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A brief quantitative analysis of clusters from the creative industry in Romania

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Abstract. *This article presents the evolution of creative industries across time and the growth of the enterprises from Romania in clusters. Also, it presents the impact of cluster programs hosted by websites. The analysis was focused on 7 domains that belong to the creative industry: artistic creation and literary creation, advertising, software, printing and publishing, retail and distribution, radio and television, museums and the preservation of historical sites and buildings, by using the Cluster Observatory platform. It is is an online, free and user-friendly platform that provides a single access point to data and an analysis of clusters, cluster organizations and regional microeconomic framework conditions in Europe and also in Romania.*

Keywords: creative industries, clusters, companies, websites, programs.

JEL Codes: L250, D80, F63, O10, O30, Q55

1. Introduction

In the European market a relatively new concept that is called "creative industries" has appeared, in which culture becomes the engine of regional, national and international development. Creative businesses can be a saving solution where traditional economies based on industry, trade or agriculture fails. They are those sectors of creation and technological development that generate profit and rethinks culture through the economy. Romania prepares for change, because this concept has been taken by our country, considering that European legislative axes require greater unity and competitive economic growth among companies. So, creative businesses can lead to a competitive economy and a new business model that combines technology, creativity and profit.

The term "culture industry" was first used in 1944, a notion which otherwise defined by Theodor W. Adorno and Max Horkhemer, being used as a revolt against degradation consumer at that time [1]. Later, in 1950, UNESCO developed this concept, using the term "copyright-based industries." Heading towards 1969, Peter Drucker, the most important thinker of management and business dating from the twentieth century, uses the term "knowledge society", with the appearance of the concepts of a "society of lifelong learning", "company learning "and" information society ". In the following year, 1970, a group of sociologists - Huet, Girard, Mattelart and Miege initiated the term "cultural industries" [2]. Recently, in 2003, WIPO (World Intellectual Property Organisation) has began to use the term "copyright-based industries", by initiating in same year a special program to evaluate the economic impact of the sector. From this brief historical conceptual analysis, results of the creative industries are a relatively new concept only launched in the mid

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1990s in Australia and which was subsequently taken over and developed by the UK, particularly by the contribution of the British minister of Culture, Chris Smith [3]. The term "creative industries" is not a single definition. Generically, the word "industry" refers to production activities, "creative", the act of creating and the “creative industries” refers to those production activities where creativity and innovation play a decisive role [1].

Creative industries find their practical application through the establishment of business clusters. The concept of cluster appears for the first time in 1990. This concept was is attributed to Michael Porter who described it as "a geographic concentration of interconnected companies and institutions in a particular field". According to The Community Framework for State Aid for Research, Development and Innovation "clusters are groups of independent companies (startups innovative SMEs) and research organizations, which are operating in a certain area and in a certain region, which aims to stimulate innovative activity by promoting intensive interactions, access to shared facilities, exchanges of experience and knowledge and contributing to technology transfer, networking and information dissemination” [4]. According DCMS-Department for Culture, Media and Sport, UK, creative industries are: Advertising, Architecture, Art and art market, crafts, design, fashion, film, video and photography, software and computer games, music, arts visual and performing arts, Publishing, Television and Radio [5].

The definition of cluster appears in the Romanian legislation GD 918/2006 - Impact Program: "a group of producers, users and / or beneficiaries, in order to implement best practices to increase competitiveness in EU economic operators".

Innovative clusters can be a successful economic solution because they offer a combination of entrepreneurial dynamism, relationship of close cooperation between companies and institutions that have high powers respectively proactive synergies between the main actors of innovation.

2. The analysis of the clusters from the creative industry domain in Romania

Affiliation to an innovative cluster can be a real advantage for SMEs due to a quick and easy access to research results towards their implementation in production and realization of innovative products and strategies for common development. Clusters are now the subject of a whole series of acts of national and international organizations (OECD, 2005, 2010, European Commission, 2008) and on the experience, many authorities promote the idea that because clusters competitiveness increases, labor specialize, businesses and economies regionally develop. [6].

