

## Economic Development of Company in Creative Cluster

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**Abstract:** The article aims to create an economic model of a company and thus introduce a dynamic perspective in strategic decision-making of a company which is trying to enter a cluster of companies focused on creative industries. The research problem is the projection of future company development, including the model of key factors contributing to company success, such as cooperation of companies within the cluster, gathering information, improved access to innovations. The main research method is the system dynamic modelling that enables the study of complex feedback systems with the objective to manage these systems. This method opens new possibilities to research the effectiveness of tools encouraging the development of company economy with respect to the benefits the company gains from participating in the cluster activities. A subject for discussion is the comparison of companies' economic performance presented on two models: a company doing business without participation in the creative cluster and a company that became a part of the cluster and benefits from its activities. The model also counts with soft parameters caused by the cluster activities: impact on the company's product innovation, growth of business and job opportunities and staff education. The resulting economic model presented in the article is a proposal of a new system of doing business in culture and creative industries. It also aims to demonstrate the advantages of being a creative cluster member and the impact of cluster activities on the company's future economic prosperity.

**Keywords:** creative company, creative cluster, feedback loop diagram, model of creative company, system dynamics, competitiveness

### 1. Introduction

Nowadays, European countries increasingly face the global competition among various regions. According to Marková, regions are forced to look for innovative development strategies and this creates space for the increased importance of cultural offer as a soft factor of development of towns and regions (Marková 2011). However, strategic cultural projects supported by towns do not have only altruistic purposes. A modern, cultural region attracts its citizens, tourists and investors and encourages image improvement of the given location. Support and development of culture and creative clusters in the region may be an opportunity and is one of the factors for further local development. A cluster may be defined as a group of producers, educational and research institutes, financial institutions and other private and governmental organizations, interconnected by different relations. Creating networks and clusters is one of the systemic steps how to encourage the development of cultural potential of towns and regions. Therefore, it is essential to deal with this potential. Yet, a creative cluster may exist only in a place where the conditions for its existence are met. Bednář claims that the mapping of creative areas is a crucial step towards the assessment of creative economy in the region (Bednář 2012). The assessment of creative industries in the regions ensures the development of creative clusters as well as the subsequent identification of the involved parties, including creative companies. Creative clusters are characterised by elements that cannot be identified in any other industrial areas. Creative clusters involve non-profit organizations, cultural and educational institutions or start-ups in creative industrial areas (e.g. architecture, design, fashion, visual arts, university art studios, other university departments). It is a place where people feel comfortable and are inspired by dynamic environment with a wide variety of companies. A creative cluster is a place where products are created and consumed at the same time. Creative companies may, thanks to the cluster activities, gain a competitive advantage.

The article aims to show the economic impacts for companies upon joining a creative cluster. The main research method used is system dynamic modelling. The model contains specific elements that are typical for creative companies and creative clusters as well as relationships among these elements. The key elements of the cluster model have been determined while applying the content analysis of documents describing the creation and development of creative companies and creative clusters. Among other research methods belong e.g. systemic thinking, the comparative and analogy methods.

## 2. Theoretical Framework

The term *creative industries* first appeared in Australia in 1994 and up to this day, it does not have a universally valid definition (Marková 2011). An inter-resort group for mapping the creative industries was established in Great Britain in 1997 and the term was included into the political agenda of the Labour Government (Department for Culture, Media and Sport). According to this definition, creative industries are such areas that are based on individual creativity, human skills and talent. At the same time, creative industries are areas with the potential to create wealth and jobs, especially through intellectual property (Cikánek 2009).

