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Editorial

This is the 16th issue, no. 1 of *Styles of Communication*, the international journal which is published annually by the Faculty of Journalism and Communication Studies (University of Bucharest, Romania) in cooperation with the Committee for Philology of the Polish Academy of Sciences, Wrocław Branch, Poland. From 2009 to 2014, *Styles of Communication* was published by the "Danubius" University of Galați, Romania.

The main purpose of *Styles of Communication* is to show the unity existing within global diversity. As communication implies, besides the transfer of information to others and the decoding of the others' messages, the production of meaning within (non)verbal texts/objects is closely connected to interculturality, creativity and innovation and it needs a refining of styles in order to avoid misunderstandings.

This issue is a plea for interdisciplinarity as its aim is to include different perspectives on communication, coming from different fields, such as advertising, public relations, or journalism.

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This issue is focused on various approaches to communication studies.

We would like to see this journal as an ongoing project in which future issues may contribute to the exchange of research ideas representing broad communication – oriented approaches.

Camelia M. Cmeciu
Piotr P. Chruszczewski

Hashtag: An experiment in the domain of morphological realisations

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Abstract: Building upon earlier studies and contributions to knowledge, this research examines the lexemic formation processes and terminologies marked by hash tags. The goal is basically to demonstrate the modus operandi of formulating hash tags, as linguistic edifices, influencing people to act in a particular direction. To achieve this goal, the author consulted websites to harvest hash tag constructs at random in business, discrimination-cum-crime, culture, politics, and natural disaster spheres. The researcher further represents both hash tags and the formation recurrent patterns in statistics using tables and graphs. Besides the common constructs of imperative (*#OccupyWallStreet* as in *# + Occupy + Wall + Street*), declarative (*#BlackLivesMatter* as in *# + Black + Life + s + Matter*), and nominal (*#eqnz a*s in *# + e + q + n + z*) elements, this study reveals that *#LRNY* depicts acronym in their morphological domains of *# + L + R + N + Y*. *#McDStories* explicates a word formation blending as in *# + Mc + D + Stori + es* to understand consumers' perceptions. Very obvious are formations such as interro-declarative structures (*#WhatPantherMeansToMe* as in *# + What + Black + Panther + Mean + s + To + Me,*), verbo-nominal constructs (*#AskObama* as in *# + Ask + Obama*), and nominalised fabrications in a compounding pattern (*#BringBackOurGirls* as in *# + Bring + Back + Our + Girl + s*). Upon these fascinated liberty-constructions, the hashtag participants do not only have confidence to express their thoughts in the global terrain, users have the capacity to influence linguistic practices with novel formation ideas, illustrating things that people could do with words.

Keywords: bound morpheme, dynamism, free morpheme, hashtag, Twitter.

1. Introduction

The world is dynamic. And the entire human race is dynamic. The observation of dynamism dominates all facets of human lives, be it socio-cultural, socio-political, education or science and technology (Okoro, 2006; Dalamu & Ogunlusi, 2020). The inventive nature of human beings is a vehicle to some changes that encircle society. Language, a communicative edifice, pivotal to human activities, is not left out of the curve of dynamicity in the world. In a concise way, language influences human businesses because of the central role that this inevitable oddity plays in virtually all activities (Dalamu, 2020). The assertion portrays that the dynamism of language spreads its span across the spoken and written patterns of variegated communicative styles (Tracy, 2002). Thus, the appreciation of phonetics, phonology, morphology, grammar, syntax, and semantics attracts some changes from one generation of scholars to another.

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Congruent to the comment above is the appearance of the terminology of hashtag, as represented with a symbol of #. Hashtag has both the Egyptian root as well as Roman source (Chakelian, 2014). Though the crunch has been from ages, the Internet Relay Chat (IRC) reinvigorated its popularity in the golden age around 1988, as a mark-cum-derivative of a conventional and historical naming (onomastic) content (Zappavigna, 2011; Dalamu, 2019b). That feature characterises the hashtag as a forerunner of a word or a cluster of words meant for a specific campaign idea.

In respect to that functional frontier, one might conceptualise the hashtag as being linked to Halliday's (1995) spirit of the theme and rheme theorization. The theme and rheme concept constitues the third part of the three metafunctions (Fontaine, 2013). The three metafunctions are: ideational, interpersonal, and textual (Halliday, 1995). These metafunctions, in the order of appearance, have their grammatical transposes as being: Transitivity, Mood, and Theme-Rheme (Bloor & Bloor, 2013; Dalamu, 2019c). The metafunctions explain the meaning potentials of the clause, where Transitivity describes the goings-on, Interpersonal exhibits the social actors' relationships, Theme-Rheme construes the organisational structures of the clause (Thompson, 2014). The position of the theme and rheme underpins the hash tag to wholly depict some linguistic attitudes of the theme and rheme. Scholars, including Martin, Zappavigna, Unsworth, etc. develop their thoughts through the Halliday's *metafunctional* triads (Dalamu, 2017a).

Upon that backdrop, one might suggest that there are two distributive devices in hashtag campaign items. The first is the hash, (#), identity. The second is the other words proceeding the cross hatch, that could be called the tag. That could be in this logic: A + B = AB; where A is the hash and B is the tag to generate the AB configuration. That is, the hashtag emblem. Similar to the thematic equation, the hashtag is usually in the first position of the semiotic system in any hashtag campaign constructs (Dalamu, 2019e) such as *#Obama, #Yesallwomen, #justicefortrayvon, #kony2012, #BringBackOurGirls, MeToo!, #FIFAcup2014, #Brazil2014, #NeverWatchAlone, #HeinekenUCLLive #BlackLivesMatter, #ENDSARS, #ausnahmslos, #neinheißtnein, #ausnahmslos, #aufschrei, #barcamp*, and *#Omoluabi.*

This means that the hashtag campaign does not function in neither the middle nor the end of a topical substance. The hashtag orients an impression, pointing people to a relevant subject matter (Loza, 2014). That is the reason for one to comment that the hashtag is not only operating as the first contributor to the scene; the communicative constituent also determines the flow of the discourse, acting as a point of departure on the entire lexical entity (Dalamu, 2017b). In other words, the glyph is the first chosen informative elements that locates the message, organised with the constructive purview-cum-style of the initiator**,** be it an individual of a group of individuals (Dedas, 2017).

In the systemic arena, the first position of an entity in communication is significant. That projects the Octothorpe as a marker of other lexemes with a capacity to lead the followership to a crystal-clear struggle for justice (Laucuka, 2018; Ravelli, 2000). This is because the hashtag is an emphatic code (Chandler, 2017) which could influence many willing souls to a modern communication revolutionary currency. In spite that other constituents have their peculiar meaning outside the hashtag, the attachment of the hashtag sign to the lexemes sparks a seemingly signification to people's cognitive processes. That

is an indicator that the hashtag adds values to the existing meanings of words, as a pictogram of worthwhile thought of pursuit (Forceville, 2020).

Since the introduction of the hashtag into the digital communicative domains in 1988, social media enthusiasts have extended its applications beyond the earlier traditional measures. That is a probable drive for van den Berg (2014) to report the historical account of the hashtag from a theological perspective. This critical substance of technological communication (Feenberg, 1991; Ferro & Zachry, 2014) has attracted Bruns and Burgess (2011) to consider cross-hatch as an ad hoc communicative style in Twitter (now X). Though Carr (2012) delineates the limitations of hashtag activism; van Dijck (2013), Mohammad and Kiritchenko (2013), and Ma, Sun, and Cong (2013) sensitise readers of hashtags' cultural criticalness and connectivity, and how the contents excite people's emotional feelings, leading the integral construct to a global fame among crunch users.

The analyses of Wikstrom (2014) and Bowdon (2014) focus on the traditional pragmatic framework as tweeting ethos emerge augmenting messages in social media; whereas Dixon (2014) and Loken (2014) elucidate the glyphic feminism identities. There are other explorations on the switching of Twitter's hashtag exchanges (Jones, 2014), hashtag stimulus on non-profit social advocacy (Waters & Jamal, 2011; Guo & Saxton, 2014), enactment of interpersonal relationships (Zappavigna, 2015; Dalamu, 2019a), and crucial features of modern digital communication (Lupton, 2015; Meikle, 2016). Of significance are the effective applications of hashtags on social media (Lindgren, 2017), programmable hashtag (Salazar, 2017), the categorisation of the conceptual label in terms of communicative utilities (Laucuka, 2018), and a prime mover of the entire public (Dalamu & Yang, in press).

The present investigation contributes to earlier studies by examining the formation processes of hashtags, operational in communicative situations such as Twitter, Instagram, protests, and advertising. The goal is simply to exemplify the lexemic resources that are embodiments of hashtag campaign currencies, and also to illustrate the model of hashtag creativity in communication realms. This present description draws on the insights of Bauer (2001), Haspelmath and Sims (2002), Booij (2007), Lieber (2010). One hopes that the exposition of the lexemic combinatory processes will reveal ideas of methodical occupations of hashtag to the audience. Moreover, the following research questions have assisted the researcher in deducing meanings from the morphological constructs of the analysed hashtags.

RQ1: What kind of word-formation processes are employed to promote the hashtags?
RQ2: Do hashtag initiators construct unified grammatical ranking systems?
RQ3: What is the recurrent morphological-cum-lexemic density of the campaigned hashtags?

2. Hashtag, an (r)evolutionary signal

The hashtag is a remarkable mode, an arsenal, whose motivating force is a course of event, perhaps, a hideous event. The statement suggests that the hashtag is an emblem of activism, employed to facilitate justice, fascinate social actors to action, and to request

a change of event (Goldberg, 2014). The hashtag then is not a frisky sign. A cause of social need stimulates the origination of the cross hatch. Being trendy in the current dispensation, arresting the attention of people in order to sensitise the government, and other stakeholders into suitable action, there are historical details regarding the hashtag (Small, 2011; Goswami, 2018). One could attach the genesis of the hashtag to the Egyptian's and Roman's hieroglyph, which is abbreviated to glyph. The term, glyph, pinpoints an elegantly constructed image to represent a sound, a word, or a syllabic structure, observable in an ornamented calligraphy (Yule, 2020).

There are other labels to the hashtag. These are: *mesh, cross hatch, grid, crunch, tic.tac-toe, flash, thump, splat, square, pig-pen, hash, pound, number, octothorpe, scratch mark, diamond,* and *pound*. Hashtag has become much more popular than any of the other labels. Nevertheless, this researcher considers using any of the labels at will. Moreover, pound and octothorpe are much more significantly intelligible among other references. Pound is an English reconstruction of the Roman *libra pondo* (pound in weight). The acronym from the Latin words *libra pondo, lb,* characterised the structure of the hashtag. In Chakelian's (2014) sense, the typographer put the *l* and *b* characters in unanimity and a line was drawn across the top of the conjoint letters. It is the contribution of *l* and *b* that is known as pound. That is why Bringhurst (2012, p. 328) remarks that:

> "Octothorp, otherwise known as the number sign ... has also been used as a symbol for the pound avoirdupois ... In cartography, it is a traditional symbol for village: eight fields around a central square. That is the source of its name. Octothorp means eight fields."

The significance in Bringhurst's (2012) idea is the description of *octo* as an element connected to eight spheres, as shown in Figure 1. Further drawing on Chakelian's (2014) account unveils octothorpe as related to the UK and US. Earlier applications of the hash in the UK dominated the indication of a weight, a sharp music note, checkmates, spaces between words, and the end of communiqués. Sometimes, the label, shebang, came to the fore when used with the interjection sign, (*!);* the combination of which produces hashbang, *(#!).* Typists and businessmen were acquaintances of the octothorpe, as reflected in the QWERTY typewriter signs in the 1870s. Other common codes of the same weight are @ (at the rate of) and * (asterisk) (MacArthur, 2021).

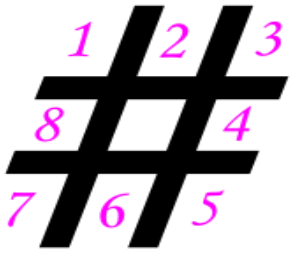

Figure 1. Octothorpe appearance of the hashtag (Miyoshi, 2015)

The Alexander Graham Bell laboratory, known as, Bell Lab, decorated the hashtag as being octothorpe, which was simultaneously called pound. Perhaps, the idea was not only to adopt a sign renowned among the people; much to that could be a strategy to immortalise Jim Thorpe (an American athlete) and James Oglethorpe (a British General who founded a state of Georgia).

The # replaced *lb* in order to avert confusion between the lower cases of *l* and *b.* The sign also saved the typists the horrendous headache of pressing two different keys instead of one when operating the machine. As pound replaced *lb* in popularity, so octothorpe replaced pound, which was popularly acclaimed as the hashtag (Visualwebz, 2021). Then, it is sufficed to remark that the code, hashtag, in vogue nowadays is a matter of popularity, which emanated in the following dimensions of:

IRC ⟶ Messina ⟶ Twitter ⟶ other media.