Zelist Monitor conducted a survey between October 8th, 2010 - October 7th, 2011. They intended to see which are the most visible and creative industries discussed in social media. The sources investigated were composed of 63,500 Romanian blogs, 51,326 Romanian Twitter accounts, 1,500 feeds of major online publications in Romania, 1,500 Facebook public pages and 25 main Romanian public groups and forums. Here's the top social media visibility of creative industries in Romanian during October 2010 - October 2011. [7]: film, video and photography from 7893 mentions in social media; music, visual arts and performing arts- 4733 mentions; fashion- 3118 mentions; design- 2513 of references; advertising- 2367 mentions; radio mentions- 1972; arts - 1880 mentions on the market; television- 1092 mentions; architecture- 850 mentions in social media; software and pc games - only 539 mentions; publishing- 299 mentions; workmanship- 104 mentions in social media.

This analysis indicates that during that period, Romanian citizens preferred in the first place the arts field, and on the last place the sphere of technology fields.

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Both at European and at national levels there are a number of reference entities in the cluster. To analyze their evolution over time and to observe the growth or decline in companies within the creative industry clusters, we used to acces the platform of the European Cluster Observatory.

European Cluster Observatory is a free platform that provides access to data and analysis on clusters, cluster organizations and regional economic conditions in Europe. Moreover, it provides training programs for the creation and management cluster.

In the project "Cooperation in the field of research development innovation for economic and social development in the border area Romania-Bulgaria" - INNOGATE 21 (December, 2013, in Ruse), it was held a meeting devoted to designing a system of complementary strategies, innovation and technology transfer of regional development agencies and national authorities in the field and the business environment [8].

During this conference, a list of innovative clusters in Romania (the list includes 27 clusters) were presented and the lessons to be drawn from past experiences of Member States with experience in managing clusters were remembered.

Analyzing the strengths and weaknesses of the regions in Romania, it is concluded that there are sectors and industries with economic potential, such as, for example, the agriculture industry, textile industry, construction, tourism, forestry and automotive fields [9-11]. SMEs want to internationalize, entrepreneurship is growing and entrepreneurs show more courage because chances of the formation of clusters coming from the EU, which requires Member States to transfer policies and measures on clusters in national programs to improve conditions for business [4].

3. Research Methodology

In this paper, we used a quantitative analysis of the number of companies in the creative industry clusters and impact analysis programs hosted on websites by companies in clusters. It was applied to the observation method, which involves both systematic perception of the phenomenon of increasing the number of companies in industry clusters of creative and objective recording data. Transcription and data processing was done after the process of schedule 1 and Table 1.

Research was quantitatively conducted and happened with the help of the European Cluster Observatory data platform. It was an analysis of companies in the creative industry, based on evolving their number, in the period between 2002 and 2011. Although we wanted to analyze the number of companies in clusters until the year 2016, the European Cluster Observatory platform contains only information up to the year 2011. However, we processed data from the latest updates to this platform, more precisely until the year 2016. More than that, this is the only reason analysis is based on specified period in the paper.After making the schedule, it has resorted to an interpretation of all data in the creative industries, as transcribed in the table. Subsequently, using the relationship calculation (1), yielded the average number of companies in all areas. The results were used to determine the percent of the mean number of companies, as evidenced in Figure 2, following later to achieve a top in each year of the areas by the percentage assigned to each.

For the impact analysis, 27 clusters from Romania have been analyzed, with the scope to observe the impact that programs undertaken by them contribute to the development of companies. To observe the impact of programs it was resorted to online access to the website each cluster in part, on the section dedicated to the project. Of the 27 clusters analyzed, only 10 had a website and only 7 of them had programs to assist in the development and visibility of companies throughout Romania. This study showed that most projects have been registered by the Bucharest Romanian Textile Cluster Concept, the specific objective of which is to strengthen cluster management.

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4. Results

4.1. Creative Industry: Analysis using software Cluster Observatory

The analysis was contained by 7 areas of the creative industry in Romania. A color code was used to represent differentiated variation in the number of companies included in clusters in the areas mentioned.

