

Chapter

System of Data Transfer from and to Social and Economic Processes via Creative Economy Networks Created Based on Cultural Heritage Administration Processes and Vice Versa

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Abstract

In general, a functionality and performance of any social or economic process is conditioned by an appropriate information support, while several parts of social and economic process might be involved into macroprocess structure and functionality and quantified via two independent linguistic sets. On one hand, the first linguistic set contains elements, which provide transfer of signals coming from external environment to macroprocesses and are denoted as sensors. On the other hand, the second linguistic set contains elements, which provide transfer of signals from macroprocesses to external environment denoted as effectors. However, a content of the above-mentioned linguistic sets is being transferred microeconomy and creative economy business processes (CE Processes) as well, while appropriate business strategy KPI indicators and parameters for setting of adequate business process metrics items, which could enable fulfillment of business strategy goals and aims, are being generated. However, the data transfer from creative economy to macroeconomic process (MAC Processes) is important as well, while the microeconomy business processes (MIC Processes) play a role of go-between elements for both directions of transfer too. On the other hand, the chapter deals with the DTS System structure, functionality description as well as conceptual, design and implementation model too, where appropriate networks play a role of principle importance.

Keywords: data transfer, creative economy networks, cultural heritage administration

1. Introduction

In general, a functionality and performance of any social or economic process is conditioned by an appropriate information support, while several parts of social and economic process might be involved into macroprocess structure and functionality and quantified via two independent linguistic sets. On one hand, the first linguistic set contains elements, which provide transfer of signals coming from external

environment to macroprocesses and are denoted as **sensors**. On the other hand, the second linguistic set contains elements, which provide transfer of signals from macroprocesses to external environment denoted as **effectors**. However, a content of the above-mentioned linguistic sets is being transferred **microeconomy** and **creative economy** business processes (CE Processes) as well, while appropriate business strategy KPI indicators and parameters for setting of adequate business process metrics items, which could enable fulfillment of business strategy goals and aims, are being generated. However, the data transfer from creative economy to macroeconomic process (MAC Processes) is important as well, while the microeconomy business processes (MIC Processes) play a role of go-between elements for both directions of transfer too. On the other hand, the chapter deals with the DTS System¹ structure, functionality description as well as conceptual, design and implementation model too, where appropriate networks play a role of principle importance.

The presented chapter is divided into nine sub-chapters, where the first two of them deal with economic system and economic object and contain a brief description of macroprocesses (MAC Process), microprocesses (MIC Processes) and creative economy (CE) processes, where the process denoted as Cultural Heritage Creation and Management plays a role of principle importance (see also Section 4) and the DTS System plays a role of the core process and is being discussed within Sections 5 and 6. However, the DTS System provides a bi-directional data transfer as well, while the first transfer direction is getting started from CE processes to MAC and the second one starts from MAC and is finished at CE Processes as well (see also Sections 7 and 8), while the MIC Processes play a role of the data transfer mediator. The chapter is being closed by Section 9, which deals with DTS System implementation aspects, while an appropriate economic network seems to be a principal facility applied for those purposes (see also Section 9).

2. Economic system and economic object

The creative economy creates an integral part of standardized economy represented by micro and macroeconomic processes implemented and operated within adequate economic system and object, while any firm or company is considered to be the economic object. On the other hand, any economic object might be identified with managed, management system and information system while any system is represented by external and internal structure and between both structure types exists a zone denoted as a **grey zone**, where a set of sensors and effectors is located. The sensors provide transfer of signals from external environment to the investigated system internal structure, and the effectors provide signal transfer from the investigated system internal structure to external environment [1].

The Data Transfer System (hereinafter as DTS System) *external structure* is represented by set of social and economic processes surrounding any *creative economy system*,² while an appropriate creative economy system consists of pre-defined business processes closely related to cultural heritage creation and management in most cases, while the DTS internal structure also is represented by microprocesses, which play a role of intermediate element between creative processes and macroprocesses.

¹ DTS System–Data Transfer System.

² The creative economy system creates an integral part of the DTS system internal structure.

3. Macroprocesses, microprocesses and creative economy processes

When considering the cultural heritage creation process, the microeconomic business processes represent those types of processes, which enable producing of products denoted as cultural heritage artifacts. That production is realized within firm or company, which has its own business strategy. With respect to Balanced Scorecard Methodology [2], the strategy includes five perspectives: (a) economic perspective, (b) perspective of internal business processes, (c) customer's perspective, (d) education and growth perspective, and (e) technological perspective. The perspectives related to (a), (b), (d), and (e) are closely related to **production of cultural heritage artefacts**, the customer's perspective and financial perspectives are partially concerned with **cultural heritage management** and with **creative economics** as well. When looking at creative economics from financial perspective, its integral part is created by allocated resources³ and generated outputs (assets), which might of material, financial, or intellectual nature too [3]. However, the microeconomic business processes represent an intermediate facility at transfer of data and information from creative economics BP to macroeconomic business processes as well, while the same is concerned with data or information transfer from macroeconomic business processes to creative economics business processes too.

4. Cultural heritage creation and management

4.1 Creative business process structure and functionality

The business processes denoted as **Cultural Heritage Creation** and **Cultural Heritage Management** create an integral part of any Cultural and Historical Process (hereinafter known as CHP Process). The CHP process seems to be a core business process (BP), when considering the data transfer from creative BP to micro and macro business processes.⁴ However, the term cultural and historical process consists of two relatively individual main processes denoted as **culture** and **history** as well, while the cultural heritage seems to be an important output related to both above-mentioned processes. When looking at literary resources, you might find many semantic interpretations related to those terms [3].

In general, the business processes denoted as **Cultural Heritage Creation** and **Cultural Heritage Management** are affected by three types of economic processes: (a) **macroeconomic processes**, (b) **microeconomic processes**, and (c) **creative economics processes**. A need of the cultural heritage creation and management is being derived based on *macroeconomic* processes and might be interpreted as a *public order or demand* and it creates basis for appropriate resources procurement. On the other hand, the *microeconomic processes* might initiate a process of the cultural heritage creation and that processes is running within actual firm or company and are represented by its own vertical and horizontal structure, metrics and information support as well, while those aspects determinate its functionality and performance. The third group of business processes is closely related to **creative economics**. However, the culture heritage creation and management data and information are being transferred to appropriate microprocesses and macroprocesses subsequently [3].

³ Those resources represent a decisive input import by macroeconomic processes, first. They might be of material, financial, or intellectual nature.

⁴ The terms process and business process have the same semantic meaning within that chapter.

On one hand, the Cultural Heritage Creation and Cultural Heritage Management processes are running within different cultural institutions and organizations, while museums and galleries play a role of principal importance there and should be managed. There might be applied conventional and advanced approaches to Cultural Heritage Management. There might be applied various advanced approaches, while one of them can be based on Knowledge Management. This approach has been applied, when preparing the exhibition *Uchovávanie sveta* (Preserving the World) installed in the Slovak National Gallery (SNG) from 16 December 2015 to 28 February 2016. The project was the first larger attempt to exploit digitized art collections systematically and massively in CEDVU – Central Evidence of Visual Art Items – the outcome of the national project *Digital Gallery* funded by European Union Operational program Information Society

The success of the exhibition revealed that digitized art can be efficiently and effectively combined with presentations of original artefacts and bring synergy effects highly appreciated by its audience. The paper represents an attempt to make relevant conclusions from this experiment that might help to organizers to build similar innovative events in the future [4].

4.2 A taxonomy of performance dimensions and levels of analysis in the creative industries

A taxonomy of performance closely related to Creative Economy identifies three fundamental forms of capital observable in the financial assets, access to liquidity or monetary income of its owner. On the other hand, the cultural capital manifests itself as long lasting dispositions for ownership of academic knowledge, skills, cultural goods as well, while the social capital is defined as the resources accumulated through belonging to durable network of institutionalized relationships. The symbolic capital transcends economic, cultural, and social capital as a form of prestige bestowed upon its owner based on recognition of her legitimate competence and authority [5–9].

The above-mentioned four categories are closely related to performance in the creative industries. All creative industries display a significant ration of “symbolic content” to functional usage, which also varies from one to the next. As a result of that, the creative outcomes derive a large part of their value from subjective experiences that rely heavily on using symbols to manipulate emotions and perceptions [10–12]. Cultural goods are non-material goods directed to public of consumers, for whom they generally serve as an aesthetic or expressive rather than clearly utilitarian function [6, 11, 13–16].

Economic, cultural, and social capitals are all reflected in the following three core dimensions of performance in the creative industries: commercial performance, artistic merit, and social impact. The first two core dimensions, commercial performance and artistic merit represent key components of creative industry performance research [11, 17, 18]. However, those components usually have long and short term nature Whilst the former directly reflects the notion of national capital, the latter is close in its definition to that of “symbolic cultural capital” as the capacity to define and legitimize cultural and artistic values, standards and styles” [6, 19].

This taxonomy is hereby applied to all relevant levels of performance analysis in the creative industries. They create two distinct categories within existing literature. The first is being focused on creative production processes and investigates roles and contributions of the individual worker, the creative project team and the creative group assigned to this process. The second deals with creative outcome, its distribution and consumption. It examines the creative project, the creative organization, and the creative network of organizations from one-off event (e.g. an annual

festival) to semi-permanent regional cluster and industry [6]. However, the above-mentioned description creates a good basis for further research with DTS System as well, while many of those aspects are being applied and developed within Section 7 of that chapter.

