

## THE AREA OF COOPERATION BETWEEN CLOTHING MANUFACTURERS AND RESEARCH CENTRES IN POLAND

Ewa Grandys

Technical University of Lodz  
Institute of World Economy and Textile Marketing  
ul. Żeromskiego 116 Lodz Poland  
e-mail: [ewa.grandys@poczta.onet.pl](mailto:ewa.grandys@poczta.onet.pl)

### Abstract

*The most urgently needed cooperation between Polish clothing manufacturers and research centres is that on anthropometric studies of the population as well as a permanent improvement of managers' knowledge. This article has two parts; the first discusses the existing anthropometric tables in Poland, presents modern ways of carrying out new surveys and provides grounds for this action. The second part explains, within the context of market Europeanisation, why managers have to expand their knowledge resources, and outlines the main points where this knowledge may be subject to verification.*

### Key words:

*anthropometric studies, clothes size labelling system, integrative management*

### Introduction

The vehicle for cooperation between clothing manufacturers and representatives of the scientific community is a forum in which the Polish Federation of Apparel and Textiles, the Polish Committee for Standardisation (PCS), the Polish Chamber of Fashion and industry chambers, local government and business associations all participate. It is a place where crucial subjects and current issues are discussed. An example of this cooperation is the adjustment of Polish standards to the EU system by the PCS. Before accession, the EU laws applied only to Polish exporters bringing their products onto the EU's single market. Following accession, Community standards have become compulsory for all Polish manufacturers. Non-compliance with standards makes it impossible to compete in the EU market.

The above illustrates only one case of cooperation, and new opportunities should be sought to make joint efforts. This article discusses the necessary scopes of action.

### Anthropometric studies

European countries repeat anthropometric studies every ten years. In Poland, however, the most recent survey took place in the late 1970s, that is, well over 20 years ago. This was a joint project undertaken by the Research and Development Centres for the Clothing Industry, Knitwear Industry and Footwear Industry and the Polish Academy of Sciences in Wroclaw. Ten years later, scarce financial resources made it possible to survey children only, because more reliable studies require several thousand persons making up a randomly selected sample to be measured. Even though the measurement method was sufficiently precise, it was very time-consuming; it took around 30 minutes to measure one person. Many research teams were appointed, usually assigned to examine populations in different age groups. The entire population was broken down into five groups combining age intervals from 0-18 years, and additionally into four body types for females and males [10].

- Age groups: 0 - 2 years (infants)  
2 - 6 years (children)  
6 - 11 years (girls and boys)  
11 - 15 years (girls and boys)  
15 - 18 years (girls and boys)
- Female body types identified in relation to the difference between the chest girth and hip girth:

- type A –difference of 4 cm
- type B –difference of 8 cm
- type C –difference of 12 cm
- type D –difference of 14 cm
- Male body types followed from the difference between the chest girth and waist girth:
  - type A –difference of 14 cm
  - type B –difference of 10 cm
  - type C –difference of 6 cm
  - type D –difference of 2 cm

The results were published in the early 1980s in the form of tables providing information about the body dimensions and build of the Polish population. In each age group, between 33 and 37 numerical characteristics were used to describe the body type. This data was used to prepare the basic constructions of garments and knitwear products (e.g. size 164/96 for females), and the size increments allow the grading of patterns to produce other sizes.

The anthropometric tables that took so much effort to be assembled, and that have been used to date by the clothing and knitwear industries, are outdated. It is commonly known that new generations are taller than their predecessors, and that the 'statistical Pole' is increasingly stout. Growing height and weight parameters affect other dimensions, such as the length of arms and legs, the girth of the neck, chest, waist, etc.