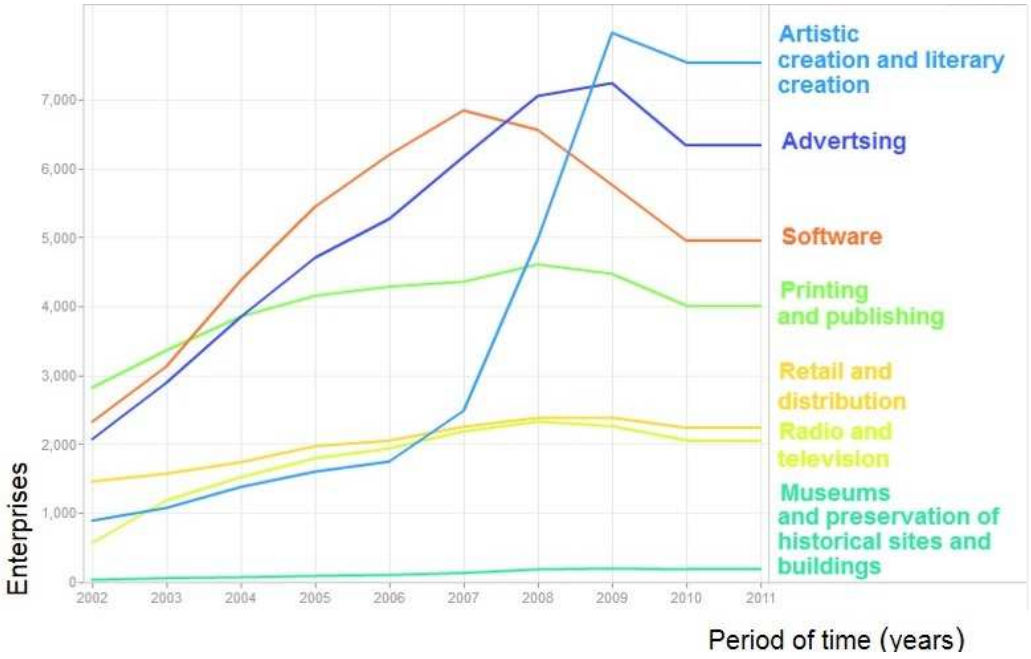

Fig.1: The analyze of the evolution of clusters from creative industry companies for a period of 10 years.

The exact number of companies in clusters, as set out in Figure 1, is included in Table 1.

DOMAINS OF CREATIVE INDUSTRIES	YEARS									
	2002	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
1.Artistic creation and literary creation	894	1076	1384	1607	1751	2486	4980	7972	7543	7543
2.Advertising	2073	2896	3849	4707	5273	6174	7057	7241	6336	6336
3.Software	2325	3131	4380	5448	6203	6849	5664	5764	4954	4954
4.Printing and publishing	2823	3367	3855	4156	4288	4361	4615	4477	4013	4013
5.Retail and distribution	1462	1578	1743	1976	2054	2255	2381	2386	2240	2240
6.Radio and television	568	1189	1522	1801	1942	2186	2330	2263	2058	2058
7.Museum and preservation of historical sites and buildings	35	57	72	92	104	132	185	200	185	185

Table 1. Analysis of the number of companies per year in the creative industry.

It has achieved a top 3 areas of the company's leading creative industry clusters, for each year. It is clear that in 2002, the top areas of the creative industry clusters is occupied by companies in the field of printing, closely followed by companies established in the software field and finished with advertising companies. In

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2003, the top three areas of the creative industry clusters is occupied by companies in the field of printing, followed by software companies and ending with the advertising companies. In 2004, the top three areas of the creative industry clusters is occupied by companies in the software, advertising and printing and publishing activities. In 2005, the top three areas of the creative industry clusters is occupied by companies in the software, advertising and printing and publishing activities. In 2006, the ranking is occupied by companies in the software, advertising and printing and publishing activities. In 2007, the top companies filled the fields of software, advertising and the printing and publishing activities. The following year, 2008, the top companies in the creative industry clusters filled the fields of advertising, followed by software and finishing with companies from the artistic and literary creations. In 2009, the top companies in the creative industry clusters filled the fields of literary and artistic creations, followed by advertising and ending with software companies. In the years 2010 and 2011, the top is filed from companies in the fields of literary and artistic creations, followed by advertising and ending with the software.