As a matter of emphasis, IRC (Internet Relay Chat) communicated the hashtag in the digital media for the first time in 1988. The format represented a channel to harness likeminded people in wholeness in order to discuss a peculiar subject matter. Some good examples are: *#ILoveNissanCars* and *#GreatDalamusAreGeniuses.* Doctor (2013) reports that IRC captured a community of users of about half a million in no time, which participated in such an exigent discourse. That inspired Chris Messina to sell a similar idea to the Twitter CEO to adopt hashtag as a rejuvenated tool to categorise and index fabulous topics (Wiseman, 2017; Black, 2018). The Twitter founder rejected the proposal in 2007, but only to surrender to the beautiful initiative in 2009, after President Barrack Obama deployed the hashtag, #askObama, as campaign machinery in 2008 (Copy Press, nd).

Since that period, the dense character, hashtag, has become a programmed cultural maneuver in political circle, family matters, marketing strategy, socio-political matters, request of social justice, and promotion of company names, products and concepts (Panko, 2017; Lips, 2018). It is a challenge that the no-rule-guiding-principle might project the hashtag as a bad communicative devise.

2.1. Theoretical framework

The focus of this study, being the word-formation style of the originator of the hashtag, motivates the researcher to consider morphological parameters useful for elucidating the cross-hatch contents. One anchors the choice of morphological tools on the strengths of the embedded terminologies in contextualising the different communicative shapes of word-formations in various operational classes. As illustrated in Figure 2, the formation apparatuses are of two broad kinds. These are: general processes and morphemic processes (Dalamu, 2018b). The author ascribes the term, general, to the first set simply because of the easy formation that lexemic contents undergo. The conceptualisation of the second, as being morphemic processes, hangs on the scientific inclination of their formation movements (Bauer, 2001).

From the array of the general processes, compounding pinpoints a situation where two separate words are joined together to form a single unit. It is in that spirit that Booij

(2007) maintains that the two words are independent to make diverse meanings on their own. Their coming together forms a synergy of fresh construct that generates innovative meaning. The concept of coinage is parallel to neologism. This is because the two labels are the windows for exemplifying newly constructed lexemes by scholars, advertisers, mass communicators, and politicians (Dalamu, 2019d). Drawing on Cook (2001), the alphanumeric code points to a combination of letters and numbers to excite the audience. The application of *9ja* to symbolise *Nigeria* is a relevant example of this.

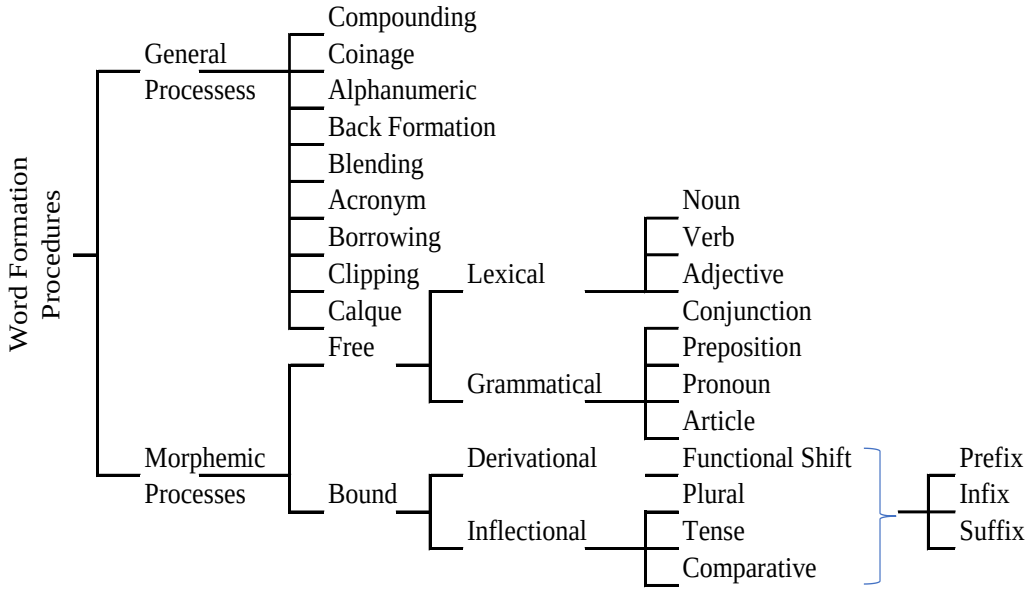

Figure 2. A system of word-formation processes (Dalamu, 2018b)

As blending could take the beginning of a word and join it to the end of another word, so does clipping act to reduce a word that is more than one syllable to a shorter form (Yule, 2020). Back formation, one might say, is hardly functional in the English word-stock, compared to borrowing, calque, and conversion. That seems to influence Hamawand's (2011) attestation that borrowing explores loan-words, coming into a language, whereas claque is the reconstruction of a lexeme of English, for example, into Yoruba. Such a linguistic behaviour might be as a result of unavailability of that word in Yoruba or perhaps, the academic degree of the composer is inept (Dalamu & Ayoola, 2024). Conversion is the imminent change that a word experiences when an individual user turns a word to be used as another word-class. That is, verbs to nouns, nouns to adjectives (Beard, 1995).

Morphemic processes are of two categories. There are free morphemes and bound morphemes. As Plag (2018) explains, the free morpheme accommodates both lexical and grammatical items. Lexical lexemes operate as nouns, verbs, and adjectives. Grammatical items are functional in the class of conjunctions, prepositions, pronouns, and determiners. The bound morphemic structures are derivational and inflectional in appearance.

Derivational items equate functional shift components. That means the derivational morphemes usually make new words from the stem of a counterpart grammatical category (Katamba & Stonham, 2006). At this juncture, one might stress that it is the inflectional dais of the bound morpheme that dominates the major morphological processes of English. This is where, in Aronoff and Fudeman's (2002) standpoint, the operational effects of morphemes are greatly utilised. Thus, the ideas of pluralisation, tense, and comparability govern the word-formation methods. The notions of prefix, root, and suffix, in Liebner's (2010) nous, are observably-effective in bound morphemic processes. The author will employ this system of word formation, shown in Figure 2, to analyse the hashtags in this study.

3. Methodology

The hashtag is phenomenal, being a tag employed to campaign a particular event to individuals, groups of people, and society at large. As a critical marker of a thought, the device strengthens a specific notion as a 'marketing' ploy to greatly inspire people's participation en mass. In that sense, the analyst collated hashtag devices from many websites and social media accounts such as Twitter and Instagram (Bezemer & Jewitt, 2010; Patton, 2015). These media became significant because the Internet and social media are custodians of hashtags in various forms, shapes, and formations without being checkmated (Dalamu, 2023).

3.1. Selection process

The mini-corpus population of 24 hashtags underwent a random sampling procedure, owing to the common formation processes, apparent in hashtag terminologies (Biber, Connor & Upton, 2007). Though a random sampling process, the population of 24 hashtags are in the rate of business (3), discrimination-cum-crime (4), culture (1), politics (2), and natural disaster (2), as exhibited in Table 1 below. Except for culture that has only one communicative hashtag event, the hashtag proceedings of business, discrimination-cum-crime, politics, and natural disaster were divided into two parts, in which the author considered a half of each communicative event for the analysis (Leech & Short, 2007; Mobasher & Afida, 2015; Dalamu, 2018a). That decision was for a purpose of uniformity and consistency.

Besides, observations show that the categories do not have equal number of hashtag events. For instance, the application of hashtags in business, discrimination-cum-crime, and politics are much more available on the Internet than that of culture. Some of these events, though, display some elements of cultural treasures in their temperaments. The hashtags also display, to certain extent, a form of associative interconnectivity with cultural values in their structural potentials and meaningful appearances (Keyton, 2006).

However, the author gave priorities to the hashtag applications in business, discrimination-cum-crime, culture, politics, and natural disaster, as a proof of their hashtag positionings in all walks of life. The reason is the critical effects that hashtags shoulder

regarding business and crime settings. Apart from sports which have global routine activities, business, discrimination, and crime are probable consistent employers of hashtags to communicate events to the target audiences. Table 1 illustrates the selection patterns of hashtag groupings in various sectors of society (Leech & Short, 2007; Mobasher & Afida, 2015; Dalamu, 2018a).

Table 1. Selection modality

S/N	Contextual Domain	No of Hash Tag	Event Phenomenon
1	Business	3	#LRNY
			#McDStories
			#GetBumpedUp
2	Discrimination & Crime	4	#OccupyWallStreet
			#HandsUpDontShoot
			#BlackLivesMatter
			#BringBackOurGirls
3	Culture	1	#WhatBlackPantherMeansToMe
4	Politics	2	#MakeAmericaGreatAgain
			#AskObama
5	Natural Disaster	2	#eqnz
			#SanDiegoFire

Discrimination and crime segment appears as the highest choice. This is deliberate as many hashtag impressions in this sphere have led to remarkable protests nationally and internationally, demanding a course of justice that has influenced government decision in one way or another.

To demonstrate the recurrences of the operational domains and word formation rates, the author utilises tables and graphs as the concise statistical models (Riffo, Osuna & Lagos, 2019; Dalamu & Odebode, 2021). Thereafter, explanatory offerings indicated the morphological take of each propagated hashtag alongside with the historical accounts and semantic implications. Following the analysis in Table 2, Table 3 indicates the kinds of grammatical ranking system and the functional morphological-cum-lexemic recurrence of the analysed hashtag frequency.

3.2. Analysis of hashtag components

Table 2 shows the analysis of the word formation processes in the 12 analysed hashtag contents. The analysis shown below provides a solid foundation for the study's results.

Table 2. Morphological analysis of hashtag communicative devices

HT	Context	Hashtag Cluster	Morphological Analysis	Morphological Description	Basic Lexemes
1	Business	#LRNY	# + L + R + N + Y	Acronym	Land Rover New York
2		#McDStories	# + Mc +Donald + stori + es	Blending	McDonald Stories
3		#GetBumpedUp	# + Get + Bump + ed + Up	Compounding	Get bumped up.
4	Discrimination & Crime	#OccupyWallStreet	# + Occupy + Wall + Street	Compunding	Occupy Wall Street
5		#HandsUpDontShoot	# + Hand + s + up + Do + nt + Shoot	Compounding	Hands up do not shoot
6		#BlackLivesMatter	# + Black + Live + s + Matter	Compounding	Black lives matter
7		#BringBackOurGirls	# + Bring + Back + Our + Girl + s	Compunding	Bring back our girls
8	Cultural heritage	#WhatBlackPantherMeansToMe	# + What + Black + Panther + Mean + s + To + Me	Compounding	What Black Panther means to me
9	Politics	#MakeAmericaGreatAgain	# + Make + America + great + again	Compounding	Make America great again
10		#askobama	# + ask + Obama	Compounding	Ask Obama
11	Natural Disaster	#eqnz	# + e + q + n + z	Acronym	Earthquake in New Zealand
12		#SanDiegoFire.	# + San + Diego + Fire	Compounding	San Diego fire

In the next section, the author explains the lexemic analysis in Table 2 in terms of their morphological realisations.

4. Results

There are three spheres of this section, following after RQ1, RQ2, and RQ3 of the introductory section. These are: (i) the kinds of word-formation processes, (ii) grammatical ranking system, and (iii) recurrent morphological-cum-lexemic density, functional in the analysed hashtags.

4.1. Kinds of word-formation processes

RQ1 focuses on identifying the kind of word-formation processes employed to promote the analysed hashtags in this study. As shown earlier, Figure 2 elucidates a system of word-formation processes in a variegated form. Nonetheless, this study publicises that only few of these processes are observable in the analysed hashtags. These are: acronym, blending, and compounding. For instance, *#LRNY* with *# + L + R + N + Y* and *#eqnz* with

 # + q + n + z exhibit acronym formation, as *#McDStories* with *Mc + D + Stori + es* projects a blending formation. There are also compounding process formations in the description such as *#GetBumpedUp* with *# + Get + Bump + ed, #OccupyWallStreet* with *# + Occupy + Wall + Street, #BlackLivesMatter* with *# + Black + Live + s + Matter, and #AskObama* with *# = Ask + Obama* morphological realisations. One could acknowledge that the formation exercises further express interro-declarations (e.g., *#WhatPantherMeansToMe*), verbo-nominal constructs (e.g., *#AskObama*), and nominalized contents of compounding patterns (e.g., *#SanDiegoFire*).

4.2. Grammatical ranking system

RQ2 demonstrates the manner at which the hashtag initiators construct unified grammatical ranking systems to persuade the target audience. The English grammatical ranking system could be top-bottom or bottom-up visualisation. Following Ravelli (2000) and Thompson (2014), the grammatical ranks are: *clause – group – word – morpheme,* as being top-bottom; whereas *morpheme – word – group – clause* are certified as being bottom-up. However, the analysis validates nominal group (NG), imperative, interro-declarative, and declarative as the grammatical ranking system operational in the hashtag examination. Some illustrations, as italicised, are in Table 3.

