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## Implementation of ergonomic changes

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### Abstract

The article presents elements of study done during the research project realization, the aim of which was to develop a new method to implement ergonomically changes of workplaces in organisations. The method is based on identification and use of the organisation subsystems dynamic properties, as well as the dynamic features of the change itself. The methodology is based on the identified relations that control most of the objects subjected to input. These relations describe the connections between the course of the value of input and output signals of the object. It assumes that particular parts of the organisation constitute systems. These systems, just like all others, are subject to certain regularities: they generate output signals, based on the level and dynamics of the input signals. However, the most crucial feature of the system is its static and dynamic characteristics. Under certain conditions, this feature of the system remains unchanged, while what changes is the level of the input signals of the system. Therefore, knowing the system characteristics and the input signal processing, one may try to assess the value of output signals. The knowledge of a given system characteristics may not only enable the successful prediction of its behavior, but also it may enable to establish a scheme of regularities, so that the output parameters would preserve certain predetermined properties, regardless of the status of the inputs. The research project within the study concerned the analysis of the dynamics of the processes of environmental changes implementation in organisations. On the basis of detailed studies in the organisations the most important relations describing the behavior of employees have been identified. Due to the knowledge of the dynamics of the given process as well as the interactions and connections that exist between different objects in the organisation, it will be easier to estimate the time of achieving the goals and determining the real value of purposes which the organisation subsystem achieves. The article below presents a part of the analysis concerning the way the employees approach a planned change.

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## 1. Introduction

The article presents the analysis of the process of implementing changes at work posts. The changes referred to application of ergonomic improvements [4]. The aim of the improvements was to increase the quality of products through reducing the number of errors. In 87% of cases a significant improvement of the process was achieved, because the number of errors committed by the workers decreased by 30%. The research was devoted to dynamics of the process of achieving a stable improvement. This included collecting information on the number of committed errors along the period between a change implementation until achieving a constant level of errors commitments. Dynamic parameters of changes implementation process were identified for thus prepared data. The above was based on the assumption that man is a dynamic object, which, subjected to forcing (in the sense of control theory), behaves like as dynamic object with a specific transmittance function. Introducing changes at a work post is actually an application of forcing in a dynamic object consisting of a man and his working environment. The study presents the issue of the influence of the introduced change on the man-environment system in a dynamic approach.

## 2. Human–environment system

The role of human in a human–environment system consists in interpretation of the environment and in influencing it. Recognition of the environments takes place basing on the rule of direct or indirect perception with the use of technical means. The environment determines the frames of human activity, that is this type of the surroundings that is decisive for the rules of conduct: law, physics, norms, customs, schemes, etc.

Information flow associated with control in a human– environment system is realised according to the rule of four phases [2]: measurement, assessment, developing control signals, realisation of working process. A model of the process, the aim of which is to recognise and identify the environment, is presented in Fig. 1. Two information flows occur in this system: control process and identification-supervision. The flows enable supervising the accuracy of the system operation.

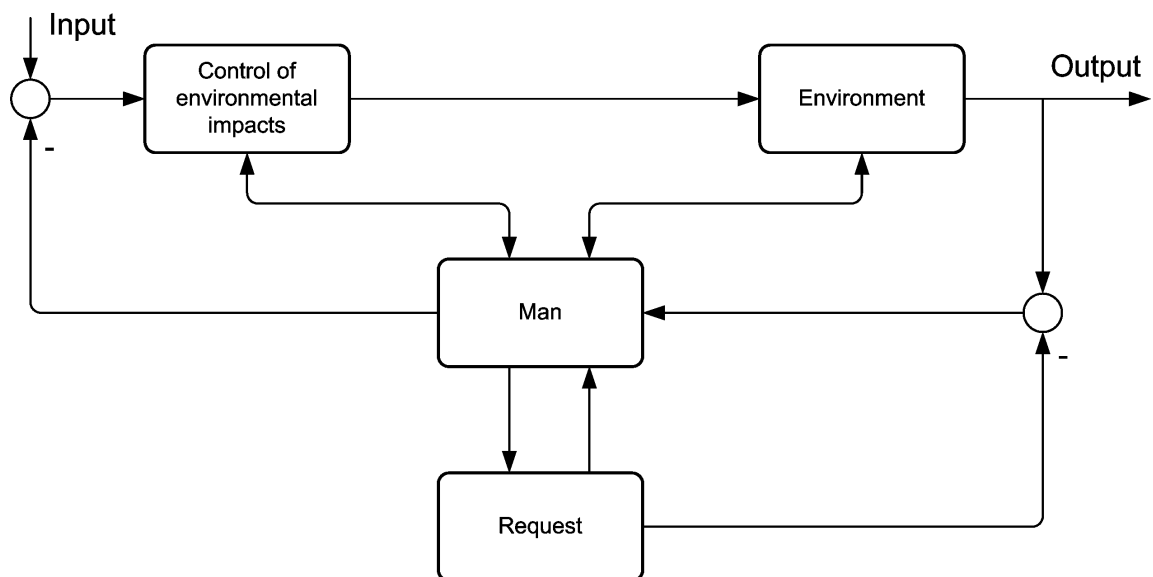


Fig.1. Model of human–environment system for realisation of the objective: identification of the environment [2].

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