From the analysis over 10 years, using the relationship calculation (1) for every field of creative industry yielded average number of companies in the areas analyzed clusters.

$$M_a = \frac{\sum_{1}^{n} a_1 + ... + a_n}{n} \quad (1);$$

where: M_a – the arithmetic average of the number of companies between the years 2002-2011 ;
$a_{1..n}$ – the number of companies in clusters;
n – number of years;

Subsequently, calculation using the relationship (2), it was determined the percentage of the average values of the number of companies in the 7 areas outlined in this paper, relative to their total number.

$$Pp_i = \left(\frac{Ma_i}{T_{Ma}} \right) \times 100 \quad (2);$$

where: Pp_i – weight of percentage of the average value of each area;
Ma_i – the average value of each area;
T_{Ma} – sum of the average values of domains.

In the next phase, it drew a pie chart, whose sectors is the degree of influence of the average values in each area analyzed in relation to the total average values.

According to Figure 2, clusters in the area with the highest percentage is that of advertising, with 23.69 percentage. At the opposite pole is the software clusters. On the third position it is located the printing and publishing clusters. At a distance of about two percent are clusters of the artistic and literary creations. At almost equal position, we find clusters in the fields of distribution and retail, followed by the clusters in the field of television and radio.

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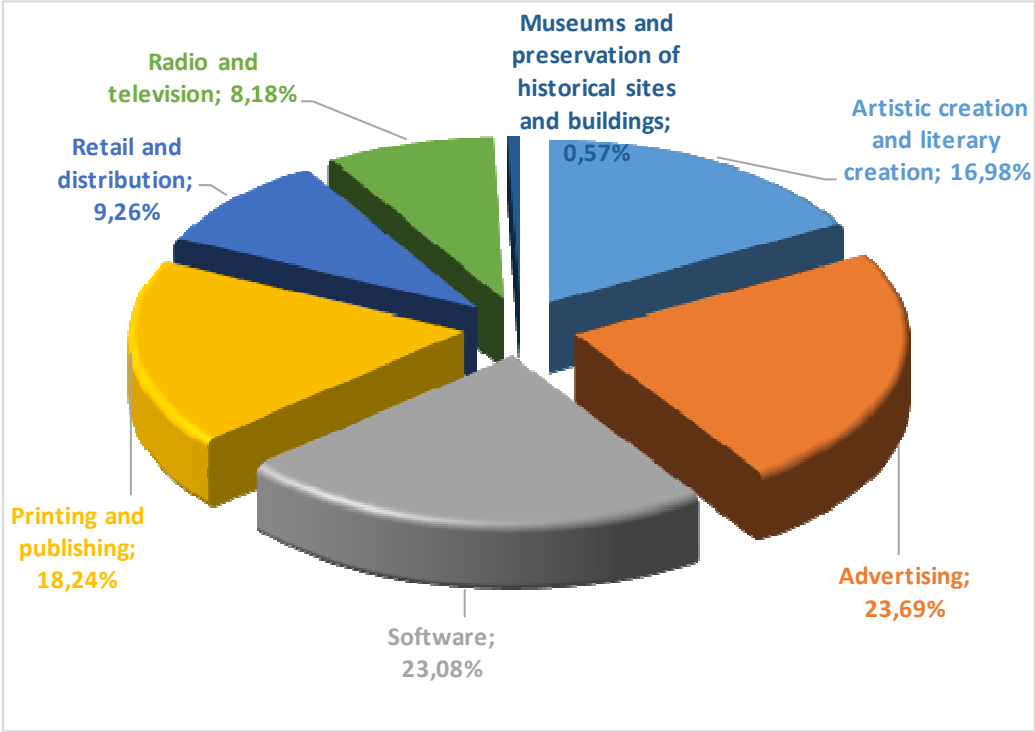

Fig.2: Average percentage share of the number of companies from clusters of creative industry between 2002-2011.