4.3 Creative business process linguistic modelling: structure and functionality

The Business Process Linguistic Modelling (hereinafter known as the BPLM approach) is working with the use of semantic networks and so-called reference databases, while is based on two principle issues [20]:

Issue no. 1 Linguistic Representation of BP Functions

A structure and functionality of any BP might be described via TNL text, which consists of common logical sentences, while any logical sentence consists of text strings [Ts (I, j)] $i = 1 \dots n$, (serial number of logical sentence contained within TNL text) and $j = 1 \dots m1$ (serial number of the text string contained within logical sentence).

Each text strings Ts (I, j) has its own semantic meaning assigned via [Tsem (i, j)], while formulas (1)–(3) might be postulated

$$\{\text{Word (i, j)}\} = \{[\text{Ts (i, j)}], [\text{Tsem (i, j)}]\} \quad (1)$$

$$\{\text{Words (i, j)}\} = \Pi \{\text{Word (i, j)}\} \quad (2)$$

$$\{\text{Words (i, j)}\} \subset \{\text{TNLtext (i, j)}\} \quad (3)$$

Where

The {Word (i, j)} set represents linguistic representation facility denoted as the linguistic set, while its content is created by two subsets:

- [Ts (i, j)] – which contains text strings being created as a result of the first stage related to TNL text content semantic analysis, however those strings have not yet adequate semantic meaning and they might be of a text or numeric nature, e.g. [Ts (i, j)] = [1500 centigrade, IA poise, 25 grams]
- However, they get it after assignment of adequate text string selected from semantic dictionary quantified via [Tsem (i, j)] subset as well. while the [Tsem (i, j)] subset content is represented so that Tsem (i, j) = [glass melt temperature, glass melt viscosity, glass melt quantity].
- After unification of both subsets with respect to formula (1) a final content of the {Word (i, j)} = {[glass melt temperature, 1500 centigrade], {[glass melt temperature, IA poise], {[glass melt quantity, 25 grams]}}
- A content of [Tsem (i, j)] is created by linguistic variable items and a content of [Ts (i, j)] is created by linguistic variable values. Therefore, the {Word (i, j)} is denoted as the linguistic set.

However, we need an appropriate set such words, to describe any business process (Pe) structure functionality, while the {Pe (i, j)} set might be applied for those purposes. Because, the words quantified via sets represented by formulas (1)–(3) and they have a linguistic character, they will be considered to be linguistic sets and they will be applied business process (Pe) structure functionality. It means, the {Pe (i, j)} might be approximated via {Words (i, j)} set and formula (4) might be postulated

$$\{Pe(i, j)\} \approx \{\text{Words}(i, j)\} \quad (4)$$

$\{Pe(i, j)\}$ – is a linguistic set, which quantifies a business process closely related to linguistic variable items and values contained in the $\{\text{Words}(i, j)\}$ linguistic sets.

On the other hand, any business horizontal structure is being created by set functions, which generate pre-defined outputs based on appropriate inputs, while formula might be postulated

$$\{Pe(i, j)\} = \{[F1(i, j)], [F2(i, j)] \dots [Fn(i, j)]\} = \prod_{k=1}^m [F_k(i, j)] \quad (5)$$

However, those functions may be described via $\{\text{Words}(i, j)\}$ linguistic sets as well, while formula (6) can be postulated

$$\forall [F_k(i, j)] \exists \{\text{Words}_k(i, j)\} \Rightarrow [F_k(i, j)] = \{\text{Words}_k(i, j)\} \quad (6)$$

It means, any business process (BP) function can be approximated via set of words, which creates an integral part of TNL text. This is the first important principle of BP modeling linguistic approach. However, there is the second important issue as well Any BP function set consists of three principal subsets [Object (i, j)], [Action (i, j)] and [Result (i, j)] see also formula (7)

$$\{[F_k(i, j)]\} = \{[\text{Object}(i, j)], [\text{Action}(i, j)], [\text{Result}(i, j)]\} \quad (7)$$

and the [Action (i, j)] set elements “are responsible for” generation of pre-defined BP outputs based on appropriate BP inputs. The [Object (i, j)] subset elements provide interconnection to BP input set and the [Result (i, j)] subset elements provide interconnection to BP output set.

Issue No. 2 Linguistic Representation of BP Outputs and Inputs

In general, no BP can generate required pre-defined outputs without appropriate inputs. As a result of that, they must be defined and quantified very precisely. Because of considering the BP modeling linguistic approach, they have to be postulated via linguistic sets as well, denoted as $\{\text{Petx}(i, j')\}$, where $i = 1 \dots n$ and has the same meaning like in the case of BP linguistic sets and j' is a serial number of linguistic subset $\{\text{Petx}(i, j')\}$ ⁵ consists of (see also formula (8))

$$\{\text{Petx}(i, j')\} = \{[\text{Petx}(i, 1)], [\text{Petx}(i, 2)], [\text{Petx}(i, m_2)]\} \quad (8)$$

When applying business process $\{Pe(i, j)\}$ ⁶ linguistic set to $\{\text{Petx}(i, j')\}$ linguistic set, with respect to formulas (9)–(11), we can get adequate BP functionality results in form of $\{\text{Res1}(i, j'')\}$ set

$$\{\text{Petx}(i, j')\} \otimes \{Pe(i, j)\} = \{\text{Res1}(i, j'')\} \quad (9)$$

where $j'' = 1 \dots m_3$

However, the $\{\text{Res1}(i, j'')\}$ linguistic set represents two type of business process outputs: primary and secondary outputs, while the $\{\text{Tbex}(i, j''')$ linguistic set elements represent BP functionality primary products and $\{\text{Retx}(i, j''')$ linguistic

⁵ The $\{\text{Petx}(i, j')\}$ linguistic set contains elements closely related to BP inputs.

⁶ The $\{Pe(i, j)\}$ – linguistic set contains elements closely related to BP transformation operands and BP metrics.

set elements represent BP functionality secondary products and formula (10) might be postulated

$$\{\text{Res2 (i, j)}\} = \{\text{Tbex (i, j)}\} \otimes \{\text{Retx (i, j)}\} \quad (10)$$

and

$$\{\text{Res2 (i, j)}\} = \{\text{Res1 (i, j)}\} \quad (11)$$

Formulas (9)–(11) create basis of Principle Businesses Process Linguistic Modeling Equation (hereinafter known as PBPL Equation [21]. This equation has an endless number of solutions and any of them is closely related to the actual problem area solution.

4.4 Business process transformation operands and metrics

4.4.1 Business process transformation operands

The transformation operands play an important role when providing conversion of process inputs into pre-defined outputs and might be quantified adequate linguistic sets $\{[\text{TOP1 (i, j}_1)]\}$, $\{[\text{TOP2 (i, j}_2)]\}$ [22]. A linguistic set denoted as $\{[\text{TOP1 (i, j}_1)]\}$ is a set, the elements of which contain data concerned with the *transformation functions* and $[\text{TOP2 (i, j}_2)]$ is a set, the elements of which contain data concerned with the *transformation tools*. However, the transformation functions contain the following elements: (a) inspiration, (b) definition, (c) research, (d) production, (e) approval, and (f) realization as well, while the transformation tools are represented by: (a) words, images and sound effect, (b) drawings, (c) conceptual models and (d) implantation models [3].

4.4.2 Business process metrics

A business metric is any type of measurement used to gauge some quantifiable component of a company's performance, such as return on investment (ROI), employee and customer churn rates, revenues, and EBITDA. Business metrics are part of the broad arena of business intelligence, which comprises a wide variety of applications and technologies for gathering, storing, analyzing, and providing access to data to help enterprise users make better business decisions.

The core parts of metrics include: (a) measurement units, (b) reporting period (c) reporting frequency, (d) the current value of the metric with the latest data, (e) previous values of metrics and (f) trend – this is the change in value over time when comparing it with the actual value to previous values⁷ [24].

On one hand, the business provided in any firm or company is identified by a set of business processes, which are running there. On the other hand, any business process (BP) is represented by its own vertical and horizontal structure, while both structure types might be quantified via adequate linguistic sets and the $\{\text{Pe (i, j)}\}$ linguistic set consists of two subsets $\{\text{Pe}_1 (i, j_1)\}$ and $\{\text{Pe}_2 (i, j_2)\}$. The $\{\text{Pe}_1 (i, j_1)\}$ linguistic set consists of further subordinated set $\{[\text{TOP1 (i, j}_1)]\}$ concerned with BP transformation operands and $\{[\text{TOP2 (i, j}_2)]\}$ one is concerned with business process transformation tools.

However, the $\{\text{Pe}_2 (i, j_2)\}$ linguistic set is concerned with business process metrics issues as well, while two types of BP metrics might be postulated:

⁷ IT Manager's Guide Metrics TechExcel [23].