Creative industries belong among the most dynamic sectors in Europe: their contribution to the EU's gross domestic product is 2,6 %, they have high growth potential and offer quality jobs for about 5 million people in all 27 EU member countries (Green Paper 2010). In the highly competitive environment, if towns and regions aim to retain and attract qualified human resources, the so-called *creative class* (Florida 2004), they need to attract them for own region. Creative class is the labour force, whose main tool is creativity and creative thinking. Creative class as the labour force brings new incentives and viewpoints and creates new, innovative products (Kloudová 2010). A *creative company* differentiates itself from other subjects by a higher number of creative staff. Another attribute of a creative company is that it sells a specific product. A *creative product* is a result of a human action involving a large share of *creativity*. Human creativity is the ability to create and come up with innovative ideas. It is a manifestation of human intelligence in connection with knowledge and creative thinking. A creative product may be both tangible and intangible. A creative product's value is determined especially by its users and their interest in purchasing the product. It is not determined by the amount of creativity that the product includes. A cluster may be defined as a group of producers, educational and research institutes, financial institutions and other private and governmental organizations that are interconnected by different relations. A cluster thus connects private and public activities. The cluster strategy is beneficial for towns and regions especially in one key area – competitiveness. A *creative cluster* is very important for the development of creative economy. Cikánek claims that, in case of creative clusters, we have accepted the theory of business clusters and adapted it to the area of creative industries (Cikánek 2009). Creative clusters may be encouraged top-down by national, regional or local authorities or may come into being spontaneously – the bottom-up approach. This article focuses on monitoring the development of a creative company in cluster. It also deals with primarily creative companies and the corresponding benefits of joining a creative cluster. System dynamic models contain assumptions that simplify the reality (Schwarz 2004). The presented model introduces ten economically successful companies that will ensure the creative cluster's sustainability. The model proved that a lower number of participating companies results in an unprofitable cluster which, without a sufficient additional subsidy support (top-down), leads to a bankruptcy.

### 2.1 Ten Advantages of Joining a Creative Cluster

*Cooperation* is the first good reason why to become a creative cluster member. A creative cluster is basically a network and therefore predetermined for cooperation. A creative cluster association – usually micro companies, small businesses and self-employers – (see Bednář 2012) increases their business opportunities including the potential to create strong and distinguishable marks (Žáková Problem Analysis 2012). For creative clusters, it is typical to connect profit-oriented commercial companies with non-profit organizations.

The creative cluster member gains *information* from the cluster operating unit easily, quickly and usually for free, which is the second advantage of the involved company. The cluster thus serves as an information platform providing information on actions organized for the cluster, on new markets, opportunities and demands and this information would be very difficult to get for an isolated company. According to Soukalová, universities do focus on the awareness towards experts and commercial companies – 28% of all media releases of universities are determined for expert public (Soukalová 2012). These releases are in clusters systematically collected and processed for the benefit of all cluster members.

The third advantage is *communication*, which, in case of the creative cluster, is understood more as informal exchange of information, given by the closeness of specific institutions in the cluster (Heebels 2010). Kloudová suggests that creative individuals need to share and confront their opinions,

procedures, ideas and emotions (Kloudová 2010). A significant part is also a presentation in form of happenings, exhibitions, etc.

The innovation of creative products is the fourth benefit of clustering. This advantage results from establishing continuous contacts among companies, i.e. from their mutual cooperation, awareness and communication. More subjects from the cluster may take part in innovations and thus share costs for development of new products and technologies. What is important for creative companies is a stylish product with its own creative image.

The fifth cluster's advantage is *public relations* in the sense of building the cluster companies' common identity. The companies in the cluster are presented as a part of a bigger group, not as isolated subjects.

The sixth advantage is *education*. The cluster may quickly identify the changing training needs of creative companies. Training services for cluster members are thus based on their specific needs.

*Competitiveness* is the seventh benefit. The cluster members share the understanding of competitiveness as a result of productivity and innovations, not as a pressure for austerity measures.

The eighth advantage for companies in creative clusters is *counselling and lobbying*. Each member may benefit from the concentration of information, personalities, contacts and opportunities. The cluster operating unit is often a partner to companies during negotiations which an isolated company could not take part in. The cluster may act in harmony with the interests of its members on the regional, national and international levels.

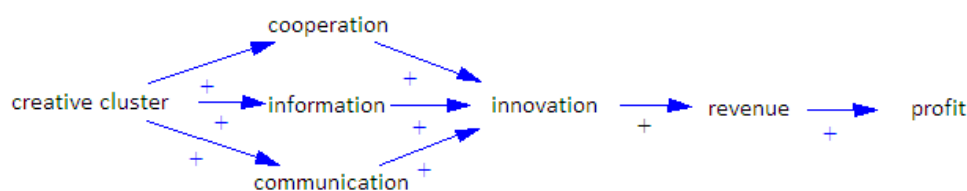
The ninth plus is increased *productivity*. The cluster members have an easier way to increasing productivity and optimizing their supplier chain, as they gain access to specialized inputs and work force.