4.2. Impact of projects hosted by websites

The 27 clusters have been analyzed in terms of projects undertaken by companies within them, to see what the benefits of these projects are for the members involved.

The analysis was conducted by visiting websites clusters, relying on their transparency in the actions undertaken. In this paper it was analyzed only clusters benefiting from a website and running programs.

The list of innovative clusters in Romania is found in Table 2 [12]:

Criterion	Cluster	Field of activities	Postal code	Website link	Number of projects
1.	AUTOMOTIVEST Regional cluster	Automotive	300054	[13]	4
2.	ICT Regional Cluster	ICT	300054	[14]	1
3.	ROSENC CLUSTER	Green energy	300030	[15]	2
4.	Agro-Food Regional Cluster	Agro-food	310017	No website available	-
5.	Dacia Renault Competitiveness Pole	Automotive	110194	No website available	-
6.	PRO WOOD Regional Wood Cluster	Forestry and Wood industry	520064	[16]	1
7.	Green energy biomass cluster	Renewable energies	520064	[17]	0

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8.	TURINN Cluster	Sustainable and innovative tourism	220037	No website available	-
9.	ELECTROPRECIZIA Electrotechnical Cluster ETREC	Automotive Mecatronics Electrotechnical	505600	No website available	-
10.	ASTRICO Textiles Cluster	Textiles	617410	[18]	0
11.	Furniture Cluster	Furniture	540314	No website available	-
12.	Transylvania Aerospace Cluster	Aviation	500107	No website available	-
13.	Carpathian Tourism Cluster	Tourism	127366	[19]	0
14.	ELINCLUS Innovative Cluster	Electronics	700050	[20]	1
15.	REN ERG Cluster	Renewable energies	510093	No website available	0
16.	ICT –Regional Competitiveness Pole Oltenia Cluster	ICT	200130	No website available	0
17.	Romanian Water Cluster	Water energy	400111	No website available	0
18.	Cluster Traditions Manufacture Future TMV Sud Est	Textiles	620133	No website available	0
19.	REGIOFA Cluster	Wood-processing Furniture	535600	[21]	1
20.	Romanian Textile Concept Cluster Bucharest	Textile Clothing Footwear	-	[22]	11
21.	Geothermal Cluster	Renewable energies, services in tourism	-	No website available	-
22.	Cluster Maritim	Maritim fluvial	900559	No website available	-
23.	AGRO FOOD Regional Cluster	Agro-food	520064	[23]	0
24.	AGRO FOOD Bucuresti	Agro-Food	-	No website available	-
25.	Turism Regional Cluster	Turism	5800	No website available	-
26.	Romanian Aerospace Cluster Bucharest	Aerospace	077190	No website available	-
27.	Creative Industries Pole Iasi	Creative Industries	700265	No website available	-

Table 2. The list of innovative clusters in Romania

Regional AUTOMOTIVEST conducted four types of projects aimed at developing cluster.This are:

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a)- Regional Competence Development Center of Automotive Suppliers Sector - CERC- this project is intended to help increase skills and local suppliers and to generate value-added services to support regional automotive sector on the medium and long term.

b)- The "European Producer Services for Sustainability and Competitiveness" (PROSESC) project funded by the INTERREG IVC Programme aims to promote sustainable transport systems in the regions participating in the program.

c)- The project CBC Romania - Serbia aims inter alia to promote cluster at European level, and to increase the professional skills of employees participating SMEs and to improve the competitiveness of these companies.

d)- WeStee Program - Support actions for creating a cluster based on research, aims to facilitate the formation of a cluster in the automotive industry through a series of actions to strengthen institutional and encouraging cooperation between academia and business.