Table 3. Hashtags' grammatical ranking system

Grammatical Structure	Hashtag Cluster	Morphological Analysis	Morphological Description	Basic Lexemes
Nominal Group	#eqnz	# + e + q + n + z	Acronym	*Earthquake in New Zealand*
	#SanDiegoFire.	# + San + Diego + Fire	Compounding	*San Diego fire*
Imperative	#HandsUpDontShoot	# + Hand + s + up + Do + nt + Shoot	Compounding	*Hands up do not shoot*
	#BringBackOurGirls	# + Bring + Back + Our + Girl + s	Compunding	*Bring back our girls*
	#MakeAmericaGreatAgain	# + Make + America + great + again	Compounding	*Make America great again*
	#GetBumpedUp	# + Get + Bump + ed + Up	Compounding	*Get bumped up.*
	#OccupyWallStreet	# + Occupy + Wall + Street	Compunding	*Occupy Wall Street*
Intero-declarative	#WhatBlackPantherMeansToMe	# + What + Black + Panther + Mean + s + To + Me	Compounding	*What Black Panther means to me*
Declarative	#BlackLivesMatter	# + Black + Live + s + Matter	Compounding	*Black lives matter*

4.3. Recurrent morphological-cum-lexemic density

RQ3 shows the recurrent morphological-cum-lexemic density of the campaigned hashtags of this study. Figure 3 is a representation of the morphological column of the hashtag descriptions in Table 2, as shown earlier.

Morphological Description	Recurrence
Acronym	2
Blending	1
Compounding	9

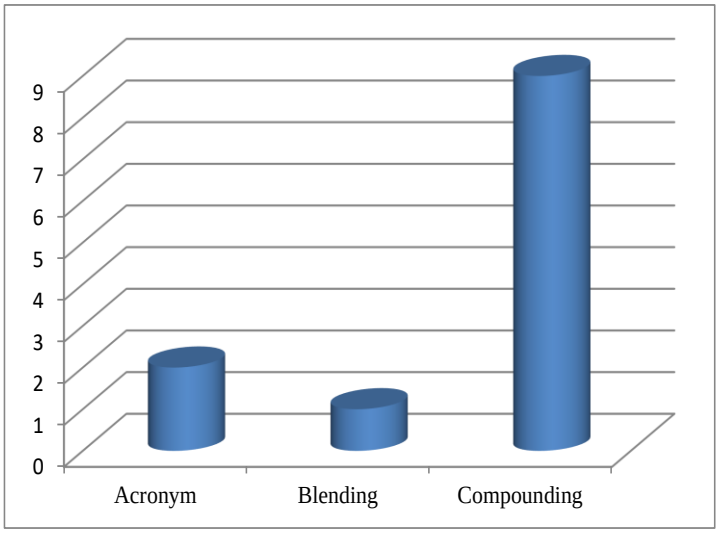

Figure 3. Functional morphological density of the hashtags

The graph in Figure 3 demonstrates acronym, blending, and compounding as the functional word-formation processes in the hashtags. Accordingly, the compounding structure is present nine times, as the highest lexemic density of the entire processes. Acronym and blending are less in function with the records of two (acronym) and one (blending) respectively. Remarkably, this frequency acknowledges compounding as being the user friendly in the hashtag propagations.

5. Hashtags and meaning potentials

This discussion section considers the meaning potentials of the analysed hashtags in terms of business, discrimination and crime, cultural heritage, and politics domains, as represented in Table 2.

The hashtag is an impressively-stunning construct that focuses, most times, on a social change. Then, one could remark that the element of the hashtag operates within the purview of historical accounts, in terms of place, people, and purpose. Such a motivation influences the author to explicate hashtags with historical reports to indicate the events that kindle a particular hashtag and the involved followership. As this study concentrates on the formation processes of the hashtag, the morphemic devices, operational as the social drivers, become imperative in offering some explanations to the entirety of the hashtag. Besides the historical and morphemic affairs, one observes that each hashtag is not in isolation of meaning potential.

Thus, the analysis reveals the semantic implication of a hashtag, as the composition functions to attract people's attentions to the socio-cultural and socio-political causes that stimulate the communicative fabrication. Following Table 2, above, the operational sequences of the considered hashtags are functional in political, medical, business, advertising, discrimination, crime, and social injustice domains (Leech & Short, 2007; Dalamu, 2021; Dalamu & Yang, 2022). Therefore, the analyst has organised the discussions in a similar layout. The language of the discussion might, most of the time, be in past tenses owing to the historical nature of the hashtag devices.

5.1 Business hashtags

The acronym, *#LRNY*, as marked by a hashtag, denotes *Land Rover New York.* It was a marketing strategy that the manufacturer of Land Rover® vehicles introduced in 2009. The hashtag, *#LRNY*, occupied a space in the Twitter and Instagram sites. The goal was to solicit followership that will assist the automobile company to promote the vehicles in New York, and perhaps, beyond the city's shores. This is because the use of social media in this regard has no limitations (van Dijck, 2013). As shown in Figure 4, the marketing template, as the Land Rover management has designed it, reads: *The luxury that's more than a luxury; Twitter; #LRNY; Join the conversation; Contribute: include #LRNY as part of such tweet; Follow: Visit: http://searchtwitter.com; Enter #LRNY.*

Figure 4. #LRNY template (Salazar, 2017)

As a joint social media promotion, Instagram alone recorded participants of about 427 with different posts and comments (Salazar, 2017). The advertising template deploys a pungent construct of luxury to characterise a Land Rover vehicle, as being more important than any property that an individual might have (Dyer, 2005). The publicist uses such an elevated background to invite people to join the *tête-à-tête*, employing the hashtag, *#LRNY*, as a campaign term for *Land Rover* cars. The channel also provides *http://searchtwitter.com* as a site for its collaborative propagation. Consequently, the Land Rover producer uses the hashtag, *#LRNY*, as a portrait that sensitises people to campaign the luxury of owing a Land Rover car. The hashtag strategy seems costless by smartly involving the general public to promote Land Rover car brands.

McDonald®, a global business institution, launched a hashtag, *#McDStories*, as a means of inspiring heart-warning activities of the company, most especially in the area of happy meals (Zappavigna, 2013). Within one hour that *#McDStories*, with a nominal formation of: *Mc + Donald + Stori + es,* was launched, in the Twitter Homepage, in January 2012, about 72, 788 responses were generated, recording 2% positive reactions. Unfortunately, the comments of the participants were unparalleled to the excitement mission of *McDonald.* This is because a reversal of the goal occurred with horrible comments that backlashed on Twitter.

The blending formation of *#McDStories* attracted another blending process of *#McDonalHorrorStories*. That became a change in the direction which *McDonald* desired. The creation of *#McDStories* back-fired, which fetched people of the globe an opportunity to tongue-lash *McDonald* through unpalatable stories, using unprintable labels (Potts, 2013). The participants, as consumers, began to spell some trashes on Twitter, compelling *McDonald* to confess about the negative comments received from the customers in the form of heart attacked jokes and negative-cum-weed stories. The most disheartening sphere of the comments focuses on food poisoning from the stores and people experiences in respect to poor customer services.

There are no doubts that the fabrication of *#McDStories* was a global disgrace, as the participants hijacked the goal of the institution to express bad experiences. Two things are obvious in the propagation of *#McDStories*. First, the hashtag provided an opportunity for people to tell the truth about their feelings regarding the *McDonald's* business. The merit is that the way that customers perceived *McDonald Stores* is unequal with the *McDonald* management perception about the firm. This revelation calls for a review of the institution's operational styles. Second, social media institutions appear to have no control (Meikle, 2016). The platforms, Twitter, Instagram, Facebook, and YouTube, offer anyone an opportunity (a licence) to express his/her opinion freely without a check. Then, social media do not only give everyone a voice, the communication channels serve users a cautionary measure that everyone is watching (or policing) everyone within a particular capacity. Perhaps, social media could, in no time, cleanse our society of impunities.

#GetBumpedUp is a *UBA*® portfolio, constructed to promote the *UBA Bumper Account. #GetBumpedUp* is an iconic hashtag that the bank employs as a promotional entity in Facebook, Instagram, and Twitter to sensitise customers to patronise the newly created account. In February 20, 2020, the launching of the hashtag, *#GetBumpedUp,* informed readers of a promotion with cash rewards. This time a customer (new or old) needs only to have a savings worth of ₦5,000 or ₦10,000 in his/her account in order to be qualified, not only for the promotion, but to win great prizes. The strategy is to encourage savings and at the same time its sustenance.

That is the reason for attaching a condition of leaving either ₦5,000 or ₦10,000 in the *UBA Bumper Account* for at least three months. The *#GetBumpedUp* has *#UBAMoneyMoves, #UBASavingsAccount, #UBATargetAccount, #UBA,* and *#AfricasGlobalBank* playing supportive roles to the *Bumper Account*. As **919*20#* is a code that serves as the channel of its accessibility and qualification, the monthly and quarterly draws distribute rewards/prizes of ₦100,000 for 100 winners, awards sum of ₦2,000,000 for savings, ₦1,200,000 rent for one year, and a shopping allowance of ₦500,000. Whether the stipulated amounts are right or wrong, the tagged prizes are fabulous indeed.

Drawing on the imperative clause, *Get Bumped Up*, deconstructed as one lexeme hashtag, the central idea in the constituents is the morpheme *Bump*. *#*, *-ed*, and *up* are deviants that enhance *Bump* (Cook, 2001). The lexical morpheme, *Bump*, points to a jolting collision that blows a consumer up as a protuberance of sound from one mere surface to a higher one. There is no doubt that the firm contextualises *Bump* as a connotative device that refers to a financial blessing. That means the account of every participant will swell beyond, perhaps, of a particular measure. Because the hashtag is promotional, one could attest that the very term, *Bump*, is a choice word in the right direction. *#GetBumpedUp* has the capacity to pull and attract the crowd to the *UBA* promotional insight.

5.2 Discrimination and crime hashtags

From a structural perspective, *#OccupyWallStreet* appears similar to *#GetBumpedUp*. The two hashtags are imperative clauses commanding participants and readers to act in a particular direction. Nonetheless, the former is a protest in America, the latter is a "promo" in Nigeria of different magnitude of activities. Kalle Lasn initiated Occupy Wall Street (OWS) in 2nd February 2011, which was greatly supported by other interested alliances, including a Canadian anti-consumerist publication. The registration of OWS occurred in 9th June with a website labelled as *www.occupywallstreet.org*. As demonstrated in Figure 5, the mode of a young lady dancer placed on top of the renowned Wall Street iconic bull represents the constructed logo of the *Occupy Wall Street* movement. The Facebook page, along with the hashtag, *#OccupyWallStreet* probably emanated around 19th September 2011 after the protest had begun earnestly on 17th September 2011 (Schram, 2015).

Figure 5. #OccupyWallStreet template
(Source: https://en.wikipedia.org/wiki/Occupy_Wall_Street)

The domains of the protests were Zuccotti Park, Bowling Green Park (where the image of the charging Bull is), and Manhattan Plaza. The protesters' complaints range from

economic inequality and negative influences on government operations to political corruption and uneven distribution of the national wealth (Guo & Saxton, 2014). The angry protesters propagated these issues under a slogan, *We are the 99%*. The slogan is a metaphorical statement pinpointing that only 1% of Americans are wealthy, leaving 99% at the mercy of financial robbery, corruption, pain, and sufferings.

Perhaps the endorsement received from the general assembly provoked the protesters to apply severe measures such as demonstrations, picketing, civil disobedience, internal activism, and disturbance of economic activities to subjugate the *Wall Street* (Burns, 2017). Over 700 protesters; 2,000 protesters and 8,000 protesters in various places fell victim of the police in New York. Brooklyn also witnessed the arrest of about 768 on the 1st of October, 2011. In spite of the peaceful conduct of the protests, government intervened to arrest, for instance, over 700 protesters. The 2,000 protesters on the police headquarters (2nd October, 2011), the 15,000 solidarity protesters of Manhattan (5th October, 2011), the over 6,000 marchers passing through Times Square Recruitment Centre (15th October, 2011), and 90,000 protesters on Wall Street (1st May, 2012) stimulated some achievements (CBS News, 2011).

Such achievements are: the initiation of public hearing at the assembly, enactment of 99% Declaration, Coalition of over 70 workers' groups, and augmentation of Fast-Food Workers' Strike (Bray, 2013). There was a transformation of *#OccupyWallStreet* to *#OccupyMovement.* Such a change informed a demand for $15 minimum wage. It is worth stressing that *#OccupyWallStreet* was propagated from social media to the entire media of the electronic to print. *#OccupyWallStreet* compelled the government to build People's Library of which over 5,500 reading materials as of November, 2011 were gathered. The library also influenced sister libraries in Europe and other Americas. The result of *#OccupyWallStreet* also provoked the establishment of the print such as *The Occupy Wall Street Journal, Tidal: Occupy Theory, Occupy Strategy; The Occupy Gazette,* and *The Occuprint* (Gautney, 2017).

The clause, *Occupy Wall Street,* has the process, *Occupy,* as the salient point that motivates the participants into the melting point, *Wall Street.* Following the terminology, *Occupy,* one might perceive a verbal manifestation where individuals are manipulated to fill a particular space. *Occupy,* as deployed in this hashtag, appears as a military term, enthralling listeners to take a possession of certain territory in order to have a full control (Feenberg, 1991). Thus, *#OccupyWallStreet* is a marker that requested interested participants to take control of *Wall Street* to subdue the zone, making the ground ineffective. That refers that the protesters are co-habiting *Wall Street* with the stakeholders, transacting their normal and lawful businesses.