(a) external metrics and (b) internal metrics. When quantifying both metrics types via linguistic sets formula (12) might be postulated

$$\{Pe_2 (i, j_2)\} = \{[EM (i, j_3)], [IM (i, j_4)]\} \quad (12)$$

Where

[EM (i, j₃)] – is a linguistic set, which represents BP external metrics

[IM (i, j₄)] – is a linguistic set, which represents BP internal metrics

Both the above-mentioned linguistic sets seem to be independent and they might be postulated as individual linguistic sets {[EM (i, j₃)]} and {[IM (i, j₄)]}. The {[EM (i, j₃)]} linguistic set represents a BP external metrics, which is concerned with BP inputs [IMP (i, j_{3a})], and BP outputs [OUTP (i, j_{3b})]. The {[IM (i, j₄)]} linguistic set represents a BP internal metrics, which is concerned with BP production devices [DEV (i, j₆)], BP production tools [TOOL (i, j₇)], and BP human resources [HR (i, j₈)] [22] With respect to the above-mentioned issues the following formulas might be postulated

$$\{[EM (i, j_3)]\} = \{[IMP (i, j_{3a})], [OUTP (i, j_{3b})]\} \quad (13)$$

$$\{[IM (i, j_4)]\} = \{[DEV (i, j_6)], [TOOL (i, j_7)], [HR (i, j_8)]\} \quad (14)$$

However, that representation of business process metrics will be applied within Section 7 of that chapter as well.

5. DTS-system: general overview

A System of Data Transfer from Creative Economy business processes to Micro and Macro processes and vice versa based on Cultural Heritage Processes (herein-after known as Data Transfer System—DTS-System) represents a complex system, which should provide an appropriate information and knowledge-based support for business processes running within Creative Economy System (CE System), System of Microprocesses (MIC System) and System of Macroprocesses (MAC System), which create an integral part of social and economic processes as well, while a Culture Heritage Creation and Management plays a role of principle importance in the above-mentioned DTS System. On the other hand, the DTS System should provide a bi-directional data transfer: (a) Data Transfer from Creative Economy business processes to Micro and Macro processes and (b) Data Transfer from Macroprocesses (MA Processes) to Creative Economy business processes (CE Processes), while the MIC System plays a role of intermediary agent as well. The entire DTS system should be implemented and operated via Economic Network System (EN System), which consist of three EN subsystems.

6. DTS-system: structure and functionality

6.1 External and internal structure

The DTS system is represented by its own *internal* and *external* structure and both structure types are separated via adequate *grey zone* (see also Section 2). The DTS System external and internal structure, incl. adequate grey zone is shown **Figure 1** and create basis for design of DTS System conceptual, logical and implementation model.

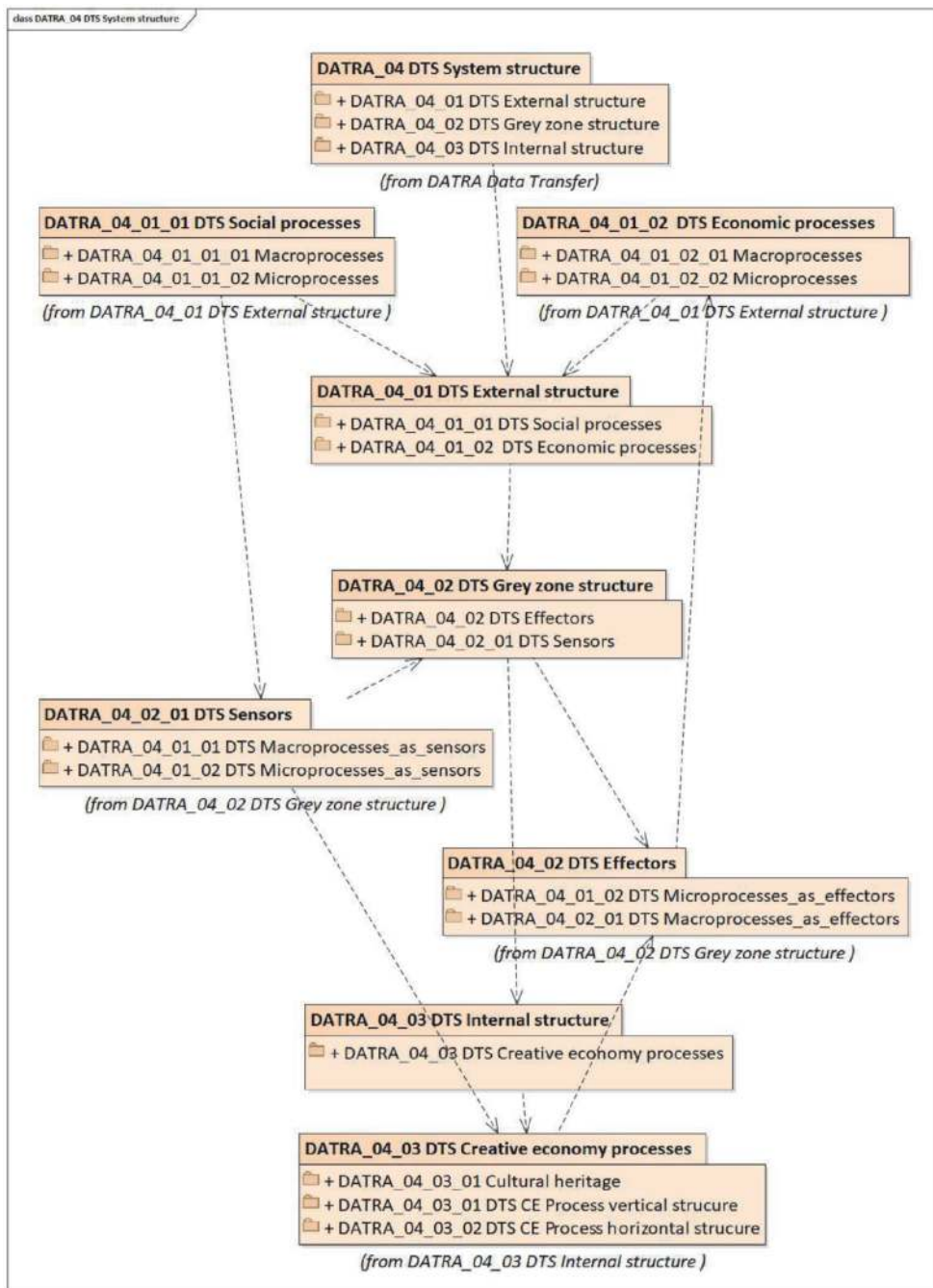


Figure 1.
 Layout of the DTS system external and internal structure. Source: The Authors.

The DTS system is represented by its own *internal* and *external* structure and both structure types are separated via adequate *grey zone* (see also Section 2). The DTS System external structure is created by social and economic processes, while both of them generate data or information for macroprocesses (MAC Processes), which provide further data or information for microprocesses (MIC Processes) and creative economy processes (CE Processes). However, the MAC Processes contain elements, which enable data transfer from external environment to MAC processes (sensors) and from MAC processes to external environment (effectors) as well. The same is concerned to MIC and CE Processes).

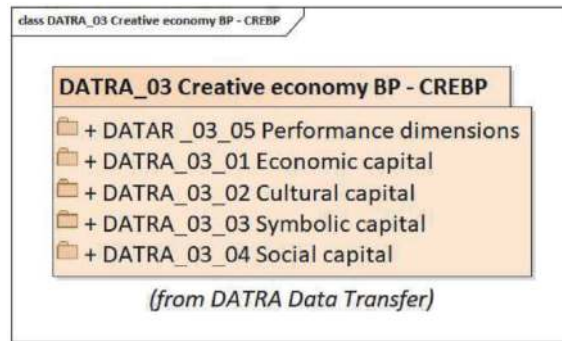


Figure 2.
CEPS system linguistic set objectives. Source: The Authors.

6.2 The creative economy process system structure

In general, any system of business processes might have its own vertical and horizontal structure, while the same is concerned with wit business processes, which create an integral part of the creative economy system. With respect to the fact, that the creative economy process system (CEPS) described within that contribution contains a set of business processes closely related to cultural heritage production and management, that system vertical structure is created by two business process: (a) Cultural heritage creation - production (b) (CHCP) and Cultural heritage management (CHMP). The CEPS system horizontal structure is created by elements shown in **Figure 2**.

6.3 The creative economy process system content

The previous section deals with CEPS system horizontal and vertical structure elements, however there is one more important aspect, which is closely related to content of culture heritage creation and culture heritage management processes, which play a role of principle importance within Creative Economy System to be investigated. However, there is another component, which create the CEPS system content as well, while any of those components has its own structure elements and those elements are denoted as the linguistic sets⁸ and are concerned with appropriate objectives shown in **Figure 3**, while the structure of appropriate subordinated linguistic sets is shown in **Figure 4**.

In general, any process or business process horizontal structure is created by appropriate business process functions (BPFs), which might be quantified via adequate linguistic sets, which enable quantifying the BPFs information and knowledge-based support closely related to a given business process. When looking at **Figure 2** you can see the creative economy business process functions DATRA_03_01 up to DATRA_03_05 and the above-mentioned linguistic sets postulated as {[Performance dimensions (i. j)]}, {[Economic capital (i. j)]}, {[Cultural capital (i. j)]}, {[Symbolic capital (i. j)]}, {[Social capital (i. j)]}.