The last benefit that needs to be emphasized is internationalization. Creative clusters are not concerned only with export to foreign markets in order to maximize profit. Each intercultural dialogue itself is highly significant for art and creativity. International environment encourages the awareness of European and worldwide cultural and art diversity. Thus, it contributes to the variety and development dynamics of cluster companies.

The creative company model involves elements which represent all ten advantages of creative clusters. These soft parameters have completed the overall picture of connection of the cluster and creative company's activities and highlighted their importance for the development of the company's economy.

### 3. Research Method

The key research method is the system dynamics. To use its full potential, it was necessary to apply other research methods. The theoretical frame described in the previous chapter contains elements that are considered to be relevant in relation to the article's objective. The elements included in the modelling resulted from the Qualitative Text Analysis Method. However, the Text Analysis is only a starting point for further research. For example, it was revealed that a creative cluster company benefits from establishing continuous relationships among companies, i.e. from cooperation, awareness and communication. The mentioned advantages lead to the existence of conditions suitable for a creative product innovations, increased revenues and profit. The statement may be modelled in the following way (Figure 1).



**Figure 1:** Linear Model of Effect of Company Entering a Creative Cluster (Own Source)

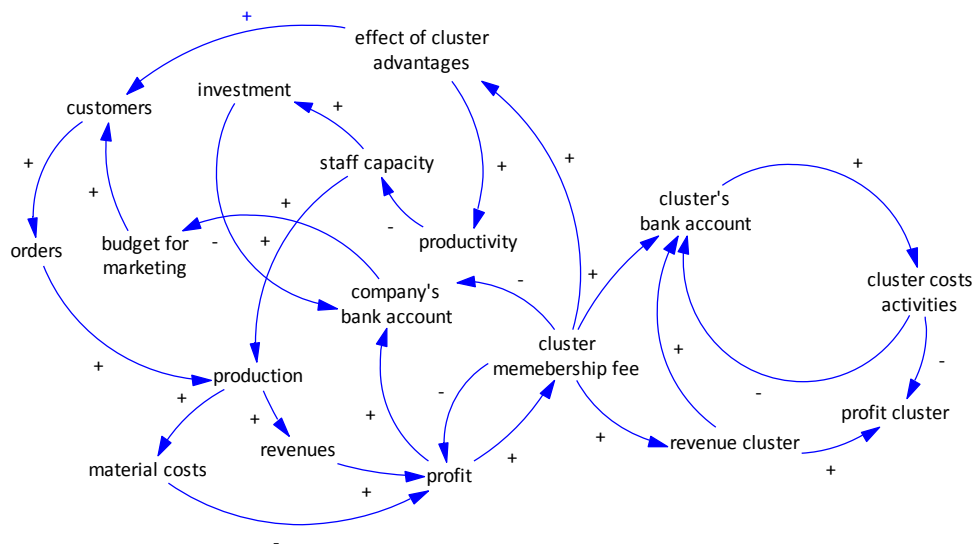
The linear view offers simplification as it contains simple causality statements. The linear model (Figure 1), however, does not consider the fact that should a company enter a cluster, its costs increase minimally by the cluster membership fee. As soon as we increase costs, the profit declines.

The key to systematic perception of the problems of creative clusters and creative companies is to identify the loops of mutual influences, not only causal linear chains. For the needs of systemic thinking and system dynamics methods, a creative cluster of companies is defined as a set of internally interconnected and elaborate elements and mutual relations among them. The creative company mental model aims to reach maximal effect and understand the patterns leading to the company's profit generation. Defining the relations among the elements enabled us to process the results of the Qualitative Text Analysis. Product innovation really does depend on communication, cooperation and awareness and influences the revenues and profit. Yet, the dependence of these elements is not linear, as it contains feedbacks.

**3.1 Causal Map as System Thinking Diagram**

The Causal Loop Diagram (CLD) is a method enabling to describe the behaviour of any system comprehensively. It is a graphic tool able to sufficiently generalize the identified data on the researched phenomenon. The causal relations among the loop diagram variables are implied by arrows. An arrow with the (+) symbol is positive and states that a change in the previous element has a similar tendency (growth or decline) as the following one. A negative (-) arrow means that a change in the model element will imply a negative tendency (growth or decline) for the following element. For example, there is a negative relation between costs and profit, but the relations among orders, invoicing and profit are positive.