The shooting of Michael Brown in Ferguson (who robbed a convenience store), Missouri, US, on the 9th August, 2014, leading to his death, propelled the hashtag of *#HandsUpDontShoot.* One could consider the atrocious killing as being inhumane because the offence committed as acclaimed by the police, being a physical charge at an officer, did not worth the splitting of Brown's cold blood. Other accounts (Woody & Geary, 2014) reported that at the instruction of the police officer, Brown raised his two hands up as to demonstrate a sign of surrendering, yet, the officer shot to murder the individual cold-blooded. Thus, the hashtag, *#HandsUpDontShoot,* derived its name from the gestural position of

Brown at the point of his killing. *#HandsUpDontShoot* connotes a symbolic attitude of the protesters, submitting to the police to avoid being mistakenly murdered through the barrel of guns (Walters, 2016). That is, the protesters' voices overwhelmed that atmosphere with a common submission to the police in order to avoid unusual brutal attacks.

The linguistic construction of *#HandsUpDontShoot* appears to have originated from two clauses. The first is *Hands Up.* The second is *Do not shoot. Hands Up,* on the one hand, is disjunctive. In other words, *Hands up* is a splintered constituent from a complete statement of *[Raise your] hands Up.* The punctuation becomes imperative for a reason of aptness, augmenting memorability (Dalamu, 2018c). Moreover, the phrase, *Hands Up,* contains three specific morphemic illustrations. These are *Hand + s + Up*. *Hands* is lexically inflectional, whereas *Up* is a grammatical item within the confine of the free morpheme. On the other hand, *Don't Shoot* is an imperative construct, commanding the police officer to cease from shooting not to kill innocent citizens protesting to fight for their constitutionally approved legitimate right.

Besides the clipping of *Do not* to *Don't* (Yule, 2020; Dalamu & Fatuase, 2021), the communicative devices of *Don't Shoot* operate under the label of free morpheme within the crux profiling of lexical items. Considering the complex clause as it is, the researcher could deduce that *#HandsUpDontShoot* focuses attention on two sets of individuals. *Hands Up* instructs the protesters to raise their hands to the air, signifying a total submission to the police authorities. *Don't shoot* communicates to compel the police officers to stop inhumane killing. *#HandsUpDontShoot* represents the two sides of a coin, one for the protesting individuals, the other for the killer-police.

The first part of the hashtag *#HandsUpDontShoot* seems an adoption from the student protest in London around 2009 at the Westminster Bridge against the police nefarious behaviours. The *#HandsUpDontShoot* protest attracted some slogans in the community as Brown's stepfather cried out that the police murdered his unarmed son with firearm. The slogans ranged from *No justice!, No peace!, I can't breathe, Don't shoot me, Don't shoot us* to *We are Michael Brown,* marked by pyromania arson, and incineration attacks, and looting of local businesses items, as the protesters keep vigil in the community and elsewhere across US.

Significantly, some players entered the NFL game field making gestural sign of *#HandsUpDontShoot*, depicting a way out of bounds, exercising their right as citizens to the freedom of speech on the 30th of November, 2014. *#HandsUpDontShoot* became a rallying point denoting the cry of Americans against the police violence when the US House of Representatives member demonstrated the *Hands Up* gesture at the floor of the house, appreciating the football players for promoting the gesture.

A further endorsement of *#HandsUpDontShoot* emanated as over 150 Black Congress staff silently walked out of the floor in verity, considering their act as representing a voice for the voiceless. Perhaps, that motivated some CNN Newsroom panelists to use the gesture of *Hands Up* to indicate a heartily support for all protesters across the US, and some musicians such as Kanye West, Macklemore and Ryan Lewis, and Kimya Dawson to release some songs to honour *#HandsUpDontShoot*. On top of these, Pharrell Williams, in the 57th Annual Grammy Awards, performed on the stage and making the *Hands Up* gesture as a sign to support the protesters of *#HandsUpDontShoot.*

The linguistic structure of *#BlackLivesMatter* could reveal that the hashtag is a declarative sentence of *Black* + *Live* + *s* + *Matter* conjoined as a single operational phenomenon. Among the lexemes, only *Lives* displays two morphemes of *Live* (Life) + s. *Black* is a qualifier (as being a noun or an adjective) to enhance *Lives* in which *Matter* describes. The structural synopsis thus elucidates *Black* and *Matter* as free morphemes, where *Live* + *s* represents free and bound morphemes for a reason of their affixation (Dalamu & Alabi, 2021).

Going by a historical report, *#BlackLivesMatter* (BLM) was a connotative child of necessity in order to end a form of systematic racism of the white against black in America and to reduce oppression into a barest minimum. BLM was also a movement targeted at eradicating a growing police violence against humanity, especially the black colour, and to promote the right of black citizenship in America and the global world, as represented in Figure 6 (Tilly, 2017).

Figure 6. #BlackLivesMatter template
(Source: https://unsplash.com/photos/a-person-wearing-a-black-lives-matter-helmet-9Q2GX6LFa38)

The killing theatre of Trayvon Martins through the bullet of George Zimmerman gave rise to BLM, a socio-political movement that contentiously demanded justice against categorical and racial inequalities. Trayvon, a 17-year-old boy, was a lover of sports, travelling, and solving mathematical problems. The characteristics that influenced his desire to be a pilot before such a hope was crushed at a gun point (Biography, 2016). On the 26th, of February, 2012, Trayvon bought some items from a store, where Zimmerman's fallaciously misconceived of Trayvon as a thief and shot the young man in the chest after pursuing him for a while. On the 13th July, 2013, Zimmerman was discharged and acquainted after legal engagements (McCoy, 2014). People considered Zimmerman's freedom as an unbearable racial profiling and colour discrimination, giving birth to BLM through the Alicia Garza's comments of: *Black people, I love, I love us, Our Lives Matter,*

motivating the cyber-activism of *#BlackLivesMatter* (Banks, 2018; Clayton, 2018; Tillery, 2019; Rojas, 2020).

BLM is a metaphor to repel, discredit, and massacre the thought of white fellows, who feel that *Black Lives Do Not Matter* in American circumstances and contexts. This notion encourages #BLM to go virile renting and dominating websites and activists' networks. Freelon, Mcllwain, and Clark (2016) remark that BLM is the most active online phenomenon of our days, as it recorded some analyses of over 40million tweets, 40 interviews of BLM activists, and 100, 000 websites between 2014 and 2015. That was how BLM became a socio-political movement that condemns police coercion and demanded black's dignity and social justice. Tilly, Castañeda and Wood (2019) label BLM as a motto, symbol, and space for complaining about the state's attitude towards human beings in general.

This is because the movement has initiated a broad resonance against the municipal courts and dubious fines against African Americans. This position reveals the principles of BLM enthusiasts, Alicia Garza, Opal Tometts, and Patrisse Cullors, as to create dialogues between black people and other allies to inspire social justice against the exclusion and marginalisation of the black community in all ramifications. In all, Bonilla-Silva (2017), McLaughlin (2016), and BLM (2018) submit that BLM has become dominant over some other hashtags such as *#ICantBreath, #TakingaKernel, #HandsUpDontShoot,* and *#NoJusticeNoPeace*.

The structural elements of *#BringBackOurGirls* (BBOG) reside in an imperative clause that compels, in the form of demand, the Federal Government of Nigeria to act fast on the modus operandi of rescuing the kidnapped secondary school girls, as revealed in Figure 7. The morphological fundamentals of BBOG are: *Bring* + *Back* + *Our* + *Girl* + *s.* *-S* is a plural inflectional morpheme of *Girl,* where *Bring, Back,* and *Girl* are lexical morphemes, and *Our* is a free but functional morpheme (Dalamu & Ayoola, 2024). As this study has been revealing that earlier hashtags being emanated from one event or another so has the hashtag, BBOG, been a product of nauseating event in Nigeria.

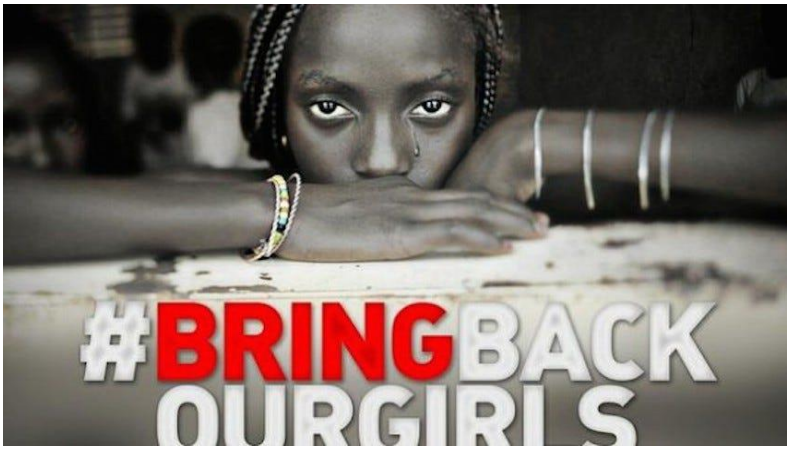

Figure 7. #BringBackOurGirlsTemplate
(Source: https://time.com/90693/bringbackourgirls-nigeria-boko-haram/)

On the 15th April, 2014, history has it that 200 girls of Government Girls Secondary School, Chibok, were adopted under the Jonathan administration in Borno State. The Boko Haram sect, whose Islamic ideology frowns at western education, took the school girls away from Borno, North East, Nigeria in order to demonstrate a kind of hatred for western education. Education is summarily life in its entirety, particularly for young people, (Berry & Stovall, 2013). The adoption of the pupils, of less than 20years, gave birth to the hashtag of *#BringBackOurGirls*.

Consequently, BBOG is an outcry launched to sensitise the Federal Government of Nigeria to action. And at the same time, the coinage is a solidarity movement for sympathy for the victims and their family members. The barbaric Boko Haram behaviour attracted the attention of the entire global community, leading to a form of social mobilisation. With that in mind, BBOG, devoid cleavages, has led to the sharing of a common ethical value of a right to a secure life, being the primary goal of any serious government – a nexus of Sustainable Development Goals (SDG) (Ostrom, 1990; Peñalba, 2019; Pulhin & Tapia, 2021). As spatial domains and locations could not serve as a hindrance to the collective armament of people to support the campaign, the slogan became a threat to the Nigerian nation.

As that was not enough, the uproar of agencies such as South African Association of Women Graduates (SAAWG), and Global Partnership for Education (GPE), EU, AU, and UN, dented the reputations of Nigeria as a people. As of the period of this research, most of the Chibok girls are still in the custody of Boko Haram, which informs a consistent campaign of the hashtag, *#BringBackOurGirls*. *Our*, the functional free morpheme, plays the role of: a global association with the Chibok girls, and a partnership with the Federal Government of Nigeria to rescue the remaining school girls alive.

5.3 Cultural heritage hashtag

Black Panther is a seeming derivation of Panther. Following historical accounts, Panther is a sole label that accommodates a group of animals in the class of leopard, lion, cougar and prima. Out of these animals, explorers have singled out a melanistic leopard, living in dense and moist, thick forest as being Black Panther. The Greek view portrays the panther as being the beast in the bush which is further represented as Dionysos (Clifford, 2021). This is because the panther is a beautiful glowing black skin mammal without any blemish. That influences the Greek priest of that orientation to wear Panther skins momentarily. The panther is not only mild, this kind of panther being also exceedingly mild. These characteristics probably attract the love of other animals, except the dragon that the roaring of the panther terrifies. At this juncture, one could also consider the panther as a natural possessor of some leadership qualities, appearing as a guiding angel.

The hashtag, *#WhatBlackPantherMeansToMe,* is a clause with diverse semantic implications. The structure is a representation of *wh*-statement, marked with *What*. A grammatical system that the analyst could consider as being *interro-declarative.* The personalisation of the hashtag informs the audience of the variegated meanings to many people. The formation is in this form: *What + Black + Panther + Mean + s + To + Me.*

All the units would have functioned as free morphemes, except for the word, *Means*, which is a bound morpheme, exhibiting *Mean* + *s* to show *Mean* as the stem and *-s* as the suffix in the clitic part (Dalamu, 2019b).

The compounding item, *#WhatBlackPantherMeansToMe*, as stated earlier, has diverse applications. The general view points to all-round protection. That is the motive for Christians to consider the Black Panther as being the Saviour, Jesus Christ (Lipp, 2018; Jones, 2023). Black Americans base the idea of the black colour, as the colour inspiration, entwined with superiority and leadership. Panther is an underdog, comparable to a lion or tiger. To the Native Americans, the Panther came to conquer an underwater beast that got married to an innocent woman. The conquest of the strange beast brought about (evolved) a remarkable change in society, entrenching consistent liberty (American Tarantula & Animals, 2024).

The Chinese insight of Panther exhibits a negative view of a cruel beast and a positive view of bravery, as an emblem of the Chinese military. The Egyptians consider the Panther as a goddess of revolution that destroys scorpions and snakes, signifying the evolutionary advancement of a new system that exterminates the ferocious old system. As the panther in Europe represents a combatant political figure, such a beast connotes a safe journey to the underworld with a power of royalty, exceeding brightness. The panther has eradicated hostility, anxiety and worry. That informs the yearly sacrifice of a leopard as to promote kingship power and strength in order to dominate obstacles (Clifford, 2021).