In **Figure 2**, there are specified BPFs and appropriate linguistic sets closely related to those BPFs information and knowledge-based support, however in **Figure 3** the reader might see the specification in more details as well.

⁸ The problems of linguistic sets mentioned in that section are explained within Section 4.3.

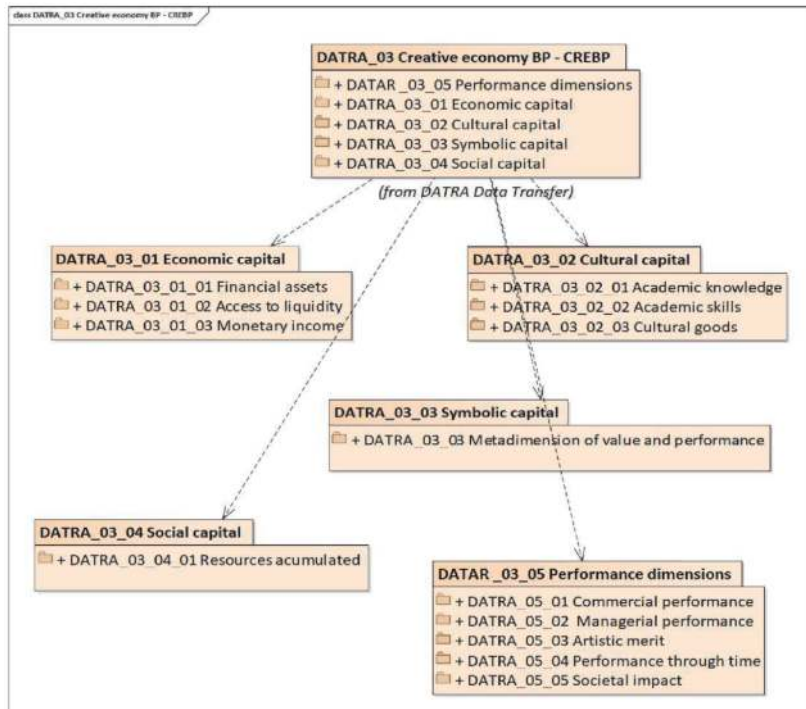


Figure 3.
 CEPS system linguistic set objective subsets. Source: The Authors.

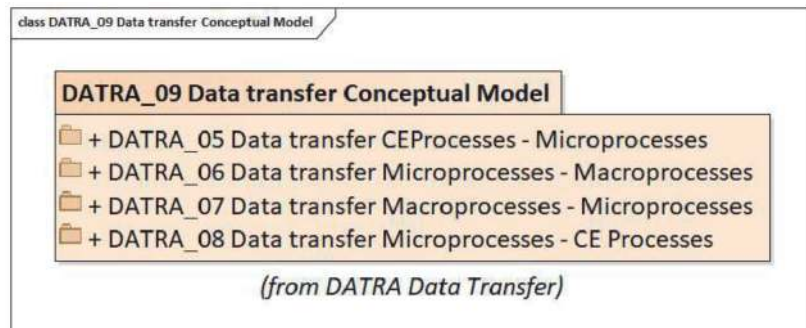


Figure 4.
 The DTS System – Conceptual Model. Source: The Authors.

7. Conceptual model

7.1 General overview

The DTS System – Conceptual Model is a standardized system denoted as DATRA_09 Data Transfer Conceptual Model, which should provide a bi-directional data transfer. On one hand, from Creative Economy Business Processes (CEP Processes) to Microprocesses (MIC Processes) and (MIC Processes) and from Microprocess to Macroprocesses (MAC Processes) and on the other hand, we have to consider the data transfer from macroprocesses, throughout microprocesses up to CEP Processes as well, while DTS System – Conceptual Model consists of four subsystems as shown in **Figure 4**. Moreover, the individual subsystems include sets of adequate components will be written within further sections of that chapter.

However, the DTS System contains a set of adequate business processes as postulated within **Figure 4** as well, while a business process modeling linguistic

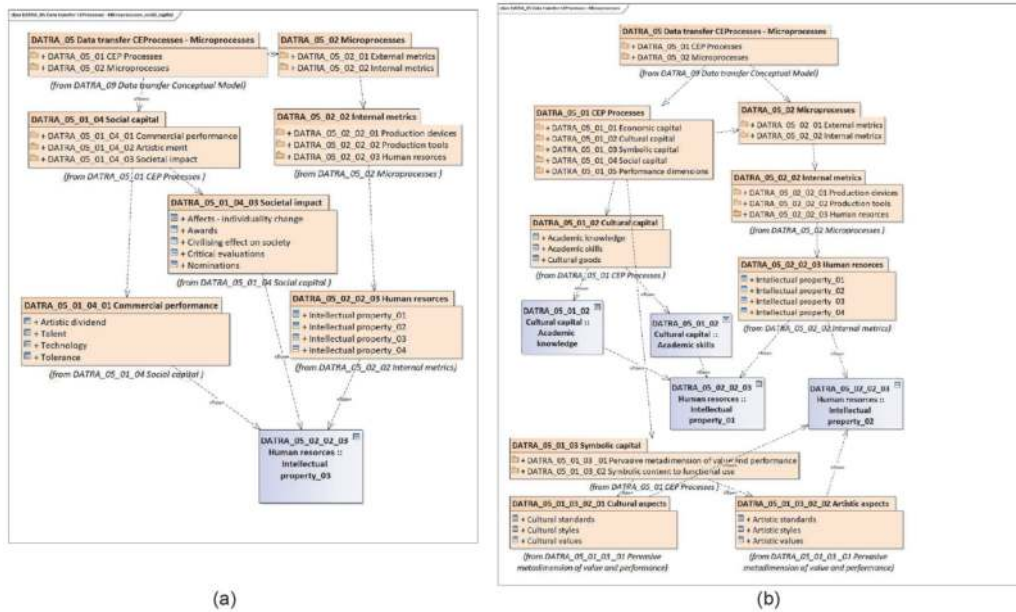


Figure 5.
 (a) The principal layout of Data transfer between CE Process and MIC Process internal metrics items Part 1 (cultural and symbolic capital) and intellectual capital part 2. Source: The Authors. (b) The principal layout of Data transfer between CE Process and MIC Process internal metrics items Part 2 (social capital) and intellectual capital part 3. Source: The Authors.

approach (hereinafter known as BPLM Approach) should be applied to quantify the data transfer from CEP Processes up to MAC Processes. The BPLM Approach is based on specialized type of sets denoted as the linguistic sets.⁹ The structure and functionality of data transfer conceptual model subsystems is described within further sections of that chapter

In **Figure 4**, there are shown the DTS System – Conceptual Model subsystems, which are being described within subsequent sections as well, while the data transfer related to an appropriate business process internal metrics is shown in **Figure 5a** and **b** and the principal layout of the DTS System structure and bi-directional functionality is shown in **Figures 6** and **7**.

7.2 The subsystem DATRA_05 – CE processes versus microprocesses: components and modules

When investigating the subsystem DATRA_05 structure and functionality, we must consider CE Processes and MIC Process structure and metrics, on the other hand, the MIC Process functions might be defined generally regardless their content, while CE Processes and MIC Process metrics plays a role of principal importance within that subsystem functionality description.

7.2.1 The linguistic sets closely related to CE Processes and MIC Process internal and external metrics

Now, we shall postulate the linguistic sets closely related to internal and external metrics¹⁰ of CE Processes and MIC Process, while the CE Process external metrics items are represented by the following linguistic sets: access to liquidity {ALI(i, j)},

⁹ The linguistic set structure and functionality is being discussed within Section 4.3.

¹⁰ The problems of BP internal and external metrics are explained in Section 4.3.