The loop diagram depicts the creative cluster in a simple way, only using bank account, revenues, costs and cluster profit. In order to achieve the research objective, i.e. to prove the cluster influence on the company's economy, it is not essential to carry out a detailed economic structure of elements and relations among the creative cluster elements.

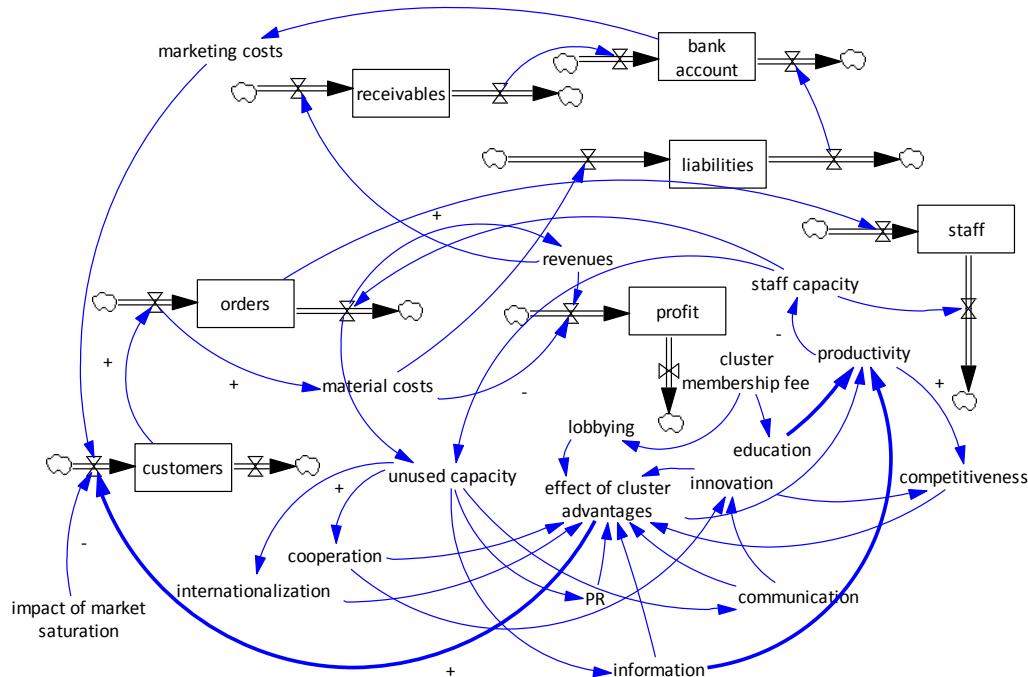


**Figure 2:** Feedback Loop Diagram: left – creative company, right – creative cluster (Own Source).

The Causal Loop Diagram (Figure 2) is a model picture of a company interconnected with a creative cluster. As any other model, it is a simplification of reality with the pros and cons resulting from such simplification. Although the model appears to be closed, it may be enhanced with other elements and relations. This enhancement always depends on meeting the purpose for which the model was designed. The Diagram (Figure 2) is compiled to prove the cluster's influence on the creative company's economy.

### 3.2 System Dynamics Model

The main research method is the System Dynamic Modelling. The Feedback Loop Diagram (Figure 2) may be further formalized using computer modelling. We have used the Vensim software by Ventana Systems, Inc. The basis of the creative company's economic model is an example of a small start-up (Schwarz 2004). It is then modified and enhanced with levels and flows, so that it could provide complete data for the profit and loss statement, balance sheet and cash flow (Šviráková 2012). To demonstrate the creative company's economic prosperity, two criteria are applied: profit and cash flow. The company's system dynamic model is based on the Feedback Loop Diagram (see Figure 2). The article shows a simplified model.



**Figure 3:** Simplified Economic System Dynamic Model of Creative Company (Own Source).

### 3.3 Questionnaire Research of Cluster Companies

For the purposes of further modelling, the article uses the Analogy Method, based on applying the similarity of elements, features and structure of the researched system. We have accepted the theory of business clusters and adapted it to the creative clusters (Cikánek 2009). Cluster advantages are similarly valid both for creative companies and companies from other industrial areas. We have researched four clusters, though without a representative of the non-profit sector. Nevertheless, companies associated in clusters use creative industries minimally when creating marketing communications of their products. The modelling input data gained by this research therefore served well its purpose. For the analysis of the cluster influence on the company, the questionnaire research method was carried out in March 2012 (Hubáková 2012). The research was successfully evaluated at 32 companies from four clusters in one region in the Czech Republic. The questioned companies were to state the greatest advantages of being a cluster member. The following table summarizes the results.