New anthropometric studies are therefore a must. These could be conducted using 3D body scanners, i.e. devices enabling the transfer of three-dimensional shapes to computer memory [1]. Such devices are already available on the European market. Scientists at the Warsaw Technical University have developed a computer-aided body measurement method. The Institute of Knitting Techniques and Technologies in Łódź has declared its readiness to carry out measurements applied to the Scientific Research Committee (SCR) for a grant to construct a device and to conduct the survey. If they fail to obtain the necessary funding, then the equipment will have to be purchased from the UK company Qinetiq. In August 2003, the organisation announced that it had an available and tested prototype of a camera capable of taking precise measurements of the human body. Although such equipment is costly, so much measurement time can be saved that the final balance of costs of the undertaking should be acceptable to the SCR. That the survey is needed is quite obvious. With current anthropometric data, the manufacturers will be able to construct products fitting contemporary body types. In addition, anthropometric studies will allow the correct labelling of clothes sizes, so that customers can find garments suiting their needs, because all size labelling systems operated across Europe are based on body sizes, and not on the size of a garment. Polish enterprises determined to compete with expanding clothing imports must use contemporary anthropometric data prepared in other countries, or trust the intuition of their constructors.

The European Union requested an anthropometric survey of 20,000 persons of all ages and both sexes, conducted in line with international standard ISO 8559 'Garment construction and anthropometric surveys', complying with the basic scientific assumptions and emphasising the data's practicality. The goal was to make a compilation of clothes labelling systems operated in the EU single market. To prepare the compilation, a group of CEN (Comité Européen de Normalisation) specialists was appointed several years ago, which has been cooperating with many companies that either produce or sell clothes. The expected outcome is a European System of Labelling Clothes Sizes. It is proposed that the system as envisaged will have four elements [11]:

- a) prEN 13402-1 – labelling of clothes sizes (with conditions, definitions and procedures for pictogram-based size labelling).
- b) prEN 13402-2 - labelling of clothes sizes (with definitions of primary dimensions (PD) and secondary dimensions (SD) that have been approved by the entire CEN).
- c) prEN 13402-3 - labelling of clothes sizes (with tables specifying body dimensions and intervals/increments necessary to grade the patterns).
- d) prEN 13402-4 – labelling of clothes sizes (with a three-digit coding system).

**Part one** (amendment of standard ISO 3635) has been prepared for submission. The standard will promote the use of pictograms as visualisations of body dimensions applied by clothing manufacturers. The pictogram is meant to serve the customer, and it will contain primary and secondary body dimensions stated in centimetres and a three-digit code.

**Part two** is a proposal for the primary and secondary dimensions. This issue is still under discussion. An example of a preferred primary dimension is the chest girth, and of the secondary dimension, for instance, the height and hip girth (females). The extent of coding enables five combinations of each primary dimension with secondary dimensions.

**Part three consists of** tables providing specific dimensions (15 characteristics) for males, females, boys and girls. Their mutual combinations mentioned in the second part allow around 800 codes to be generated. This is not a closed-end system, so new dimensions can be added.

**Part four** is a coding system using only three digits (correlated with the pictogram) for size identification. The decision to try a three-digit coding was made during one of the CEN's plenary sessions in Brussels. A larger number of digits would generate a system that would be too wasteful in electronic data exchange. The existing pictograms, if they were underpinned, for instance, by four primary and secondary dimensions, would in the extreme case require as many as twelve digits. The three-digit coding system was developed by Dr. Rien van Osch. Its capabilities and rules of operation still need to be examined, but it is already known today that it is necessary for logistical purposes.

The basic advantage of the system presented is its ease of implementation. The prerequisite for making it operational is the availability of a set of current anthropometric data which will be updated on a regular basis. The updates should be provided by appointed R+D units, because clothing manufacturers are unable to produce them on their own. Because customer relations are the paramount value for all firms, the activities ultimately tend to make garments to fit customers, as well as avoiding the following negative phenomena:

- sales downturn, making customers take advantage of competitor's products,
- customers returning 50% of items selected from mail-order catalogues due to ill-fitting clothing,
- road blocks to the expansion of online commerce.