The propagation of the hashtag, *#WhatPantherMeansToMe*, is universal, sensitising the global audience to passionate, transformative, and resilient ideas that have the capacity to influence people's minds in a large scale. The quintessential hashtag is perhaps spiritually-sacred and physically-precious. This is owing to the fact that the Panther takes away a sensuous intensity from people in order to baptise people with the spirit of exceptional grace, stamina, and courage to accomplish some goals even in tribulations (Steele & Morris, 1966). The panther dignifies one's six senses to properly resonate in wisdom as to be intuitively sensitive to individual's true potential and connect positive values devoid un-surmounted hindrances.

5.4 Political hashtags

#MakeAmericaGreatAgain was historical as being attributed to Donald John Trump's social media slogan of his 2016 presidential campaign in America. The hashtag also became the slogan of the Republican Party during the electioneering campaign that propelled Trump to win the presidential election, giving him the number one's citizen's prestigious seal in the White House. The morphological realisation of *#MakeAmericaGreatAgain* rests on the morphemic elements of lexical items. These are: *Make* (Verb), *America* (Noun), *Great* (Adjective), *Again* (Adverb/Adjunct). The summation of *Make* + *America* + *Great* + *Again* has generated the social media radar of *#MakeAmericaGreatAgain*. Despite that there are no spaces among the lexical morphemes, the grammatical structure anchors on the imperative clause. This becomes fundamental as to command American citizens in Diaspora to decide to vote Trump as the next American President.

Another simple term associated with *#MakeAmericaGreatAgain* is *#MAGA*, functioning as the acronym to this outstanding hashtag. This social media movement also attracted a book, entitled *#MakeAmericaGreatAgain: Donald Trump and the Political Campaign* (Thompson, 2016). With much supporters and perhaps oppositions, owing to a myriad of interpretations, Republicans launched a hat to popularise *#MAGA* across the United States. Historical reports, including Engel (2017), manifest that *#MAGA* of Trump followed after the campaign thematic fabrication of Ronald Reagan in 1980 and Bill Clinton in 1992, as demonstrated in Figure 8, below.

As Bill Clinton deployed the *#MAGA* phrases in many of his speeches during campaigns, Ronald Reagan could be ascertained to originate the constructs with a slight difference, Reagan in 1980 said, *Let's make America great again*. This is a suggestive invitation (Dalamu, 2019e), eulogising Americans in a mild manner to accept the clarion call unlike Trump's *#MAGA* that forcefully persuaded Americans to vote him as their President. One could also say that Bill Clinton deployed the slogan during his wife's primary presidential campaign in 2008 of the Democratic Party (Keller & Schaninger, 2019).

Figure 8. #MakeAmericaGreatAgain template
(Source: https://www.shutterstock.com/search/make-america-great-again)

The focus of *#MAGA* was primarily the future of America. With a resonated voice, Trump and his associates promoted a concern for Americans (acclaimed-cum-supposedly retrogressing), through making the border stronger, leading to a safer American setting. In a political rhetorical style, Trump's flamboyant speeches also touched to promise: cutting of taxes, and creation of good jobs. The attack on illegal immigrants (aliens) and fierceness on centralised government known as globalisation were things that *#MAGA* frowned at. Particularly, the war against immigrants and mass media is believed to be some of the factors militating against America's growth, making the country to slide back.

The slogan earned Trump about 76% votes specifically from citizens without college degrees. A prominent partner of Trump was Roger Stone, an influential celebrity that coined *#MAGA* via Twitter in October, 2011. Other coinages in that regard were *#TrumpHuckabee12* and *#nomormons* (Gilbert, 2017). Trump's *#MAGA* sounded

capricious and controversial, yet, the hashtag won the presidency for Donald John Trump in a landslide.

The economic thematic hashtag of President Barack Obama is *#AskObama. #AskObama* portrays the simple morphological structures of *Ask* + *Obama*. These realisations are lexical devices of *Ask* (Verb) and *Obama* (Noun). A combination of the verbo-nominal construct demonstrates a grammatical structure of an indicative lexico-grammar of interrogation (Thompson, 2014). Thus, *#AskObama* is a clause that motivated people to query President Obama on the matter arising. The interrogative clause was a probable channel to directly-connect American individuals to Obama on the Twitter online platform. Americans in the Diaspora fielded questions on the issues of job and economy, and related socio-political issues for responses from President Obama instantaneously on the Presidential Twitter account.

#AskObama was extraordinary because Obama constructed the hashtag as a Twitter account to make history. According to Obama, "I am going to make history here as the first President to live tweet." Obama did not only pioneer the application of the social media in his 2008 American electioneering campaigns, this individual deployed the Twitter account of *#AskObama* to respond to boiling issues of America live with immediate actions. Upon that backdrop, one could mention that *#AskObama* was relevant in two domains: first to answer, some questions on the goings-on in America in terms of his presidency, and second, a means of promoting the co-founder of Twitter. That seemed the main reason for choosing Jack Dorsey to moderate the event on Wednesday, labelled as Twitter Town Hall. The meeting had an embroidered laptop with a presidential seal, placed to operate as the East Room of White House mansion. Participants sent messages/questions to @whitehouse account with responses with Obama's initials.

The economic team of White House streamed the event live with 140 guests in attendance. The guests include about 31 followers of @whitehouse Twitter account. Obama aides did summarise every response from Obama to about 140 characters, as aptness was vital for the entire audience. Only selected queries received replies because the Twitter accounts of @whitehouse and @townhall had about 2.2 million followers. Only few questions received answers out of about 40,000 questions on the *#AskObama* Twitter accounts. The first-ever one-hour live webcast through the micro-blogging website became significant as the traditional mainstream media was no longer sufficient to convey information to the people.

The micro-blogging platform served as a new opportunity to relate with the American people. Besides the Twitter accounts, President Obama also employed YouTube and Facebook networking giants to send messages to Americans, knowing well that people received different information (factual or falsehood) from different sources and in different ways. It is worth mentioning that the Obama Presidency used Twitter accounts such as @letsmove, @joiningforces, @pfeiffer44, @macon44, @petesouza, and @jesseclee44 to engage Americans regarding breaking news and economic updates.

5.5 Natural disaster hashtag

The promotional device *#eqzn*, represents an *Earthquake in New Zealand.* The *eq* letters connote *Earthquake,* as a compound word. One may say that a single *e* would have

been appropriate to represent *Earthquake* instead of *eq.* Nonetheless, it is remarkable that the propagators of the hashtags, perhaps, do not consider linguistic etiquette in the formation-cum-propagation of hashtag devices. That means there might not be a straight pattern of fabrications, *#eqnz* demonstrates a morphological structure of *Earth + quake + New + Zealand = Earthquake in New Zealand.* The prepositional item, *in,* is not a part of the acronym. That might occur because *in* is not a content item but grammatical. The *in,* as an intruder, contributes to the nominal framework, as a locative marker (Halliday & Matthiessen, 2014).

Observations show that *#eqzn* emanated as a consensus communication channel in New Zealand after the seemingly hashtag war among the emergency authorities. This author's comment reminds one of many hashtags such as *#nzquake, #chch, #christchurchquake,* and *#christchurch* that dominated the earthquake waves in New Zealand (Seitzinger, 2011). In no time, *#eqnz* functioned as the official communication phenomenon to drive the unified rescuing goals of all concerned authorities of the state. *#eqnz* ended the confusion of the numerous hashtags of communicating concerned global individuals. There were four major earthquakes in New Zealand around 2010 and 2011. These are dated as being 4th September, 2010, 22nd February, 2011, 13th June, 2011, and 23rd December, 2011. Nevertheless, *#eqnz* operated as the repertoire of communicating the natural disasters and crises to the audience. The hashtag provided important adequate information that sometimes-interrupted electronic media in New Zealand, Australia, and viably-renowned media across the world. The aim was to favour *#eqnz* by providing live coverage to the event, creating awareness regarding the goings-on.

More importantly, the 22nd September, 2011 was much more significant, as the crisis attracted about 20,000 *#eqnz* users on Twitter, which was comparable to 2,000 users of the 4th September, 2010 (Bruns & Burgess, 2012). This February tremor occurred at about 12:51 New Zealand time with a shallow depth of 5km. The disaster-event affected 200 fatalities in the entire Christchurch. As the *#eqnz* became a coordinating mechanism across the globe with about 7,500 tweets per hour, the presence of fundraising domains such as @NZLotteries, @Run4chch, @redandblackday, and @VMGiving, supported the social media, making a call for national and international donations. In all, the call generated part of the money of about NZ$15billions deployed to rebuild the Christchurch affected landscapes into their proper shapes (Rotherham, 2011). *#eqnz,* as the social media communication substance, acted to draw people's and organisation's attentions to the events in New Zealand. The hashtag, in Hughes and Palen's (2009), and Bruns and Burgess' (2011) arguments, did not only convey first-hand information to the entire world, *#eqnz* disseminated messages regarding official and non-official responses, global provisions of relief materials, and the reconstruction of the devastated areas.

From a basic morphological perspective, *#SanDiegoFire* is a compound word. This is owing to the following combination*: # + San + Diego + Fire.* It is remarkable to state that San Diego is a region of California, USA. The appearances of the content items, that is, *San Diego* (noun) and *Fire* (noun) project the formation process as being of free morphemes, entwined in lexical portfolios. To iterate, *San Diego Fire* is a nominalised content in a compounding pattern (Dalamu, 2019b). Above all, the hashtag frame deployed currently in the word, *#SanDiegoFire,* is greatly fundamental. Such significance stemmed

from the fact that *#SanDiegoFire* serves as the promotional foundation for the application of the hashtag in Twitter, Instagram, and other social media channels. Prior to October 2007, the use of hashtag was unknown. Thus, the *San Diego Fire* of 20th October, 2007 gave rise to propagate the hashtag as an impressive household word and code to propagate local and international events, bringing such events into the global limelight.

This researcher has pinpointed earlier that Chris Messina initiated the application of the hashtag to tangible communicative words and phrases in order to make much sense out of such lexemes in private and public one-to-one communication activities. In that sense, one could mention that Nate Ritter, Messina's friend, was the first to be pronounced a hashtag evangelist, who deployed *San Diego Fire* – the renowned hashtag – to intimate people about the fire cataclysm that stormed San Diego County of California. Ritter, a web developer, employed *#SanDiegoFire* to attract people to the citizen's evacuation and road closures that took place during the erupted fire storms on 23rd October, 2007 (Potts, 2013). As Nate Ritter (@nateritter) assisted society to gather news of the misfortune, Ritter received encouragement from Messina. That consistency inspired people to join in the use of the hashtag, making the hashtag to gain a permanent momentum in the Internet and the social media settings.

Nowadays, the hashtag is an act of citizens' journalism of a great excitement. By implication, the hashtag, as Bigelow (2014) illuminates, is an irresistible dynamo that drives private and public thoughts into the popular and hidden parts of the world. This channel permits users to express their thoughts willingly without any interruptions. The hashtag appears to create fame among *twitterati* (twitter enthusiasts). This is because the hashtag is a topical communication marker that spreads the news, as unquenchable wildfire (Potts & Jones, 2011). The hashtag enables people to get together and organise one another with a united conquering voice in order to achieve a task. In addition, hashtags collate discussions of a group of people, regarding social events, telescoping the events into a discursive mainstream in a variegated form. Such functions herald the hashtag as a vanguard of both grassroots and urban movements that sensitise readers, without face-to-face physical contacts, into necessary actions.

6. Conclusion

As articulated above, this study has explained the kind of word formation processes in some hashtag communication connections, deployed to facilitate the citizens into necessary actions, regarding various events. The morphological processes cover the areas of business, discrimination and crime, culture, politics and natural disaster, among other hashtag frameworks and functional utilities. The business domain demonstrates *#LRNY* as an acronym of *Land Rover New York* (*# + L + R + N + Y*), which is a representation of nominal group. It is in a similar vein that *#McDstories* is blended to produce a nominal group entity as in (*Mc + D + stori + es). #GetBumpedUp* appears as an imperative that commands the target audience into a patronisation action with the formation elements of *# + Get + Bump + ed + Up.*

The sphere of discrimination and crime exemplifies *#OccupyWallStreet, #HandsUpDontShoot* and *#BringBackOurGirls* as imperative systemic content with the following structural formations. These are: *# + Occupy + Wall + Street; # + Hand + s + Up + Do + nt + Shoot;* and *# + Bring + Back + Our + Girl + s.* Whereas, *#BlackLivesMatter* illustrates a declarative system of *# + Black + Live + s + Matter* word formation constructs. The hashtag province of discrimination and crime operates as simple clauses application messages. The cultural realm reveals a declarative entity of morphological formations although the marker facility commences with a *wh*-question, *What,* a replica of an interro-declarative gratification. The inclination of the formation product goes thus, *# + What + Black + Panther + Mean + s + To + Me.*

The political promotions of *#MakeAmericaGreatAgain* and *#AskObama* are clausal commands of the following word formation systems: *# + Make + America + Great + Again* and *# + Ask + Obama.* The two hashtag messages are structural compounding lexemes organised as persuasive devices. *#eqnz* and *#SanDiegoFire* connote a communication of natural disasters which sensitizes the entire world to a means of rescuing the concerned regions. *#eqnz* (with *# + e + q + n + z*) is an acronym of *Earthquake in New Zealand,* while *#SanDiegoFire* (*with # + San + Diego + Fire*) represents a compounding term of a morphological process. As the manifestations of the lexemic formation of the hashtags are in multifaceted forms, this researcher could suggest that this construction behaviour could be allowed to thrive without any interventions. The formation liberty could encourage people to express one another at will. Apart from creating a support to fulfil the golden rule of freedom of expression, social media users will have the confidence to communicate one thing or another in the global space as relevant to the development of society.