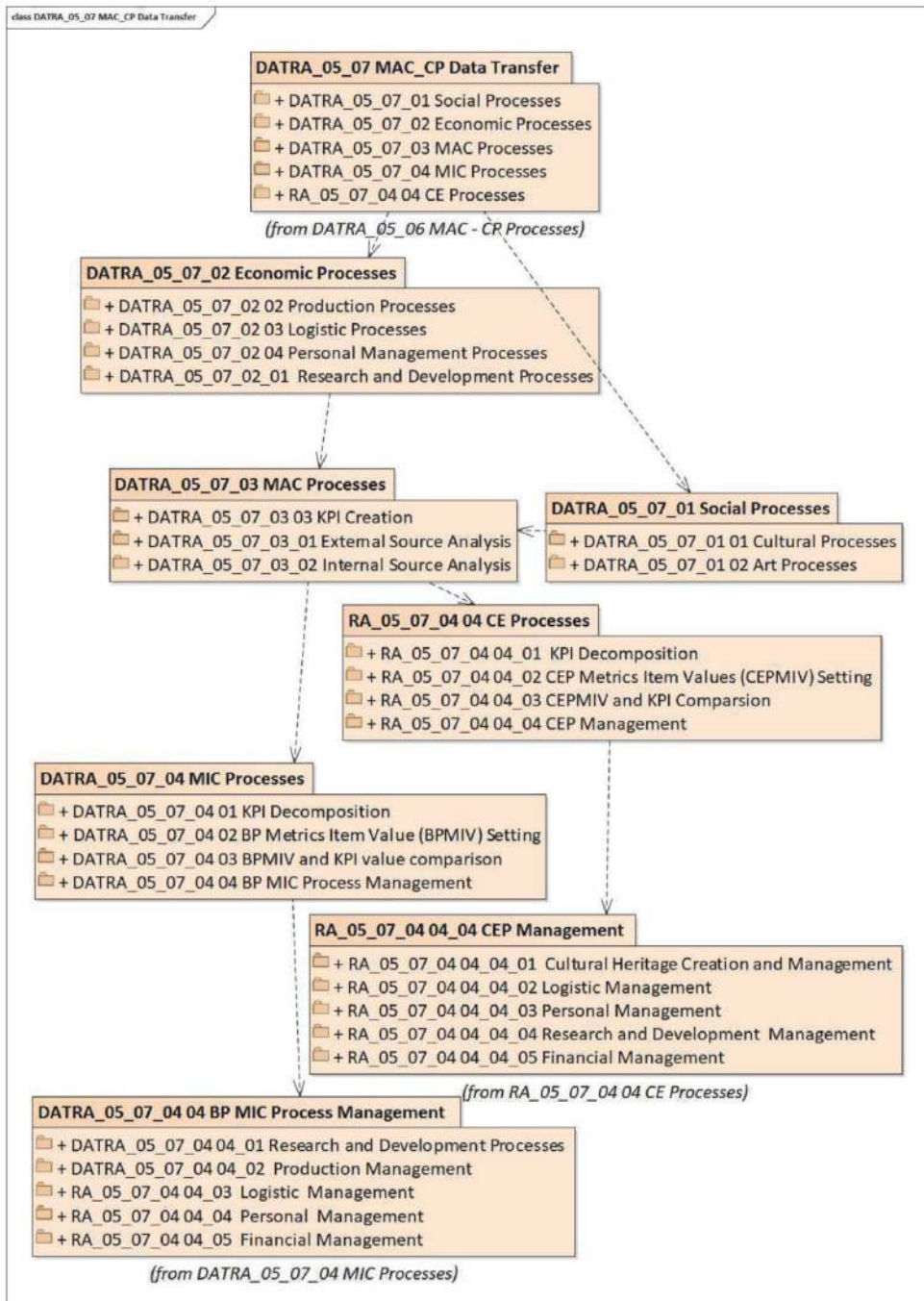


Figure 6.
 The principle layout of DTS2 System Conceptual Model. Source: The Authors.

financial assets, $\{FAT(i, j)\}$, monetary income $\{MOI(i, j)\}$ and the CE Process internal metrics items are represented by those linguistic sets cultural capital $\{[CULC(i, j)]\}$, symbolic capital $\{[SYMC(i, j)]\}$, social capital $\{[SOCC(i, j)]\}$, and performance dimensions $\{[PEDC(i, j)]\}$. On the other hand, the MIC Process external metrics items are postulated as follows: material input $\{[MI(i, j)]\}$, material input cost $\{[MICS(i, j)]\}$, output material $\{[OMP(i, j)]\}$, products and output material product assets $\{[OMPA(i, j)]\}$, while MIC Process external metrics items are represented by production device $\{[PDEV(i, j)]\}$ linguistic set, by production tool $\{[PTOOL(i, j)]\}$ linguistic set, and human resources $\{[HR(i, j)]\}$ linguistic set.

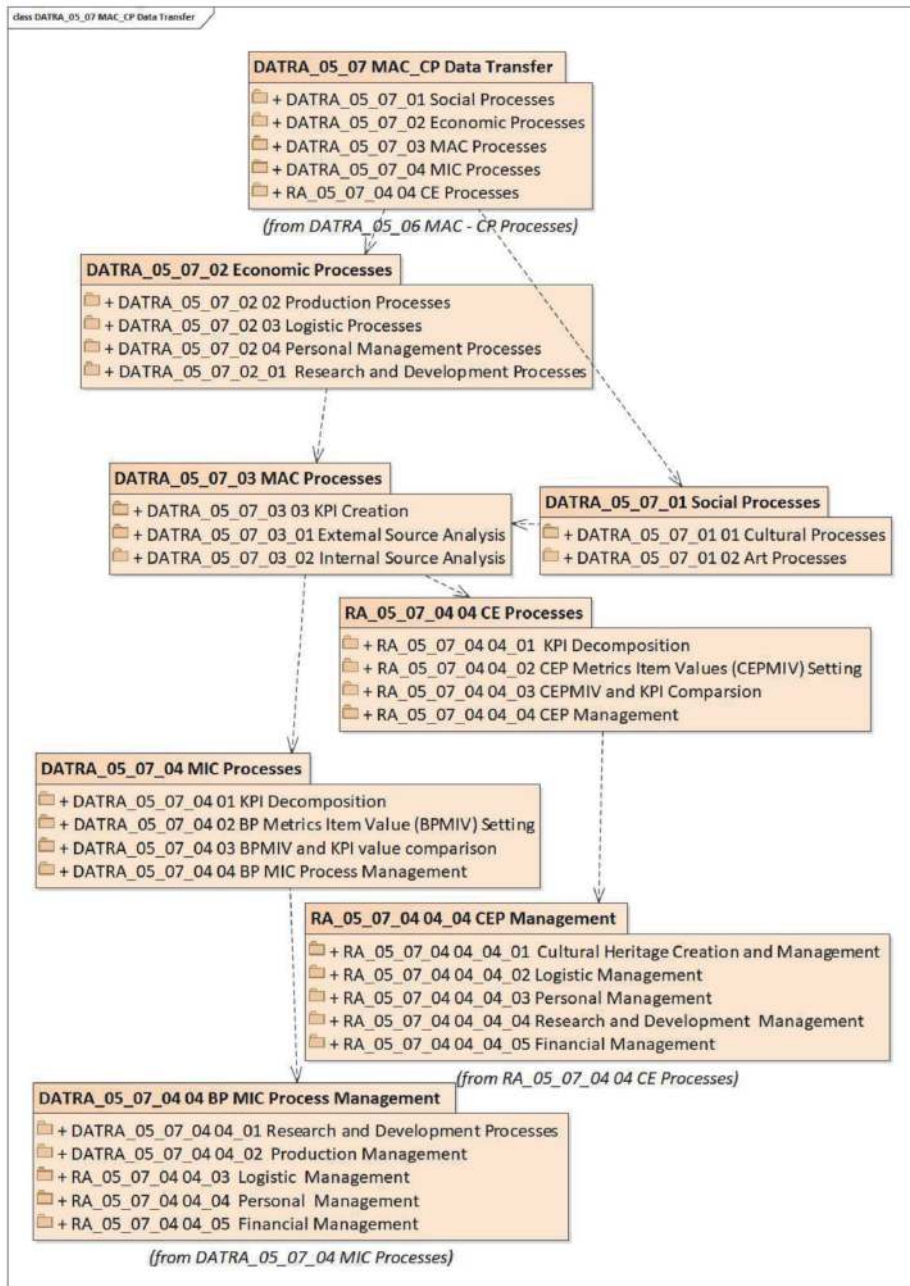


Figure 7.
Data transfer from MAC to MIC and CE processes. Source: The Authors.

The human resources $\{[HR(i, j)]\}$ linguistic set contains three subordinated sets: (a) intellectual capital 1 – $(ICA1(i, j))$, (b) intellectual capital 2 – $(ICA2(i, j))$ and (c) intellectual capital 3 – $(ICA3(i, j))$ linguistic set.

7.3 Data transfer between CE Process and MIC Process external metrics items

7.3.1 Economic and cultural capital versus MIC Process external metrics item

Now, we shall investigate the data transfer between BPFs denoted as economic capital $\{[EC(i, j)]\}$ and cultural capital $\{[CULC(i, j)]\}$ within CE Process items: access to liquidity $\{[ALI(I, j)]\}$, financial assets $\{[FAT(I, j)]\}$, monetary income

{MOI(I, j)}, {CULG(I, j)}, and MIC Process external metrics items postulated as: material input {[MI (i, j)]}, material input cost {[MICS (i, j)]}, output material {[OMP (i, j)]}, products and output material product assets {[OMPA (i, j)]}.

The data transfer between Economic and cultural capital within CE Process and MIC Process external metrics items is running in the following steps:

- The CE Process linguistic set {[EC (i, j)]: [ALI(I, j)]} content determines a possibility of the cultural heritage production or acquisition initiation and is closely related {[MICS (i, j)]} set within MIC Process.
- The CE Process linguistic set {[EC (i, j)]: [FAT (I, j), MOI (I, j)]} content indicates financial aspects of cultural heritage artefact production or acquisition financial contribution within creative economy activities.
- The CE Process linguistic set {[CULC (i, j)]: [CULG (i, j)]} content indicates of cultural heritage artefact production or acquisition material contribution within creative economy activities.