Changes to the EU size labelling system have already been decreed. There is a serious concern, however, of whether the new member states will be capable of implementing the system. The barrier is their lack of current information about the anthropomorphic dimensions of their populations. No company or member state is obliged to implement all four parts of the system. For instance, they can use only the pictograms without the coding system, but such a decision excludes a country from the European logistical system, thus contributing to a lower volume of clothing being sold in the EU market. All the arguments support the opinion that it is very urgent for R+D units to conduct anthropometric studies in Poland.

## Forming a Polish manager

In the 2003-2007 business environment ranking produced by the *Economist's* Intelligence Unit, which assess countries in ten categories, Poland has moved up three places compared with 2002, and is now ranked 29th [3]. The best score was given to Canada for her infrastructure, a market offering large expansion potential, and openness to foreign products and capital.

In the present economic circumstances, Poland has limited room for improvement, for instance regarding its infrastructure. One of her assets may be well-educated managers, who know how to operate in the international market. Therefore, continuous improvement of managers' skills should be another area for cooperation among the academic centres, R+D units, the Polish Foundation for Management Promotion and representatives of the industry.

Today the learning process actually ends when a person decides to quit his or her profession. The technological race and constantly changing economic circumstances necessitate investments in human resources. Especially valuable are persons who feel an internal drive to self-development and self-realisation. It seems that Polish enterprises that have experienced all the twists and turns of the economic revolution of recent times need managerial staff who:

- can create company success,
- can think creatively,
- have high professional skills,
- feel the need for permanent learning and personality development, and
- show considerable adaptability to changes taking place in the environment.

Once it was enough to fulfil the set of entrusted duties, and the major virtue was not to take any decisions; this time, however, is gone forever. It takes comprehensive knowledge to manage an enterprise, and the managerial staff cannot be the only party to possess it. The same is expected of the middle-level personnel and even individual workers. Only joint efforts by the whole team can be successfully utilised by the manager of the twenty-first century. Managers trained according to modern standards will be able to prepare their enterprises to win in competition with strong European enterprises who deal in clothing and other products. After a period when imports were on top, Polish consumers have started buying domestic clothing again which is even beginning to succeed on the

European markets. This process is not spontaneous. The surviving or expanding enterprises are those whose managers know their goals, such as:

- a vision of a product or a service,
- a market strategy possibly well-suited to a product,
- skilfully applied marketing instruments,
- effective management of human resources as their firm's 'most important asset',
- efficient and successful cooperation with customers.

All the areas of knowledge indicated above must be developed and enhanced. Many key decisions made at top management levels are either intuitive or arise from managers' beliefs that they know how to use particular management tools. This is a case of 'original sin', and the 'sinners' do not even realise that they should continue their education and improve their skills.

The so-called integrative management style, where workers are partners rather than subordinates, and the command-based system is replaced with leadership [6], is still incidental. At the same time, the new generation has a completely different attitude to working. To be able to manage the best-skilled personnel, a manager needs pertinent knowledge of how to manage, so that the intellectual and creative capacity of his team can be forged into success for the company. Otherwise, mismanagement can be the reason for the organisation's failure, as well as frustration or the departure of its personnel. According to research, valuable workers are neither afraid of hard work nor expect comfortable working conditions if their enterprise is experiencing some restructuring problems. However, they have to see that their work makes sense and is important for their organisation. They also have to rely on having opportunities for development. The length of time a gifted worker is willing to stay in an enterprise depends exclusively on his or her relations with the immediate superior. Popularising modern HRM solutions among the managerial staff is an important task of the academic centres.