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Satellite television technology in Socialist Republic of Romania: Between grassroots and grass routes approaches

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Abstract: This research analyses the role of the state sponsored publication *Tehnium* in connection to the grassroots movement of accessing western satellite television, during the communist regime in Romania. The article starts from the broader perspective of viewing the magazine as an intermediary between the capabilities of the socialist state and the popular aspirations for accessing Direct Broadcast Satellite television transmission technology in the 1980s decade. It will then delve into the grassroots level of examining specific strategies for receiving satellite broadcasts, as they surface in *Tehnium.* The article provides a qualitative content analysis of the magazine dealing with grassroots approaches to satellite television during socialism, which are grouped in thematic categories, established by the use of inductive category formation. The article proposes a reading of the magazine as a defining platform for the movement and provides important tools for tracing its history, material constitutive parts and main actors. *Tehnium*'s role is positioned as intermediary between the state and grassroots approach to technology, analyzed through the lens of technostruggles.

Keywords: DIY, radio amateurs, space age, technostruggles.

1. Introduction

Satellite transmissions of television signal were developed during the Space Race period of the Space Age. Artificial satellites made global television possible (Schwoch, 2009), but the capabilities of developing a satellite infrastructure were not equally distributed (Parks, 2005). Besides the two main protagonists of the cold war, few western European countries[2] together with Canada, Japan and Australia, had the means to engage in this endeavour. Some nations could afford the high cost of implementing satellite systems using infrastructures offered by post industrialized economies (Barker, 2005), while others were excluded from the "promise of the satellite" (Sei, 2022).

Different inclusion mechanisms applied for the viewers, since accessing satellite television could be shortcut by DIY ways. When Western European countries expanded satellite television networks in the 1980s, communist regimes in Eastern Europe faced the insurmountable task of dealing with Western signals penetrating their borders without

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restrictions. This blurred the "territorial divisions of the cold war" (Bönker et al., 2016, p. 6) and supplemented the prevalence of cross-border terrestrial television signals. Citizens throughout the Eastern Block accessed the new television differently. Hungarian People's Republic strictly forbid direct satellite television reception until 1985, then legalized it in 1987, but gaining access involved a major financial investment, resulting in it being more feasible for parts of the urban middle classes (Szekfü, 1989). Similarly, Polish People's Republic allowed the import of satellite equipment from the mid-1980s, but its prohibitive cost and necessary bureaucracy kept the numbers restrained. In comparison, both oral and archival sources (Gross, 1998; Bardan 2021; Péter, 2018) reveal that citizens of socialist Romania had to roll over their sleeves and build such devices themselves. *Tehnium*, a state sponsored publication, offered solutions in this regard by printing the know-how. Launched in 1970 by the Union of Communist Youth, the monthly magazine saw its first issue in December 1970 and ceased its publication in December 2006, summing up 37 years of existence, 20 of which during the communist regime. The publication catered to amateur constructors, with the objective to attract youngsters to the domains of applied science and technology and perfect the abilities of those already professionally engaged in these fields, regardless of gender. However, its patriarchal understanding and separation, was reproduced in the magazine. Its agenda was intertwined with the industrialization processes of the 1970s, functioning as a galvanizing platform to stimulate the needed workforce (Mărculescu, 1999, p. 7; Albescu, 1980b, p. 2). A documentation on the profile of readers, published by Mahler (1988) in September 1988, reveals that the majoritarian age did belong to youth: 80% of *Tehnium* readers were up to 30 years old). Out of them, 30% were pupils, and 37.3% were young workers with secondary education, making them the main audience. Additionally, 98.5% were male, and 80% were from urban environments. This demographic profile, referred to as *technophiles* (Mahler, 1998), confirms that the target audience, at least in regards to the age gap, less in regard of gender, was reached. *Tehnium* was a huge success. First issues were sold out and the number of copies was increased from 40 000 to 150 000 by 1973 (Mihăescu, 2013, p. 35). The feedback of the readers shaped the design of the magazine (Dorian, 1970), and a horizontal relationship was built up from the start (Dorian, 1971a). As such, subject matters provided by readers determined more than half the contents (Dorian, 1971b). The juxtaposition of a technology promising global connectivity, in what was coined as the global village (McLuhan, 1964), against the backdrop of stringent border controls and censorship, raises questions about the socialist state's stance on the proliferation of satellite broadcasts. This requires an exploration of how the socialist regime navigated the tension between embracing technological progress and maintaining control over information flow. The article will start from the broader perspective of viewing the magazine as an intermediary between the capabilities of the socialist state and the popular aspirations for accessing cutting-edge television transmission technology. It will then delve into the grassroots level of examining specific strategies for receiving satellite broadcasts, scrutinizing in depth the intricate connections between these tactics and *Tehnium*.

2. Literature review

Studies of cross-border television dissemination, including satellite, during the Cold War, are relatively new (Badenoch et al., 2013; Bönker et al., 2016). In spite of enabling new connections, the development of satellite television has retained Eastern Europe geopolitically separate, and instead brought America and Western Europe closer together (Badenoch et al, 2013, p. 366). While Badenoch et al. (2013, p. 19) provide significant insights into social formations that consolidated through the utilization of particular broadcasting technologies, their analysis is centred on radio and sound and overlooks those centred around viewing transitional satellite broadcasts. Schwoch (2016, p. 272) mentions that the viewers from Eastern Europe needed to train and practice their technological skills, in order to enhance the reception of distant television signals, as well as adapt their television sets for different technical standards. However, he does not delve further into how these disseminations of the media apparatus looked in practice.

Jajko et al. (2021) contributed significantly to the understanding of grassroots initiatives in accessing Western satellite television in Cold War in Eastern Europe. Throughout the volume, the DIY approach points out to several domains, from satellite (Jajko, 2021), to computers (Grada, 2021). Jajko (2021) details on a grassroots endeavour to create a localized adaptation of a cable television system, pointing out to specific groups of "satellite TV enthusiasts" (Jajko, 2021, p. 205), working together with the community of an estate to install a single satellite dish and reception system, accessible to all apartments, labelled "cable televisions for the poor" (Jajko, 2021, p. 228). A similar way of accessing satellite television was described by Szekfü (1989) for the Hungarian context.

While satellite television was expanding in Western Europe during the 1980s, for socialist Romania the decade marked the decline of national television, with transmission hours reduced, poor programming and problems with the availability of its signal. This accentuated alternative TV consumption practices (Bardan, 2021; Dwayer & Uricariu, 2015; Mustata, 2011; Péter, 2018), including "para-television" (Bardan, 2021; Matei, 2013). Satellite television is rarely discussed in such studies, and even less present are the reception strategies at grassroots level, including their material base. Research on satellite-TV reception during the Cold War in Romania is also mentioned in the history of television (Gross, 1999). Studies concerning the media equipment for accessing foreign terrestrial television highlight grassroots efforts. Mustata (2011, p. 41) reveals that enthusiastic civilians were marketing handmade amplifiers. In her analytical framework of paratelevision, which encompasses a collection of alternative media consumption practices, including satellite television, Bardan (2021) mentions the material base of such practices, but does not develop them further. Referring to the grassroot level of manufacturing equipment for cross-border terrestrial television, Bardan emphasizes the role of *Tehnium* in what she describes as "informal networks and apartment industries" (Bardan, 2021, p. 36).

Péter (2018) mentions the community-oriented, nonprofit manufacturing of antennas for the collective reception of foreign broadcasts of football matches. Examining the networks of individuals around the equipment, he separates the radio amateurs and engineers who own "technical knowledge" (Péter, 2018, p. 119), claiming they were

exempt from the manufacturing labour. Instead, he asserts the task was delegated to "technicians" and "skilled labourers" (Péter, 2018, p. 119). He connects the phenomenon he names forbidden football to *Tehnium*, revealing that the grassroots initiative was aided by published blueprints of antennas (Péter, 2018, p. 53).

Various studies on bottom-up approaches to new media, during the Cold War, have used the concept of grassroots as a frame of analysis. Some authors avoided the term (Badenoch et al, 2013; Mustata, 2011; Péter, 2018), while others clearly specified it (Bardan, 2021; Jajko, 2021; Grada, 2021).

The review exposed above acknowledges a grassroots movement for the reception of satellite television took place in Romania during socialism, however focusing less on people's practices in this regard. Points were made that *Tehnium* magazine was used as a tool in other connected grassroots struggles, but an in-depth analysis of the connection between the two is lacking.

3. Problem statement

The present article proposes to bridge the gap highlighted above and emphasizes the need to explore the DIY methods employed at the grassroots level, by analyzing the role of *Tehnium* as a platform through which the grassroots movement for reception of satellite television in socialist Romania emerged and developed. The magazine offers important insights into the materialization of such practices, allowing to broaden the discussion on several issues, especially considering its connection to both to the state apparatus and to bluntly promoted bottom-up initiatives. The article aims to recuperate grassroots traces imprints in *Tehnium* by showing:

Q1: Who were the main actors actively involved in the emergence and development of grassroots practices in accessing satellite television?

Q2: What did the materialization of the grassroots practices promoted in *Tehnium* consist of?

4. Theoretical framework

In order to place the grassroots movement within the historical context of satellite television, I will outline its three phases briefly, which are important for the further analysis. Since this article primarily delves into the people's hands-on disseminations and use of a technology presumably out of their reach, it is essential to introduce the concept of "technostruggles", as coined by Parks (2012). This term enriches our comprehension of the grassroots movement and situates citizens' actions within a wider discourse about people's approach to technological infrastructures from a critical perspective.

4.1. The three phases of satellite television

Schwoch (2009) proposes three phases in tracing the development of satellite television, namely: experimental (1958-1962), commercial (1962–1980s) and Direct Broadcast Satellite (DBS) television systems (from 1980s onwards). The experimental phase is characterized by satellites in non-geosynchronous orbits, used for sporadic transmissions. Technology advanced during this phase, to the form of geosynchronous satellites. The commercial phase saw the formation of intergovernmental agencies, starting in 1962 in the US with COMSAT[3], having the role of promoting and helping to expand the industry. With the support of COMSAT, INTELSAT[4] was founded in 1964, offering international broadcast services to members and interested parties. INTELSAT owned the first system of geosynchronous satellites by which a constant world coverage was achieved. U.S.S.R. initiated its separate agency, INTERSPUTNIK. During the commercial phase, the biggest issue faced was that of the limited space in geostationary orbit. As a result, the International Telecommunication Union (ITU)[5] became a specialized UN regulating body, and was delegated with allocating new spectrum, frequencies and bandwidth. A pivotal moment occurred during the 1977 ITU World Administrative Radio Conference, where the 11.5-12.7 GHz Band was reserved for DBS transmissions, envisioned to take place in the future.

Bottom-up initiatives of capturing satellite signal were made at the transition moment between the commercial and the DBS phase. Private companies, encouraged by grassroots initiatives, entered the field and accelerated its development. Winston (1998, p. 300) states that in 1985 in the US, a million Americans invested up to $5000 for reception installations that caught signal destined for inter-network transfers and not private viewers. Winston (1998, p. 300) mentions that satellite dishes could easily be manufactured by the people. Fălie (1990) compared the US context to that of Europe, stating that there were no DBS satellites in Europe yet, but the allocated frequency bands were used by existing satellites, catering also in the professional ones.

Socialist Romania took part in the commercial development phase of satellite television by building the satellite ground station Cheia (Radiocom Societatea Națională de Radiocomunicații, n.d.) and in the DBS phase by manufacturing cheap satellite equipment for western states (Bardan, 2021). However, no access to the new Direct Broadcast Satellite television was envisioned for the citizens. Nonetheless, the advancements in DBS were cleverly mapped out in *Tehnium* and could be followed by the readership of amateur constructors. *Tehnium*'s content mirrors the progression through the three stages of satellite television, envisioned by Schwoch (2009): the experimental and commercial phases are surfacing in the special section dedicated to Space Age, that the magazine carried until mid-1970s, and the DBS phase is present in the rest of the articles discussed.

[3] Communications Satellite Corporation.
[4] International Telecommunications Satellite Organization.
[5] Backdated to the 1865 International Telegraph Union.

4.2. Technostruggles in accessing satellite television

Parks (2005) connects the commercial phase of satellite television to the expansion of global capitalism, in the aftermath of the decolonial movements, placing the instrumentalisation of satellite in the hands of the Western world. Parks (2012) examines the impact of satellite technology on the global transfers and disseminations of cultures, by taking into consideration the material aspects of the infrastructure, in an object-oriented approach. Her focus is on the satellite dish as a mediator between the high-end technology for orbiting satellites and the terrestrial users, during the DBS phase. She emphasizes a bottom-up approach when proposing to study satellite technology from the perspective of popular knowledge and technostruggles, terms she takes from Fiske (1996, p. 240, as cited in Parks 2012, p. 64). Parks explores the hands-on approach to technological infrastructures, which are demystified in the process, and understood in their material formation at the point of interaction with the users (Parks, 2012, p. 64). For Parks, a technostruggles approach enhances the understanding of infrastructures as a space that ought to be used by the people also as a terrain for struggle. Critically thinking of the term, it could be adapted even further, to address engaging with an infrastructure one is excluded from, as in the case of satellite television and the socialist state. In this way, I propose to use the term technostruggles to reveal the endeavours of the people towards inclusion as users in the realm of the satellite television.

