enterprises reacted to changes flexibly. They went from repair strategies of the enterprises to development strategies.
- Transformed metallurgical enterprises created new market of steel in Poland in which there is a large participation of enterprises owned by foreign capital (ArcelorMittal, CMC, Celsa, Donbas). Restructured steelworks build competitive

advantage as producers of highly processed steel and specialised metallurgical products.

## CONCLUSIONS

The course of transformation processes in enterprises from metallurgical sector in Poland was a result of the reformation of economy system. Deformations in the system of central planning led to the inability of independent functioning of steelworks. Transformation of economy in Poland lasting from 1989 changed the state owned enterprises, in case of metallurgy former big industrial complexes, into efficient private enterprises (commercial law companies). Transformation restructuring was a process of radical changes inside enterprises in order to adjust to the conditions of the market. Applied diagnostic method based on macro-, meso- and micro-analytic approach may be treated as universal approach to test the course of restructuring changes in other countries, where metallurgical enterprises also went through the period of transformation restructuring.

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**Note:** The responsible translator for English language is D. Grochal, Katowice, Poland