**Table 1:** What Is the Main Advantage of Company's Membership in Cluster? (Hubálková 2012)

Brief Description of Advantage		Cluster membership benefits acc. to answers in %
1.	Cooperation	84,38
2.	Information	68,75
3.	Innovation	62,50
4.	Communication	46,88
5.	Public Relations and Marketing	28,13
6.	Education	25,00
7.	Competitiveness	21,88
8.	Counselling and Lobbying	18,75
9.	Productivity	18,75
10.	Internationalization	0

The data depicted in Table 1 are processed into the System Dynamic Model of a creative company within the element “*effect of cluster advantages*”. The creative cluster finances the activities corresponding with the ten parameters mentioned above (Table 1). The value of these monthly expenses must be so effective to avoid the cluster's bankruptcy and at the same time to have a positive impact on the profitability of the participating companies. The model presents a simplified reality and is compiled in such a way that the model elements representing the advantages of cluster membership (Table 1) are the flows where the creative cluster invests its resources. Depending on the input variables depicting the percentage use of advantages by the company, the parameter's impact on the growth of new customers and productivity is modelled (Figure 3, highlighted arrows). The increased number of customers means a higher volume of orders, which in turn results in growing production costs and higher revenues. This dependency, however, is not linear and depends on feedback (the element *Marketing Costs*) as well as on the element *Impact of Market Saturation* by the product. Further, the creative company model contains experimental data enabling to check the result correctness in the company's accounting statements.

#### **4. Results of Creative Company and Creative Cluster Modelling**

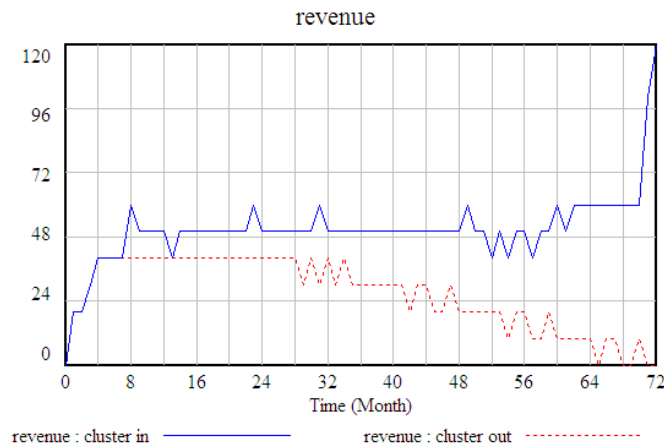
The creative company system dynamic model is set up for the period of 72 business months. The simulation step is 1, i.e. the results of the company's economy are evaluated every month. The modelling resulted in two scenarios, each describing the situation of the company:

1<sup>st</sup> scenario **Cluster-In** is a creative company which entered a creative cluster.

2<sup>nd</sup> scenario **Cluster-Out** means that a company chose not to take part in creative cluster activities.

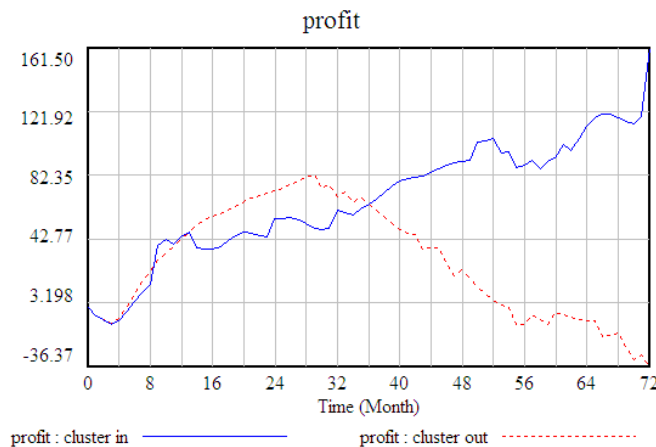
Gradually, we may find out about the economic results of both modelled scenarios: revenues, profit, bank account, productivity and staff.