While Parks associates technostruggles with the satellite dish, her approach of examining technology infrastructure from a bottom-up perspective proves valuable in understanding the relationships between people and the satellite, encapsulated in the constructions put forward by *Tehnium*. Parks (2012) does mention the manufacturing of the satellite dish, but does not recognize any difference between an artisanal dish or its industrial purchase and thus does not include DIY methods for accessing infrastructure, as part of her argument. It becomes necessary to expand the understanding of the term, to encompass people as makers (or replicators) of technology. Citizens who build the technological devices had to show consistent knowledge on electromagnetic waves, have a solid base in physics and mathematics, all on top of social skills necessary to avoid punitive measures for their activities from the state. In this way, technostruggles is tuned to address technology not from a user's point of view, but from a user- turned- manufacturers' one.

5. Methodology

The methodology is based on the Qualitative Content Analysis method proposed by Mayring (2014), of the information extracted from the text of the exhaustive collection of *Tehnium*. This is a mixed method approach to analyze text qualitatively by assigning categories and quantitatively by analyzing the density of these categories (Mayring, 2014, p.10). The collection was accessed digitally, as uploaded on Copcea's (2011) blog and supplemented by consulting it in the library. A set of codes was chosen to filter out the articles of the magazine, whose topic dealt with the dissemination of satellite television in the context of Socialist Romania. These codes consisted of the terms: satellite, receiver,

space, SHF, parabolic and cosmic, which were used as keywords to extract the articles from the magazine, which were noted down in an X-cell table. The content of each selected article was later assessed, leading to the structuring of the results in four thematical categories, by the use of inductive category formation method (Mayring, 2014, p. 104). Identifying the main actors for the grassroots movement, connected to *Tehnium*, was made possible by articles belonging to the categories (1) ham radio operators using satellite connections and (2) passionate DIY readers. The material practice of the grassroots was traced in the categories (3) popularization articles of satellite television, and (4) construction articles. A second coder was asked to check the coded elements, which were then re-assessed in an inter-coder discussion, leading to refinements in the coding scheme. Both coders agreed on the distribution of the categories, but the second coder saw minimal overlaps of articles belonging to ham radio operator's category to those of popularization articles of satellite television. Secondly, the second coder signalized the ruling out of articles with focus on the post 1989 period. The inter-coder agreement was reached after both points remarked by the second coder were addressed.

The initial phase of the analysis traces the key actors and detects a differentiation between the categories of ham radio operators using satellite connections, and the passionate readers interested in satellite. The intricate knowledge required to construct satellite television devices fell within the realm of radio amateurism, a subject extensively covered by *Tehnium.* Thus, the first category was entrusted with building equipment, which was presented in their dedicated section of the magazine, rendering them the *professionals*, while the second one, the regular passionate readers present in the magazine's forum and editorial notes, are revealed as *amateurs*. Regardless of this internal differentiation, *Tehnium* functioned as a training ground, where readers belonging to both categories grappled with increasingly complex devices. Regular readers were not merely passive consumers of the information and construction schemes published, they also anticipated these, making them active participants in the development of the grassroots movement. Their inquiries and requests reveal a complex picture, where the information channels available to the readers intersect with those of the magazine. The mapping of the spaces occupied in the pages of the magazine by the two main actors, discloses the landscape of technostruggles, in regards to satellite television technology in socialist Romania.

The second part of the analysis focuses on *Tehnium's* articles which lead from the introduction to satellite television technology, to making one's own hand-built equipment for accessing it. The subject matter of Direct Broadcast Satellite, as a latest technological development, was referenced in different ways, depending on the aim of articles where the topic surfaced. On one hand, articles focused the topic of television, referred to satellite TV as a future development, to which Romania will eventually take part, while on the other hand, articles discussing microwaves transmissions (the technology at the base of DBS), referred to satellite television as an actuality. The choice of components for the satellite installation which entered the repertoire of *Tehnium* at different points in time, showed that all necessary parts were proposed for construction, but only some proved suitable for artisanal approaches in the long run. The offset of construction plans, as well as their exit from *Tehnium,* pointed out that the grassroots continued in the immediate aftermath of the fall of the communist regime, as a consequence of inflation and poverty.

6. Analysis and results

6.1. Ham radio operators using satellite connections

From the start, *Tehnium* established a strong connection with the amateur radio community, carrying dedicated sections for constructions (Radioconstructor) and, since December 1973, for ham radio operators at large (CQ-YO). This connection was reinforced when *Sports and Technique* ceased publication the same month, leading *Tehnium* to adopt the topic into its focus (Vasilescu, 2009), even organizing national competitions for radio amateurs from the 1980s onwards (Mihăescu, 2013, p. 36). Even more, *Tehnium* sponsored activities of the Ham Radio Romanian Federation, including international competition participation by its members (Mihăescu, 2013, p.36). Engaging in amateur radio activity entailed becoming a member of both a national and an international network[6]. During socialism, each county had its own Amateur Radio Club (41 counties after the 1981 reform), with a number of workshops estimated at 1600 in 1984 (Mihăescu, 1984b, p. 3), that operated as part of educational institutions or working places. In 1977 there were approximately 6000 radio amateurs (Enciu, 1977), but by 1984, 20 000 practitioners were reported — this figure, however, doesn't represent registered ham operators with the Ministry, but rather individuals involved in technical-applicative workshops (Mihăescu, 1984b, p. 3).

Amateur radio operators were the first group encouraged to use communication technology offered by artificial satellites, as a distinct part of the sport activities[7]. A number of 10 articles, dedicated to this topic, were published between December 1977 and March 1990. All of them were printed in the 'CQ-YO' section, and most of them were featured on the cover, attesting to the appeal of the practice. The years 1984-1985 witnessed the most significant concentration of articles on the subject, summing up a number of six articles, authored by Virgil Ionescu, director of Cheia Satellite Communications Center. This occurred just before the focus shifted to articles on satellite television from 1986 onwards. The articles were organized in categories covering the principles of communication and devices construction schemes. As the satellites for ham radio were in non-geostationary orbit, one had to calculate exactly when and how long the

[6] In Socialist Romania, technical norms and authorizations for amateur radio operators were administered by the Ministry of Trasport and Telecommunications, while the sport competitions of the field were administered by the Romanian Federation of Radio Amateurism. The International Amateur Radio Union serves as a unifying body for national organizations, facilitating coordination among ham radio operators, which establish connections with one another on a global scale. These connections are structured through organized competitions and activities, tailored to specific interests within the sports.

[7] In the midst of the Cold War, the international radio amateur community successfully launched satellites into orbit dedicated exclusively to ham radio communication, known as OSCAR satellites (Orbiting Satellite Carrying Amateur Radio). The planning for building such satellites took into consideration the compatibility with the existing equipment of ham radio operators, and by this eased up their access to the new technology. (Ionescu V., 1984b, 8). Artificial satellites catering specifically to the global ham radio community allowed for connections as far as 18,000 km apart, which meant that one could connect to any point of the globe (Ionescu V., 1984a, 6).

satellite would be reachable, and how to trace it. The endeavours promoted through these articles can be viewed as a preparatory workshop for the upcoming domain of DIY satellite television devices. This approach can thus be correlated with how the first article describing the construction of a satellite receiver referred to the readership: radio amateurs (Fălie, 1989b, p. 13).

As the technology used enabled global connections, a strategy to deter its political misuse was to emphasize the moral virtues of radio amateurism as a sport, and how these are, in turn, reflected in the high moral-stands of its practitioners (Enciu, 1977, p. 6). However, this construct was also misused as a way to avoid censorship, since the articles dedicated to construction schemes for satellite television published during socialism were supposedly catering to radio amateurs' pure interest in sports (Fălie, 1989k, p. 14).

6.2. Passionate DIY readers

Tehnium featured a dedicated section for engaging with reader's questions, alternatively called 'Editorial Post Mail', 'Dialogue with the Readers' or 'Service'. This functioned as a forum where inquiries regarding satellite television, amongst other topics, were responded to. The criteria for topics discussed were determined by the potential of reader's questions to ignite collective debates around issues with development potential (Dorian, 1971a). Within this section, one can trace the gradual development of the hands-on activities, as well as the level of knowledge, in the field of satellite broadcasting, during the 1980s decade. I have identified three stages of development, with the first one between 1982 and 1984, during which satellite transmissions are known about, but the DIY approach is not yet possible. A second stage between 1984 and 1986, when the handmade possibility is framed as palpable for the future, stage which ends with the publication of the construction scheme for a satellite dish. Between 1987 and 1990, the third stage ensued, marked by *Tehnium's* publication of the majority of construction plans. During this period, the dialogue with readers centred primarily on the dissemination of their engagement with the schemes. All translations from Romanian language quoted below are mine.

The first mention of satellite television is made in June 1982, when *Tehnium* answers Radu from Bucharest that "the mode in which satellite transmissions are made does not allow the access of the greater public to it" Mihăescu (1982a, p. 24). Two months later, in August 1982, *Tehnium* answers Tompe Raul from Constanta that "Direct-to-home satellite TV programs are not received in our country for the simple reason that there are no such transmissions (even for the whole of Europe)" Mihăescu (1982b, p. 24). These two statements situate satellite television in Europe still in its second phase, with DBS yet to be implemented.

In November 1984, two answers published to citizens from Oradea, signal a change of the situation. Perecsenyi Zoltan is told that "communications via telecommunications satellites are at very high frequencies (10-12 GHz), so the equipment cannot yet be built by amateurs" (Mihăescu, 1984a, p. 24), and Baes Ciprian is answered that "at the moment we do not have a construction plan for a satellite dish" (Mihăescu, 1984a, p. 24). These statements point to the transition towards DBS, while the phrasing is

emphasizing a momentary situation, opening up the possibility for amateurs to build the equipment in the future.

Another change occurs two years later, in 1986, when questions on the transmissions of satellite television signal are answered in three distinct issues. The January issue answers Hondoca Dan from Iaşi that "television satellites transmit on frequencies in the 10-12 GHz range; the construction of converters by amateurs for reception of these satellites is particularly difficult" (Mihăescu, 1986a, p. 24). Although deemed demanding, the possibility of building devices by amateurs is hence confirmed. The next two issues dealt with the topic of frequency bands in which satellite transmissions were broadcasted. February issue answers Ionescu Adrian from Bucharest that "satellite TV transmissions to the general public are in the 10-12 GHz band. The TV information is then translated into one of the V-band channels using a converter" (Mihăescu, 1986b, p. 24). June issue answers Bota Daniel from Argeş County that "the broadcasting frequency of TV satellites is a few gigahertz or even more than 10GHz." (Mihăescu, 1986c, p. 24), both statements confirming that television channels were already broadcasted on the DBS reserved bands.

Although *Tehnium* publishes a construction scheme for a satellite dish in September 1986, no further construction articles relating to satellite television appear throughout 1987. This is particularly noteworthy as the year marked a significant moment for amateur builders in the region, with the publication of an article in the Hungarian magazine Rádiótechnika detailing the construction of a satellite receiver, resonating within the radio amateur community in socialist Romania. The answers published in 1987 that concern satellite receivers and converters could be corelated with this context of lack of material in *Tehnium*. January issue answers Onisii Antonio from Fălticeni and Iliuţă Dan from Galaţi that "the construction of an 11 GHz receiver assembly is still beyond the practical possibilities of an amateur builder" (Mihăescu, 1987a, p. 24). March issue answers Sava Vasile from Iaşi that "we do not have the construction data of an 11 GHz receiver" (Mihăescu, 1987b, p. 24). Mai issue answers Bogdan Miftel from Bucharest again that "building an 11 GHz converter is beyond the technical capabilities of an amateur builder" (Mihăescu, 1987c, p. 24), and August issue answers Claponea Octavian from Constanţa that the "reception of satellite programs requires the use of a very complex installation" (Mihăescu, 1987d, p. 24). Last two answers contain some confusing remarks. September issue answers Pavel Cristea from Bacău that the "TV receptions (by chance) come from the Netherlands and Sweden" (Mihăescu, 1987e, p. 24), probably referring to long distance UIF intermittent reception, dependent on reflections in the ionosphere. The answer to Rădulici Victor from Buzău, published in October issue, stating: "The satellite TV reception setup was a joke (especially for 1.04)" (Mihăescu, 1987f, p. 24), is even more riddling. The reader's forum from 1987 reads as revisionist of earlier statements regarding the possibility of DIY devices for satellite television.

Up until 1989, *Tehnium* features four more answers, most of them connected to the SHF receiver published in June 1988. May issue of 1988 answers Oprea Stelian with a simple reminder that the "satellite dish construction plan was published" (Mihăescu, 1988a, p. 24). August 1988 issue answers Drăgan Constantin from Craiova that "the SHF band refers to broadcasts in 11 GHz" (Mihăescu, 1988b, p. 24), followed by September

1989 issue, in which Burnar Ion from Bucharest gets informed that "there are no restrictions concerning the reception of the SHF band" (Mihăescu, 1989a, p. 24), which was an important information about the legality of reception. November 1989 issue answers Stanciu Dan from Deva that the magazine "will publish other receivers for SHF band broadcasts" (Mihăescu, 1989b, p. 24). These answers show that readers were engaging practically with the construction schemes as soon as they were printed, and by 1989 they were experimenting with or already using DIY devices to view satellite television.