7.4 Data transfer between CE Process and MIC Process internal metrics items

7.4.1 Cultural capital, symbolic and social capital incl. performance dimensions versus MIC Process internal metrics items

Now, we shall investigate the data transfer between BPFs, the internal metrics of which is represented by linguistic sets denoted as cultural capital {[CULC (i, j)]}, symbolic capital {[SYMC (i, j)]}, social capital {[SOCC (i, j)]}, and performance dimensions {[PEDC (i, j)]} within CE Process items and MIC Process internal metrics items postulated as follows:

$$\{[IM (i, j)]\} = \{[DEV (i, j)], [TOOL (i, j)], [HR (i, j)]\} \quad (15)$$

$$\{[HR (i, j)]\} = \{[INP1(i, j)], [INP2(i, j)], [INP3(i, j)]\} \quad (16)$$

7.4.2 Description of structure related cultural capital, symbolic and social capital incl. performance dimensions structure

The **cultural capital linguistic set** {[CULC (i, j)]} consists of two subordinated sets [CULC1 (i, j)], the content of which is concerned with cultural goods represented by [CULGOODS (i, j)] and closely related to external metrics subset {[OMP (i, j)]}, while the [CULC2 (i, j)] contains further subordinated sets concerned to academic knowledge (ACKN (i, j)), and academic skills (ACSK (i, j)), while the [CULC2 (i, j)] subset content is closely related to intellectual capital 1 – (ICA1(i, j)) linguistic subset existing within MIC processes.

The **symbolic capital linguistic set** {[SYMC (i, j)]} consists of two subordinated sets: (CULTAP (i, j)) – cultural aspects and (ARTAP (i, j)) – artistic aspects, while the (CULST (i, j)) linguistic set includes further subordinated sets postulated as follows: (a) cultural standards (CULTSTA (i, j)), (b) cultural styles (CULTSTY (i, j)), and cultural values (CULTVAL (i, j)).

However, the (ARTAP (i, j)) – artistic aspect linguistic set includes further subordinated sets postulated as follows: (a) artistic standards (ARTTSTA (i, j)), (b) artistic styles (ARTTSTY (i, j)), and artistic values (ARTVAL (i, j)) as well, while the {[SYMC (i, j)]} subset content is closely related to intellectual capital 2 – (ICA2(i, j)) linguistic subset existing within MIC processes.

The principal layout of Data transfer between CE Process and MIC Process internal metrics items Part 1 (cultural and symbolic capital) and intellectual capital part 2 is shown in **Figure 5a**.

The **social capital linguistic set** {[SOCC (i, j)]} consists of three subordinated sets: (a) commercial performance (COMPER (i, j)), (b) artistic merit (ARTMER (i, j)), and societal impact (SOCIMP (i, j)) linguistic set, while all the above-mentioned linguistic sets contain

Further subordinated linguistic sets postulated as follows:

- (COMPER (i, j))
 - Artistic dividend (ARTDI (i, j))
 - Talent (TALEN (i, j))
 - Technology (TECHN (i, j))
 - Tolerance (TOLER (i, j))
- (ARTMER (i, j))
- (SOCIMP (i, j))
 - Affects individuality change (ICAF (i, j))
 - Awards (AVAR (i, j))
 - Civilizing effect on society (CEOS (i, j))
 - Critical evaluations (CEVA (i, j))
 - Nominations (NOMI (i, j))

and the {[SYMC (i, j)]} subset content is closely related to intellectual capital 3 – (ICA3 (i, j)) linguistic subset existing within MIC processes.

The **performance management linguistic set** {[PERFM (i, j)]} consists of three subordinated sets: (a) performance through time (PERFT (i, j)) and (b) managerial performance (MANPERF (i, j)), while all the above-mentioned linguistic sets contain further subordinated linguistic sets postulated as follows:

- (PERFT (i, j))
 - Artistic merit cumulative values through time and space (AMECVTS (i, j))
 - CEP¹¹ cumulative values through time and space (CEPCVTS (i, j))
- (MANPERF (i, j)),
 - Creative production process (CRP (i, j))

¹¹ CEP – Creative economy process.

- Outcome consumption (OUC (i, j))
- Outcome distribution (OUD (i, j))

while the (PERFT (i, j) subset content is closely related to intellectual capital 3 – (ICA3 (i, j)) linguistic subset and (MANPERF (i, j)) subset content is closely related to material input {[MI (i, j)]}, material input cost {[MICS (i, j)]}, output material {[OMP (i, j)]}, products and output material product assets {[OMPA (i, j)]} linguistic sets existing within MIC processes.

7.5 Cultural heritage administration versus creative economy process functionality

7.5.1 Cultural heritage administration process external and internal metrics linguistic sets

When considering the System of Creative Economy two principle aspects should be considered and respected. The first one is closely related to a huge set of appropriate business processes running within that system. However, the second aspect is concerned with the fact, that system should respect adequate system theory principles as well, while any system vertical structure is being created by: (a) subsystems, (b) components and (c) modules and (d) sub-modules actually. With respect to that theory, we can define two principle subsystems related to creative economy system. The first subsystem is closely related to art creative activities and the second one is concerned with scientific, research and development activities. We shall discuss the art creative activities, where cultural heritage administration plays a role of principle importance and creates a target subsystem of the Creative Economy system discussed within that section, while the subsystem concerned with scientific research and development will be omitted. The cultural heritage administration relatively individual system seems to be the principle subsystem of the creative system and the core business process running within that system. As a result of that two main business processes might be defined: (a) CHC Cultural heritage artifact creation and CHM Cultural heritage artifact management. Furthermore, we shall discuss a set of problems concerned with structure and metrics related to both above-mentioned main business processes.

7.5.2 CHC Cultural heritage artifact creation

The CHC Cultural heritage artifact creation main business process horizontal structure might contain a lot of different business process functions (BPFs), however the linguistic sets representing its external and internal metrics might be defined as follows: (a) cultural heritage artifact creation economic data {[CHACED (i, j)]}, (b) cultural heritage artifact data {[CHAD (i, j)]}, and (c) cultural heritage artifact production data {[CHAPD (i, j)]}.

7.5.3 CHC Cultural heritage artifact management

On the other hand, the CHM Cultural heritage artifact management main business process has its own vertical structure represented by three subprocesses: (a) CHM-01 Cultural heritage artifact acquisition, (b) CHM-02 Cultural heritage artifact processing, and (c) CHM-03 Cultural heritage artifact delivery, while the CHM- 01 business process external and internal metrics is represented by the following linguistic sets: (a) cultural heritage artifact technical data {[CHATD (i, j)]}, (b) cultural heritage artifact commercial data {[CHACD (i, j)]}, (c) cultural

heritage artifact operational data {[CHAOD (i, j)]}, and (d) cultural heritage artifact economic data {[CHAED (i, j)]}. The CHM- 02 business process external and internal metrics is represented by the following linguistic sets: (a) Cultural heritage artifact archival processing data {[CHAAPD (i, j)]}, (b) Cultural heritage artifact economic processing data {[CHAEPD (i, j)]}, (c) Cultural heritage artifact objective processing data {[CHAOPD (i, j)]}.

7.5.4 CHC Cultural heritage artifact delivery

The CHM- 03 business process external and internal metrics is represented by the following linguistic sets: (a) cultural heritage delivered artifact data {[CHADD (i, j)]}, (b) cultural heritage delivered searcher's data {[CHASD (i, j)]}.

Remark:

It should be noted that all the linguistic mentioned in that contribution have a rather complicated hierarchic structure from objective point of view, while that structure cannot be discussed in more details because the contribution limited number of pages.

7.5.5 Data transfer among Cultural Heritage Administration subprocesses and CEP processes

The business process denoted as Cultural Heritage Administration seems to be the core process and consists of two: main process as mentioned within previous section. However, the metrics linguistic sets related to both main processes are described within previous section as well, while the algorithms of data transfer among Cultural Heritage Administration subprocesses and CEP processes are described within following subsections with respect to the CEP Process functions and their metrics. We shall describe the transfer of data contained within linguistic sets {[CHAED (i, j)]}, {[CHAD (i, j)]}, and {[CHAPD (i, j)]} closely related with CHC Cultural heritage artifact creation business process and CEP Process subordinated business processes generalized as follows:

The {[CHAED (i, j)]}, and {[CHAPD (i, j)]} LS content is being transferred to {[EC (i, j)]: {ALI(I, j)}} LS and {[EC (i, j)]: {FAT(I, j)}} LS and {[EC (i, j)]: {MOI (i, j)}} LS content

The {[CHAD (i, j)]} and {[CHAPD (i, j)]} LS content is being transferred to {[CULC (i, j)]: [CULG (i, j)]} LS content

The {[CHAED (i, j)]}, {[CHAD (i, j)]}, and {[CHAPD (i, j)]} linguistic set (LS) content is being transferred to {[SYMC (i, j)]: [AASP (i, j)], [ARTSTA (i, j)], [ARTSTY (i, j)], [ARTSTV (i, j)]} linguistic set content

The {[CHAED (i, j)]}, {[CHAD (i, j)]}, and {[CHAPD (i, j)]} linguistic set (LS) content is being transferred to {[SOCC (i, j)]} (COMPER (i, j) (ARTDI (i, j)), (TECHN (i, j)), (TALEN (i, j)), (TOLER (i, j)))

The {[CHAED (i, j)]}, {[CHAD (i, j)]}, and {[CHAPD (i, j)]} linguistic set (LS) content is being transferred to {[PERFM (i, j)]} (PERFT (i, j)) (AMECVTS (i, j)) and {[PERFM (i, j)]} (PERFT (i, j)) (CEP (i, j)) LS content

The {[CHAED (i, j)]}, {[CHAPD (i, j)]}, and {[CHAD (i, j)]} LS content is being transferred to {[PERFM (i, j)]} (PERFT (i, j)) (AMECVTS (i, j)) and {[PERFM (i, j)]} (PERFT (i, j)) (CEP (i, j)) LS content.