Regional ICT Cluster runs since May 28, 2014 the project "ICT Cluster Western operationalization through access to broadband and related equipment carrying." Its objectives being to equip computing performance, implement the solution of electronic signature, connecting to broadband services and high-speed creation of a web platform interactive and dynamic to facilitate communication between actors in the ICT sector regionally and to promote national and international sector and Regional ICT Cluster.

ROSENC CLUSTER has only two studies in progress it are at the start level. They aim to involve the members of the cluster research on the development of modern construction solutions to modern eco homes. From site analysis, we observed a weak activity in the promotion of members involved in the cluster.

PRO WOOD Wood Regional Cluster has a single site project -"Increasing the competitiveness of SMEs in the cluster pro wood through their integration into national and international supply chains." One of the main common objectives to the cluster members are being given to implementing a policy of joint marketing to increase customer portfolio, diversification of the product and taking an active stand on the market.

Green biomass energy cluster, although the site has component projects, with none currently underway, being rather weak in this respect.

On the TURINN Cluster website, has not identified any site to host its projects, the same layout can be found also for Electrotechnical Cluster cluster ELECTROPRECIZIA -ETREC.

Although there is a cluster ASTRICO site for Textiles Cluster, this section does not have integrated projects for cluster members.

Tourism Cluster does not run any projects, the cluster awaiting proposals from the insitutions to be helped to sustainable regional development, such objectives are not focused on members making up the cluster.

Innovative Cluster ELINCLUS joined in 2007 until 2013 the Sectoral Operational Programme "Increase of Economic Competitiveness (SOP). That is the only project on the site.

Cluster REGIOFA implemented a single project that ended in 2013 Sectoral Operational Programme "Increase of Economic Competitiveness (SOP IEC) 2007-2013". It had the specific objective of strengthening the institutional capacity of the emerging cluster "Innovation Cluster Regiofa" cluster promotion, attracting new members in the cluster, namely the improvement of cooperation between cluster members.

Bucharest Romanian Textile Cluster Cluster Concept is on site at the specific section 7 projects and 4 in progress, having as objective the strengthening of cluster management.

AGRO-FOOD network cluster Regional Cluster has no ongoing projects. They are at the stage of project ideas.

From the analysis, it appears that more than half of the analyzed clusters don't have websites, and the rest of them have few projects and because of that it don't have the power to help companies from clusters to evolve.

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5. Conclusions

Being an “umbrella” concept, still very sensitive for Romania, creative industries tend to manifest themselves differently depending on the specific activity. Since the mid-90s until 2000, meaning the concept of creativity-based industries grew, a phenomenon that brought added value to the date of Romania's economy through effective cooperation of national companies in clusters.

From the analysis shown in Figure 1, it was concluded that the clusters within the creative industries in Romania are currently benefiting from a moose growth with the highest values in this regard coming from areas such as software, advertising and editing and publishing. The highest rates of growth in all areas of domains were recorded between 2009 and 2011. On the other hand, in terms of visibility in social media, it tends to observe that the rate is heading towards the media- especially film, video and photography, with 7893 references on various sites in a year.

Remaining in the virtual area, the next step was to analyze the 27 clusters from the creative industry. More than half of these clusters have not set up their own website through which to make their existence visible in terms of specific actions of the activity. It was found that these clusters have fewer projects to help their development, hence the companies within them. Also, fewer ascended to at least one project that aimed at exposing the general plan of the cluster, its coverage. The most active clusters that expose their activities to the public, in terms of accession to projects that help strengthen the companies in these groups are: AUTOMOTIVEST Regional Cluster, Romanian Textile Concept Cluster Bucharest and ROSENC CLUSTER.

It is noted that in Romania, the concept of creative industry based clusters is another topic that deserves further research. Software companies and the advertising accounting for Romania is an interface that inspires progress in relation to the concept of "mother" from Europe. Analyses carried out by way of recommendation, can act as an inspiration for cluster managers, as well as other decision makers in their building assets based on creative industry. Knowledge and research results provide platforms for specializations in the European Cluster Observatory of clusters.This study may help to improve policies and program groups, and can also supports management in their efforts of cluster expansion and growth.

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