The creative company, at the time of its start, gained several customers who ordered a product. The creative product is manufactured, invoiced and delivered at the moment when the company has the sufficient staff capacity. The product the company traded with was successful from the start. Every month the company attracted several more customers and the turnover was growing. The cluster contract was based on the cluster's permanent sustainability. This meant that the company will transfer 10% of profit for the benefit of the cluster. If the company is not profitable in a given month, it will pay the contracted amount. The standard of services offered by the cluster is high and has to correspond with the invested money, i.e. cluster revenues. The next picture shows the revenues of the companies in the Cluster-In and Cluster-Out scenarios. The Comparative Method compares the similarities and differences in the companies' development to find out which scenario is more advantageous.



**Figure 4:** Revenues of Cluster-In and Cluster-Out Companies

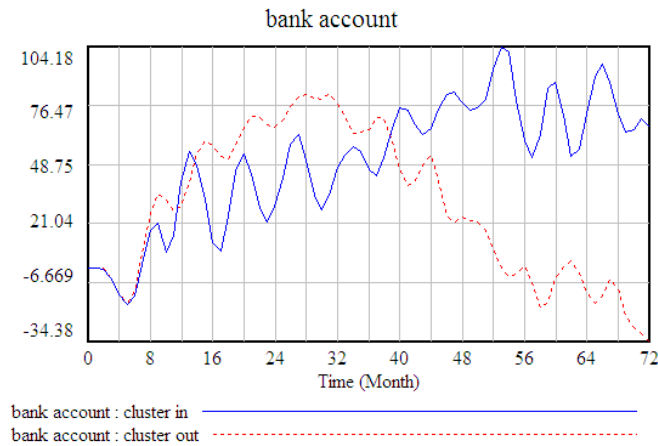
The first seven business months of both companies (see Figure 4) saw the same level of revenues. From the eighth month the company economy started to benefit from the cluster cooperation and the revenue increased. As shown in Figure 4, we would prefer the Cluster-In scenario. The profit of the Cluster-In scenario was, however, of different development (Figure 5).



**Figure 5:** Creative Companies' Profit Development

The Cluster-Out company had a better profit results against the Cluster-In company up to 36<sup>th</sup> business month. However, starting the 27<sup>th</sup> month, the Cluster-Out company saw a slight decrease in profits. This decline continued and the Cluster-Out company ended up in a loss in the last year of business.

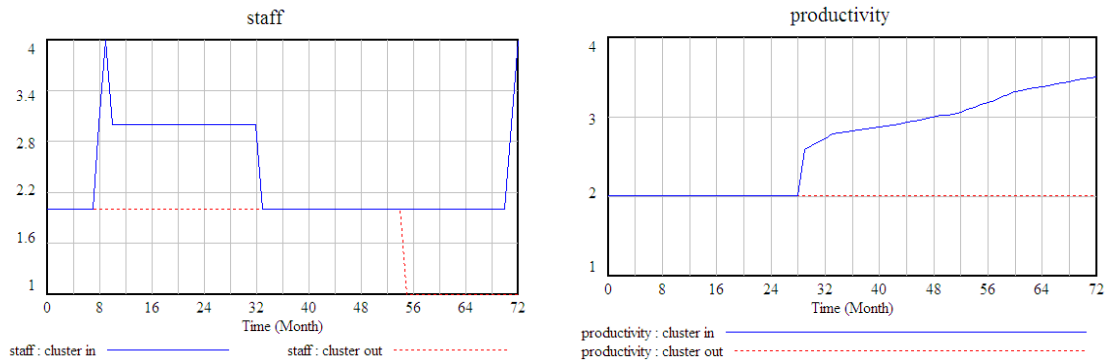
Another indicator of the company's financial health in the model is the bank account financial balance which reflects, besides profits, also the investment element (see Figure 6).



**Figure 6:** Creative Companies’ Cash Flow Development

The company pays for investments similarly to usual material costs for product manufacture. Only a proportion of innovations costs are reflected to the company’s costs, according to the company’s depreciation plan. The Cluster-Out company’s bank account saw higher incomes against the Cluster-In company. The cause of this phenomenon was similar to the table describing the profit development.

Another interesting indicator for monitoring the creative company's development is the element “staff” and “productivity”.