7.6 MIC Process external and internal metrics items

In general, any business process is represented by an appropriate vertical and horizontal structure and external and internal metrics approximated by adequate

linguistic sets¹² as well. While the **BP external metrics** is created by linguistic sets shown in **Figure 3**.

On the other hand, the **MIC BP internal metrics** is created via subordinated linguistic sets as production devices {MIC: IM:[DEV (i, j)]}, production tools {MIC: [IM:TOOL (i, j)]}, and human resources {MIC:IM:HR (i, j)} as well, while the {[MIC:IM:DEV (i, j)]} linguistic set (LS) contains one subordinated LS denoted as device production output performance {MIC:IM:[DPOP (i, j)]}, tool production output performance {MI:[IM:TPOP (i, j)]}, and the {[IM:HR (i, j)]} contains four subordinated linguistic sets.

7.7 MAC Process metrics items

The MAC Process metrics¹³ item is represented by hierarchic structure, while at the first hierarchic level is created by three subordinated linguistic sets: (a) goods market {MAC:[GM (i, j)]}, (b) financial market {MAC:[FM (i, j)]}, and labour market {MAC:[LM (i, j)]}, while the second hierarchic level has the following structure {MAC:[GM(GDP (i, j))], {MAC:[GM(EA (i, j))], {MAC: [LM(WA (i, j))], {MAC: [FM(CA (i, j))], {MAC: [FM(SA (i, j))], {MAC: [LM(WA (i, j))], MAC: [LM (PR (i, j))], MAC: [LM(WAPRE¹⁴ (i, j))]

7.8 The data transfer from microprocesses to macroprocesses

7.8.1 MIC Process external metrics versus MAC Processes linguistic sets

The microprocess metrics linguistic sets cover MIC Process external metrics, while the external metric set contain the following subsets: (a) Material input cost items {[MICI (i, j)]}, (b) Material input items {[MII (i, j)]}, (c) Output material product assets {[OMPA (i, j)]} and (d) Output material product assets {[OMP (i, j)]}

The data transfer from microprocesses external metrics to macroprocesses is running in the following steps:

- Material input cost {[MII (i, j)]} and {[MICI (i, j)]}, linguistic set content is being transferred to {MAC: [GM (EA (i, j))],} linguistic set
- Output material product assets {[OMPA (i, j)]} and Output material product assets {[OMP (i, j)]} linguistic set content is being transferred to {MAC:[GM (EA (i, j))],} linguistic set
- Output material product assets {[OMPA (i, j)]} and Output material product assets {[OMP (i, j)]} linguistic set content is being transferred to {MAC:[GM (GDP (i, j))],} linguistic set
- Output material product assets {[OMPA (i, j)]} and Output material product assets {[OMP (i, j)]} linguistic set content is being transferred to {MAC:[FM (GDP (i, j))],} linguistic set MAC: [FM(CA (i, j))] and {MAC: [FM(SA (i, j))].

¹² The problems concerned with linguistic sets, which create basis of Business Process Linguistic Modelling approach are discussed within Section 4.3.

¹³ MAC Process metrics does not contain the external and internal part.

¹⁴ Abbreviation explanations: MAC—macroprocess, GM—goods market, GDP—gross domestic product, EA—economic agents, FM—financial market CA—checking account, SA—saving account, LM—labor market, WA—wages, PR—prices, WAPRE—wages-prices equilibrium.

- Output material product assets {[OMPA (i, j)]} and Output material product assets {[OMP (i, j)]} linguistic set content is being transferred to {MAC: [LM (WA (i, j))], MAC: [LM(PR (i, j))], MAC: [LM(WAPRE).

The data transfer from microprocesses internal metrics to macroprocesses is running in the following steps:

- The {MIC: IM:[DEV (i, j)]} and {MIC:[IM:TOOL (i, j)]} linguistic content is being transferred to MAC: [FM(CA (i, j))], {MAC: [FM(SA (i, j))], and {MAC: [GM(EA (i, j))} linguistic sets
- The {MIC: IM:[DEV (i, j)]} and {MIC:[IM:TOOL (i, j)]} linguistic content is being transferred to {MAC: [LM(WA (i, j))], MAC: [LM(PR (i, j))], MAC: [LM (WAPRE).
- The {MIC: IM:[HR (i, j)]} linguistic content is being transferred to {MAC: [LM (WA (i, j))], MAC: [LM(PR (i, j))], MAC: [LM(WAPRE).
- After having completed the previous step, the extracted data and data segments or fragments are transformed to data structure, which might be accepted by application, which enables generating adequate creative economics strategies.

8. Data Transfer System MAC versus CE Processes (DTS2 System)

8.1 DTS2 System structure and functionality

As mentioned above, the DTS Systems operates within two directions. It provides data transfer from CE Processes to MAC Processes, while the MIC Processes play a role of mediator, when running the data transfer between CE and MAC Processes and that type of transfer is covered by DTS1 Subsystem, the data transfer between MAC and CE processes is covered by DTS2 Subsystem. We shall describe a structure and functionality of DTS2 Subsystem in that section.

In general, the creative economy processes (CE Processes) are closely related to social and economic processes, which represent external environment and provide transfer of signals or data to set of macroprocesses, which represent an outgoing point for data transfer concerned to social and economic requirements related to CE and MIC processes. On one hand, when considering the social processes, a set of cultural and art processes play a role of principle importance. On the other hand, when considering the economic processes the research and development processes create basis from creative economy point of view, while the logistics, and personal management processes play a role of principle importance for the research and development processes and for production processes as well. Both of the above-mentioned processes (social and economic) provide transfer of data to MAC processes, which are necessary from external and internal source analysis and they play an important role, when generating values closely related to KPI indicators postulated at national economy level.

However, the KPI indicator values postulated at national economy level are being transferred to MIC processes, where their decomposition related to appropriate MIC process business levels (strategic, tactic and operational) and play an important role at BPMIV setting and evaluation of performance related to adequate processes running within MIC processes set. However, the KPI indicators play an important role MIC and CE process management as well, while cultural heritage

creation and management seems to be the core process from creative economy processes point of view. The principal layout of data transfer from MAC to MIC and CE processes is shown in **Figure 6**.

8.2 DTS2 System Conceptual Model

As mentioned above (see also Section 7.1), the DTS System – Conceptual Model is a standardized system denoted as DATRA_09 Data Transfer Conceptual Model, which should provide a bi-directional data transfer. On one hand, from Creative Economy Business Processes (CEP Processes) to Microprocesses (MIC Processes) and (MIC Processes) and from Microprocess to Macroprocesses (MAC Processes) and on the other hand, we have to consider the data transfer from macroprocesses, throughout microprocesses up to CEP Processes as well, while DTS System – Conceptual Model consists of four subsystems as shown in **Figure 4**. However, the social and economic processes create significant elements of DTS System external environment and generate appropriate data important for functionality of MAC Processes, which provide services for KPI indicator generation [22] within an appropriate firm or company business strategy creation [25, 26].

However, there is data and information generated as a result of text [27, 28] and image semantic analysis [29, 30], as well, while some of those algorithms might be applied, when providing analysis of the firm or company external and internal resources before getting started business strategy creation and KPI generation too. Subsequently, the KPI indicators are being decomposed [22] and assigned to adequate MIC Processes organization units and their metrics [24] item values are being set simultaneously. After having completed the above-mentioned action the management of MIC and CEP Processes might be started, where logistic, personal financial and research and development management play a role of principle importance as well, while the production processes are significant for MIC process management and cultural heritage creation and management are significant from CEP Processes point of view.

The principle layout of DTS2 System Conceptual Model is shown in **Figure 7**.

9. Economic networks structure and functionality

9.1 Economic network structure

The above-mentioned DTS System implemented via so called economic network, which seems to be relatively independent system and consist subsystems covering data transfer within CE, Micro and Macroprocesses (EN-S1 Subsystem) and Macro, Micro and CE Processes (EN-S2 Subsystem) as well.

9.2 Functionality of economic network EN-S1 and EN-S2 subsystems

*The EN-S1 Subsystem is being covered by creative **economy processes**, which consists of two sub-processes: (a) Cultural heritage administration and (b) Research and development administration. However, the BP denoted as Cultural heritage administration is described within previous sections as too, while the Research and development administration is not discussed within that contribution. On the other hand, there are MIC and MAC processes and **MIC Processes** include production and non-production domain and plays a role of go-between elements, when providing data transfer from creative economy processes to macroprocesses*

However, **the MAC Processes** create an integral part of social processes and represent the go-between elements, when preparing goals and aims related to

creative economy process functionality and performance as well, while they play a role of go between elements social, between MIC and CE Processes as well.

The **EN-S2 Subsystem** is being covered by **EN_S2_01 Macroprocesses** component, which consists of the following modules: (a) Normative act processing, (b) Document semantic analysis, (c) Datamining execution, (d) KPI creation and (d) KPI execution.