Another and equally important element that the managerial staff should constantly improve is their knowledge of how to manage a company. This knowledge cannot be replaced by long years of holding the top positions, or supplemented by the reading of management books. Only exploring the available literature combined with participation in a series of training events delivered by prominent and successful management theoreticians and practitioners offers development opportunities to managers. Unfortunately, inclination to learn is not a common feature among the latter. Is this because managers are unwilling to improve their qualifications, or perhaps the available training does not fulfil their expectations of quality? It is quite probable that the present situation arises from both these reasons. Nevertheless, modern management involves extensive knowledge, and managers' effectiveness & performance will depend increasingly often on their knowledge of procedures and circumstances, and on the implementation of marketing strategies. Only academic centres which offer their own research activities and numerous and strong contacts with the business practice are capable of training managers to fulfil the tasks imposed by the age of globalisation. The era of enterprise management in the nation state is drawing to a close, and the entire knowledge of the field has to be revised once more. The integration of markets into the European Union has converted the existing national markets into regions of the EU single market. As a consequence, Euro-marketing is emerging, whose goals and strategies have to be learnt in view of the future globalisation of the world economy.

## Conclusions

- The competitive advantage of Polish clothing manufacturers is subject to the revision of national anthropometric data. Its verification will help improve the fit of garments to body types.
- The prerequisite for implementing the European three-digit system for labelling clothes sizes in Poland is to conduct a new anthropometric survey.
- If the new three-digit system is not implemented, Poland will be left behind from the European logistic system, with a consequent drop in sales of clothing manufactured by domestic producers.
- Only managers trained according to modern standards can prepare their enterprises to compete in the European market by defining their goals appropriately.
- Modern HRM solutions are the basis for enterprises to gain a competitive position in the European market.
- In the markets' process of Europeanisation, continuous improvement of knowledge is a must for managers.

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Development cooperation SSAU with other universities around the world began with the implementation of joint European projects Tempus "Academic network of information and advisory activities" and "internationalization of economic education in SSAU" that in 2004 the Department of World Economy SSAU beginning with the University of Hohenheim (Germany), University of Wageningen (Netherlands), Moscow state agricultural Academy KA Timiryazev. The implementation of the project activities already in 2004 allowed to enter the specialty "International Economic Relations and agr..." The main objective of the association is the development of research and educational activities in the field of agriculture and related fields of science in Europe. This paper evaluates the economic advantages and disadvantages of the Eastern expansion of the European Union for old and new EU member states, and introduces support programmes which aim to integrate regions on both sides of the border. It focuses especially on the development of cross-border scientific cooperation between Germany and Poland. An empirical study on the example of the Europa University Viadrina (EUV), a newly founded university in the German-Polish border region, shows the extent of German-Polish cooperation based on co-publication activity. In our small-scale empirical investigation International Visegrad Fund Priority areas: cooperation in the field of culture; scientific cooperation and research; education (seminars, summer schools); youth exchanges; Poland-Slovakia-Ukraine and Hungary-Slovakia-Ukraine transfrontier cooperation programmes; tourism promotion. F. Naumann Foundation for Freedom Cooperation areas: the democratic structure and effective organisation of political parties and party youth unions; communal policies; information about the EU and NATO, discussions on the rule of law system of government; support of Ukrainian mass media; promotion of economic reforms. Local Cooperation Fund (Finland). Polish-Ukrainian Youth Exchange Programme, National Culture Centre (Poland). U.S.-Ukraine Foundation. - promoting cooperation between MSMEs, including consideration of a BRICS MSMEs Cooperation Agreement, exchange of information and best practices on MSMEs regulation and support, facilitation of MSMEs' access to public services, financing, exports and international projects; 7. - attracting and promoting investment into Special Economic Zones within BRICS countries exploration, energy infrastructure development; - encourage research on practical BRICS cooperation in the area of food security and nutrition and agriculture development will include, in its five priority areas: Development of a general strategy for ensuring access to food for the most vulnerable population. Clothing industry or garment industry summarizes the types of trade and industry along the production and life chain of clothing and garments, starting with the textile industry (producers of cotton, wool, fur, and synthetic fibre), embellishment using embroidery, via the fashion industry to apparel retailers up to trade with second-hand clothes and textile recycling. The producing sectors build upon a wealth of clothing technology some of which, like the loom, the cotton gin, and the sewing machine