**Figure 7:** Staff and Work Productivity in Creative Companies

The employment procedure of staff is governed according to the number of received orders for the production of creative products. In case of higher interest in the product and insufficient staff capacity, one new employee was taken on with a delay of one month. If the volume of orders was lower than staff capacity, then one worker was dismissed.

Staff reduction on the pretext of increasing production effectiveness was realized both by the Cluster-In and Cluster-Out company. However, this reduction at the Cluster-In company was not given by a lower amount of orders, but by increasing of productivity. The Cluster-In company’s staff productivity grew from 2 products a month to 3,5 products. The result of the development of both parameters is depicted in Figure 7.

**5. Discussion and Further Research**

The comparison of economic results of the two enterprises (two scenarios), the Cluster-In and Cluster-Out company, concludes that entering a cluster increases the company’s competitiveness and sustainable development. This hypothesis, however, is confirmed both in the short and long-term only



by revenues (Figure 4). Up to the half of the monitored period, the Cluster-Out company saw better economic results than the Cluster-In company. Yet, the Cluster-Out company's better economic result is not sustainable in the long-term, since creative products of both companies are affected by the element of market saturation. The initial positive interest in purchasing the creative product is not crucial. It is essential to invest in the product development already at the time when the number of customers is increasing. Otherwise, the company may expect a decline in sales and soon also a downturn in profits and cash flow. Managers often need to decide into which activities to invest their human, material and financial resources. If we are able to define the principles of a creative company, set start-up conditions, feedbacks and simulate economic development, then the decision-making process becomes easier. We can see the results of the company's economy, although under certain prerequisites, which do not essentially change throughout the modelling. The compilation of the creative company's system of elements and relations among them in order to solve the research question is a highly creative process with many possible solutions. This article selects and describes one of the many possibilities.

The setup of input data (independent variables) is another key moment in the system dynamic modelling. In order to be unbiased in measuring the company's economy, we have used the results of the research survey (see Table 1). Further research could focus on different questions connected with the development of the cluster-in creative company. For instance, the element of trust in cluster activities (dependent on the frequency of internal communication, number of common projects) may play a key role in the development of the creative company's economy. As it has been shown in the Feedback Loop Diagram (Figure 2), a functioning and lively creative cluster is the prerequisite for positive results in the company's profits. Cluster activities must provide creative companies with the benefit of improved business opportunities. The more successful the companies, the more successful the cluster – this is caused by enforced feedback loop. According to the systemic thinking theory, this loop may have an opposite tendency: companies in a loss lead to a defunct cluster and distrust in establishing and supporting other clusters.

## 6. Conclusions

This article aimed to compare simulated development of economies of two creative companies and produce two scenarios. One company has decided not to cooperate with a creative cluster. This company, called "*Cluster-Out*", increases its revenue and profit with help of isolated investments to the product marketing communications. The second company became a part of the cluster. The scenario was called "*Cluster-In*" and this company's operation costs include, among others, cluster membership fees. Potential customers of the Cluster-In company are then influenced by the effects resulting from the advantages of cluster membership. For the purposes of the System Dynamic Modelling, the Qualitative Text Analysis was applied to map the terms connected with the creative company's economy and with the creative cluster. The article describes relations among the elements of the creative company and the creative cluster. The biggest attention is paid to the model of the creative company. The model describes ten advantages of cluster membership. The system dynamic simulation enabled us to conclude the development of both companies' economies. The results, depicted in tables, comprehensively point out the benefits of the company being a cluster member in the long term (6 years). A great advantage of dynamic simulation of the company's economy is a view to the future. We can operate with development models of both scenarios (companies) in their first six business years. The *Cluster-Out* company show better results in the initial three years. In the following three years, the company starts to lose its customers which leads to a decline in profits. The tolerance towards lower economic results and support of the creative cluster begins to pay off in the fourth business year.

Everyday decision-making process without simulations may cast a different light on the company's economy. Company managers may have less patience with lower profits, lower level of financial balance on the bank account or with high demands of the cluster on membership fees. Therefore, the simulated course of development of the company's economy is a unique method that may clarify the impacts of managers' decision-making process on competitiveness and sustainable economic development of the company. The added value of this research lays in a new approach to the researched problem. It is based on the text analysis of terms and cluster advantages and the feedback loop diagram specifies the economic development of companies in the system dynamic model.

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