However, the **EN-S2 Subsystem** is being covered by **EN_S2_02 Microprocesses** component, which consists of the following modules: (a) MIC Process – KPI Setting and (b) MIC Process – Metrics Indicator Setting as well, while the latest component is denoted as EN-S2-03 CE Process, which consists of the following modules: (a) CE¹⁵ Process KPI Setting and (b) CE Process – Metrics Indicator Setting, and CHA¹⁶ Process – Metrics Indicator Setting.

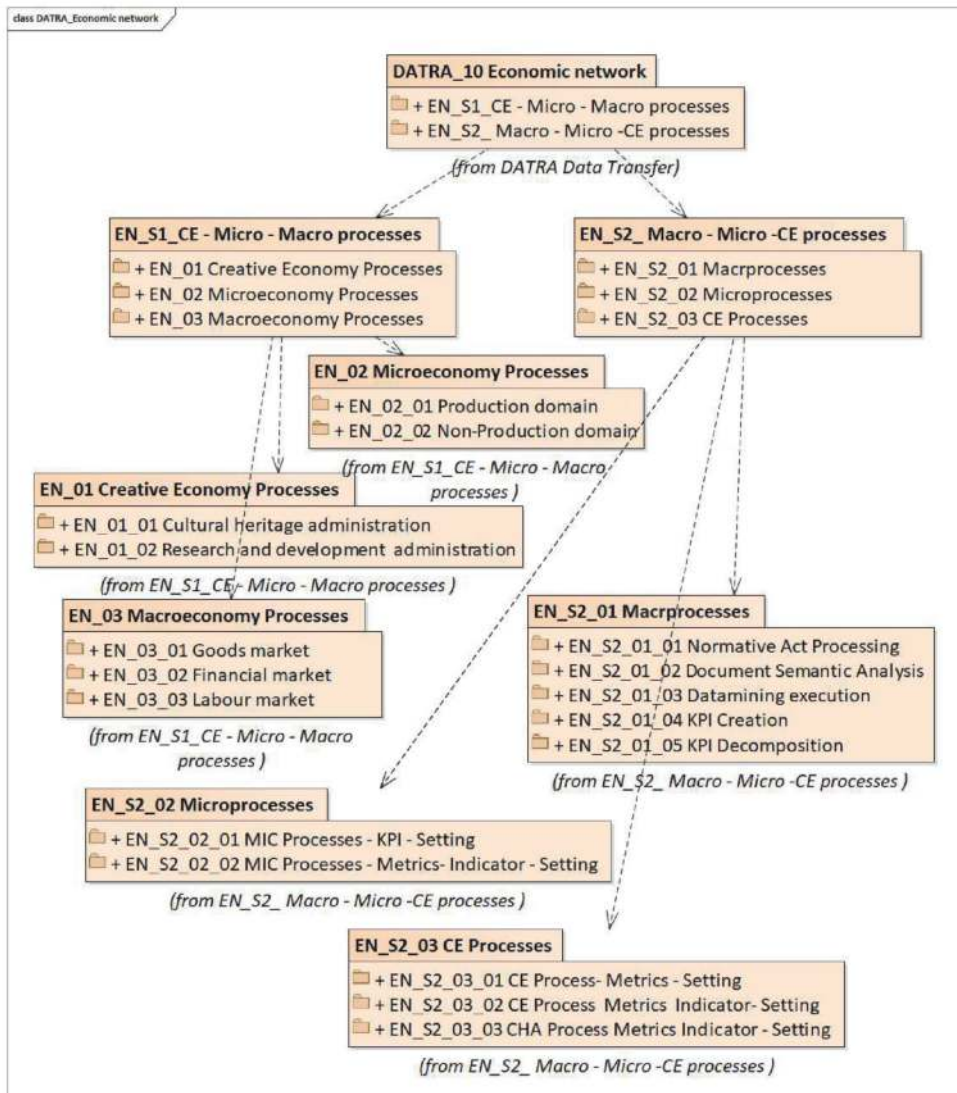


Figure 8.
The principal layout of Economic Network structure. Source: The Authors.

¹⁵ CE—Creative Economy.

¹⁶ CHA—Cultural Heritage Administration.

The EN-S1 subsystem structure and functionality is being discussed within previous sections and the EN-S2 subsystem structure and functionality will be discussed within individual and independent contribution.

The principal layout of Economic Network structure is shown in **Figure 8**.

10. Design and implementation aspects

The Economic Network system (EN System) plays a role of information and knowledge-based supporting facility for CE, MIC, and MAC Processes. However, the EN System provides services related to KPI creation and decomposition, which is important for business strategy design within MIC and CE processes as well and is being designed as an information system and as a knowledge-based system too. On one hand, when considering the information system, the linguistic sets are implemented as standardized database tables, on the other hand, considering the knowledge based system the linguistic sets create basis of adequate reference databases and play a role semantic network elements. When considering the user's communication with the information system an appropriate database management system for those purposes should be applied and when considering the user's communication with an adequate knowledge-based system an appropriate inference system is used for those purposes. The above-mentioned aspects should be respected within EN System design and implementation, while a selected GraphDB [31] system will be applied for EN System design and implementation and an adequate application program should be created.

11. Discussion

At present, the creative economy seems to a new branch, which provides interconnection between cultural standardized economy sphere and includes different activities related to culture and cultural heritage creation and management. However, providing those activities requires intellectual, material, and financial support as well, while all of them are closely related to macroeconomy and microeconomy objectives. On the other hand, the creative economics processes are the business processes too. However, they have adequate vertical and horizontal structure require an appropriate information, knowledge-based and organization support as well in order to assure their proper and efficient functionality, while their information support and metrics elements are closely related to each other. As a result of that the data or information transfer plays a role of principal importance and is running in two stages: (a) from creative economy to microeconomy BPs and (b) from microeconomy to macroeconomy BPs. Of course, the data transfer from DTS System external area represented by social and macroprocesses to CE Processes play an important role as well, while a set of MIC Processes represent an appropriate go-between element and an integral part of sensors and effectors, acting within grey zone, which exists between BP external and internal environment.

The above-mentioned DTS System implemented via appropriate economic network, which seems to be relatively independent system and consist subsystems covering data transfer within CE, Micro and Macroprocesses (EN-S1 Subsystem) and Macro, Micro and CE Processes (EN-S2 Subsystem) as well.

The above-mentioned stages are being implemented and operated via appropriate economic networks, the (a) phase activities are covered by economic network I and the (b) phase are covered by economic network II. Both above-mentioned economic network subsystems should be implemented and operated via adequate

Datawarehouse system, where the economic network subsystems EN-S1 and EN-S2 could be implemented via Datamart I and Datamart II and both have their own ETL systems, which provide extraction of data from appropriate linguistic sets (E), the data transformation (T) to pre-defined structure of multidimensional tables and data loading (L) to the above DataMart I and Datamart II. On the other hand, there is an appropriate OLAP system, which should enable providing data selection and analysis with respect to authorized user requirements. Moreover, that system could contain a software, which enables providing a semantic analysis of EU documents and extracting data, which are inserted into a software, which prepares supporting data concerned to business strategy of the firm or company, which deals with creative economy activities.

12. Conclusion

At present, the creative economy seems to a new branch, which provides inter-connection between cultural standardized economy sphere and includes different activities related to culture and cultural heritage creation and management. However, providing those activities requires intellectual, material, and financial support as well, while all of them are closely related to macroeconomy and microeconomy objectives. On the other hand, the creative economics processes are the business processes too. However, they have adequate vertical and horizontal structure require an appropriate information, knowledge-based and organization support as well in order to assure their proper and efficient functionality, while their information support and metrics elements are closely related to each other. As a result of that the data or information transfer plays a role of principal importance and is running in two stages: (a) from creative economy to microeconomy BPs and (b) from microeconomy to macroeconomy BPs. Of course, the data transfer from DTS System external area represented by social and macroprocesses to CE Processes play an important role as well, while a set of MIC Processes represent an appropriate go-between element and an integral part of sensors and effectors, acting within grey zone, which exists between BP external and internal environment. The above-mentioned DTS System implemented via appropriate economic network, which seems to be relatively independent system and consist subsystems covering data transfer within CE, Micro and Macroprocesses (EN-S1 Subsystem) and Macro, Micro and CE Processes (EN-S2 Subsystem) as well The above-mentioned stages are being implemented and operated via appropriate economic networks, the (a) phase activities are covered by economic network I and the (b) phase are covered by economic network II. Both above-mentioned economic network subsystems should be implemented and operated via adequate Datawarehouse system, where the economic network subsystems EN-S1 and EN-S2 could be implemented via Datamart I and Datamart II and both have their own ETL systems, which provide extraction of data from appropriate linguistic sets (E), the data transformation (T) to pre-defined structure of multidimensional tables and data loading (L) to the above DataMart I and Datamart II. On the other hand, there is an appropriate OLAP system, which should enable providing data selection and analysis with respect to authorized user requirements. Moreover, that system could contain a software, which enables providing a semantic analysis of EU documents and extracting data, which are inserted into a software, which prepares supporting data concerned to business strategy of the firm or company, which deals with creative economy activities.

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