6.3. Popularization articles of satellite television

In the first half of the 1970s decade, *Tehnium* included a dedicated section on the Space Age. From May 1971 to December 1975, *Tehnium* featured a monthly[8] news section on space explorations, edited by Florin Zăgănescu. The author was a member of the elite science organizations and a collaborator of *Tehnium* until March 1976. Information on telecommunication satellites and television was first published in this section in a news bullets form. The section ceased to exist at the same time as the Socialist Republic of Romania was inaugurating its own ground station for satellite communications in October 1976, connected to the INTELSAT system (Radiocom Societatea Națională de Radiocomunicații, n.d.). This opaquing of socialist Romania's own inscription in the Satellite Age is surprising, considering that the director of Cheia Satellite Communications Center (Vasilescu, 2014) was also a collaborator of the magazine. As readers demanded the further publication of this section (Redacția 1975, p. 23), one conclusion is that its cessation and the omission of Cheia was a top-down decision.

The first lengthy article to discuss television programs transmitted through the satellite was published in March 1980. *Direct satellite TV program* (1980) was referring to signals transmitted by Ekran satellites, a system developed by the U.S.S.R. for national coverage, using the UHF band which could be captured using a Yagi Antenna. The article includes a graphic depicting the signal, journeying from the orbital satellite to a home residence, where it is received instead by a satellite dish.

Between November 1983 and September 1985, a 19-part article titled *Reception Quality of Black and White and Color Television Broadcasts* was showcased. In its tenth installment, Solcan (1984) delved into the advancements of direct satellite television, emphasizing that it would not supplant terrestrial networks, but complement them. The sixteenth article revisited the subject of DBS, discussing its integration with collective antennas (Solcan, 1985). Both parts implied that satellite technology will be used for Romanian television. In March 1985, Ionescu S. (1985, p. 6) highlighted in the 'CQ-YO' section the significance of microwave bands for satellite television, referred to as an actuality. Furthermore, Harbic (1986, p. 11) delved in the May 1986 issue, 'Hi-Fi' section, into the potential transmission of high-fidelity audio via satellite.

Popularization articles highlighted the stark contrast between the futuristic concept of satellite television and the limited broadcasting windows on national television during the late 1980s, while maintaining a vague promise opened, that the socialist state

[8] The section was absent in issues 8/1971, 4/1972 and 5/1973.

will incorporate this technology in the future. This did not happen during socialism, and, as a consequence, the focus of *Tehnium* moved on DIY devices for satellite television signal captured from elsewhere.

6.4. Construction articles

Tehnium's collection of DIY devices for satellite installations are analyzed according to two individual part they tackled: the satellite dish and the satellite receiver (Table 1). Among all the separate parts[9] required for a complete satellite installation, these two were the most probable ones to be successfully assembled by amateurs.

Table 1. Construction articles published in *Tehnium*

Year	Issue	Section	Title	Author
1986	September	CQ-YO	Construction of satellite dishes	Simion
1988	June	Laboratory	0,95-1,75 GHz Receiver	Fălie
1988	October	Informatics	Azimuth and elevation calculation	Fălie
1989	February	TV-DX	Reception in SHF Band: satellite dish	Fălie
1989	March	TV-DX	Reception in SHF Band: satellite dish and frequency converter	Fălie
1989	April	TV-DX	Reception in SHF Band: frequency converter	Fălie
1989	May	TV-DX	Reception in SHF Band: frequency converter	Fălie
1989	June	TV-DX	Reception in SHF Band: frequency converter	Fălie
1989	July	TV-DX	Reception in SHF Band: frequency converter	Fălie
1989	August	TV-DX	Reception in SHF Band: frequency converter	Fălie
1989	September	TV-DX	Reception in SHF Band: satellite receiver	Fălie
1989	October	TV-DX	Reception in SHF Band: satellite receiver	Fălie
1989	November	TV-DX	Reception in SHF Band: satellite receiver	Fălie
1989	December	TV-DX	Reception in SHF Band: satellite receiver	Fălie

The Satellite Dish

The construction and use of satellite dishes is detailed in four articles, published in the second half of 1980s, starting with Simion's (1986) *Construction of satellite dishes* published in September 1986 in 'CQ-YO' section, followed by Fălie's (1988b) *Azimuth and elevation calculation,* printed in the 'Informatics' section and *Reception in SHF Band,* part I and II (Fălie 1989a and 1989b), printed in February and March 1989 in the 'TV-DX' section.

[9] A further component addressed in *Tehnium* during socialism was a frequency converter. Although Fălie (1989b, 1989c, 1989d, 1989e, 1989f, 1989g) published the scheme for a frequency converter, Karundy (1994, p. 4) notes that this part of the installation could not be built by amateurs at a reasonable standard. Construction articles addressing updates to satellite devices were published up to 1998 in the magazine;

Simion (1986) highlights the importance of antennas for receiving long-distance TV broadcasts, particularly emphasizing the versatility of parabolic antennas for both ham radio and television, specifically noting their advantage in the SHF band (reserved for TV reception via satellites). The article avoided to evoke a concrete purpose of the antenna, but hinted nonetheless at the most obvious deployment, making a case for satellite television, without proactively promoting it. The text provides calculation formulas and Simion (1986) suggests a wooden template for construction, which Jajko (2021, p. 192) also presented as used in Poland. In regards to the materials for antennas, aluminum was recommended for those between 90 and 120-centimeter diameter, and stainless-steel for antennas between 2 and 6-meters diameter (Simion, 1986, p. 11).

The variation speaks about the state of the art of reception around 1986. Then, in 1989 Fălie (1989b) notes that individual installations exist with antennas having a diameter between 1,5 and 3 meters, for television transmitted through the professional frequency band. In comparison, for the DBS transmission in the SHF band (which was still described as a thing of the future), an antenna with a diameter of 50 to 90 cm was sufficient (Fălie,1989b). Dragoş Fălie, a physicist and researcher affiliated with the Politehnica University of Bucharest, was a frequent collaborator of *Tehnium*. Tudorancea (1989) highlights his role as a ham radio operator and his enthusiasm for receiving television signals over long distances, providing another link between the ham radio community and the grassroots movement. Fălie (1989a, 1989b) emphasizes the importance of signal power data for determining the dimension of the dish, regardless of the fact that concrete information on operating satellites was never printed in *Tehnium* during socialism. It was only after the regime change that *Tehnium* freely listed the satellite-TV channels whose signals could be received in Romania. Taking for granted that the dish was either manufactured, or procured from informal economy, Fălie (1989a) refers to the diminishing power of reception, due to irregularities on its surface, as well as the reduction caused by holes intended to reinforce its resistance to wind. In order to take measures counterbalancing these issues, such as increasing the size of the dish if manufacturing was expected to be flawed, Fălie (1989a) offers precise calculations, including a table detailing the wind forces projected on the dish, considering the various sizes used at that time throughout the territory. The 'Informatics' section, inaugurated in October 1988 and dedicated to the field of computers, offered an additional aid in calculating the precise positioning of the satellite dish for readers endowed with a personal computer. Fălie (1988b) recommends a program automatizing the necessary calculations, publishing commands in BASIC programming language, that readers could copy. The information inscribed in the materiality of the dish can be used retrospectively for a media archeological research on remaining manufactured satellite dishes. This would enable their identification within a specific time frame, their exact placement within the coordinates of the country and their correlation with the satellite signal watched.

Since it has to maintain a stable connection with signals beamed from outer space and at the same time remain resilient against ground disturbances, the satellite dish becomes more than a mediator between an advanced technology and household users (Parks, 2012), serving also as a mediator between outer space and Earth's atmosphere, adeptly navigating both forces.

The Satellite Receiver

Tehnium's collection of receivers blueprints during socialism includes: Receiver 1, published in 1988 and Receiver 2, published in 1989. Each receiver was presented in a different section: receiver 1 in 'Laboratory', receiver 2 in 'TV-DX' section.

The first construction scheme for a satellite receiver was published in June 1988. As mentioned, the previous year, Hungarian monthly magazine *Rádiótechnika* published an article spread across three issues, titled *Satellite receiver device* (Viletel 1987a, 1987b and 1987c). This was providing blueprints and step-by-step instructions on how to build one's own satellite receiver for future DBS transmissions. *Tehnium* had a subscription for the magazine (Poşta redacţiei, 1995) and considering Romania shares not only a border with Hungary but also has the largest Hungarian ethnic minority population, it's reasonable to expect that *Rádiótechnika*'s circulation would extend to the community of amateurs in the region. It is on the backdrop of this publication, that *Tehnium* proceeds to publish a similar construction scheme, using however the less self-evident title of *0,95-1,75 GHz Reciever* (Fălie, 1988a). Fălie (1988a) is clear in stating that the device is for satellite television, although he makes no reference to actual television channels.

The most prolific period of articles concerning the making of devices for viewing satellite television is February-December 1989. Eleven articles by Fălie, published under 'TV-DX' section, using the title *Reception in SHF Band*, were grouped into three sections. First was catering to the characteristics and positioning of the satellite dish, previously discussed. The second section described the construction of a frequency converter (March to August 1989), while the third part contained the construction plan for the second receiver (September to December 1989). Although the actual construction of a satellite dish was not included, the emphasis given to the calculations and planning makes it a complementary addition to the 1986 article describing its manufacturing. Through this series, *Tehnium* was offering a full guidebook for building a complete satellite television receiving set, during the communist regime. The first two articles don't even mention the word 'television', nor the phrase 'satellite television'. Determined by the informed readership, references to the C and Ku transmissions implied that specifying them as television bands was unnecessary.

The second receiver published in *Tehnium* (Fălie 1989h, 1989i, 1989j, 1989k) was an updated version of the previous one published by Fălie. The article features a 1:1 scale assembling template, which was reprinted in the double issue May-June 1990, pointing out to a continuity of DIY means for satellite television. Fălie (1989a, p. 12; 1989b, p. 13) was addressing his readership as fellow radio amateur operators. The language used in these articles belongs to the radio amateur realm, revealing that if one could understand the language describing radio amateurism devices, then one could definitely follow the instructions in building a satellite receiver. Fălie's (1989k, p. 14) articles end with a note from the editorial team, concerning the legal usage of the devices, which is hesitant regarding the reception of satellite television, pointing instead to the regulations of the radio amateur field. By printing such a statement, *Tehnium* was released of any responsibility for faulty usage of the devices, while also emphasizing the embodied ambivalence, that although it clearly contained DIY satellite television equipment, did not mention the viewing of satellite TV. At the time of the article's

publication, the European legislation regarding the free reception of signal was not yet in place, being implemented only on 22nd of May 1990 by the former European Economic Community Court of Justice EEC (Comşa & Comşa 1991, p. 4). The importance of the second receiver is pointed out by Cuşnarencu (1999), who emphasizes that the last decade of socialism was marked by numerous senseless restrictions, and marks retrospectively the magazine's publishing of the satellite receiver blueprint, a rebellious act.

Tehnium published the blueprints for a 3rd receiver during 1994 and 1995, in a newly inaugurated section titled 'Individual TV-SAT reception'. This device was even baptized "INDOOR TV-SAT receiver Tehnium" (Karundy & Cheregi, 1995, p. 8). While the post 1989 period is not the topic of this article, it is important to note that the DIY movement for satellite television continued well into the first decade of transition, determined in most part by economic reasons. Mărculescu (1999, p. 7) provides a clear assessment of the country's first decade of transition, mentioning that a significant segment of *Tehnium*'s target audience lacked the financial resources to afford the magazine, let alone obtain the materials and tools necessary for technical pursuits.

The tracing of popularization and construction articles showed that the two categories followed chronologically. Popularization articles stop at the momentum when Direct Broadcast Satellite television systems in Europe become an actuality, hence continuing to present the latest developments of this technology would have only revealed socialist Romania's exclusion from this realm. *Tehnium* then changes focus, and DBS becomes the unnamed topic for construction devices, which were built and used within the regulation available for ham radio operators. This antagonism between, let us call it 'ego of the state' not wanting to be revealed as lacking access means and the latest technology threatening its borders from above, is key in understanding why and when the grass routes for satellite television could become beaten tracks in *Tehnium*. The identified routes speak about the perfect understanding of the status of technology by readers, corelated to their geopolitical position, which determined their access to it. In this way, the spatial separation from the focus of the satellite signal, while reflecting a measurable distance on the East-West axis of the Cold War, could simply be erased by the size of the satellite dish and enhancements to the handmade receivers.

7. Conclusion

Tehnium functioned as a platform for the dissemination of the latest technologies and represented a daring endeavor within the confines of the totalitarian regime, notably during the latter years of communism, when interactions with the Western world were severely limited. Understanding the rationale behind its publication required an examination of key factors. The primary one lay in the recognition that a crucial arena of confrontation during the Cold War centered on technological advancements. Secondly, satellite broadcasting technology was intrinsically linked to the Space Age, in which the Socialist Republic of Romania aspired to play an active role as well (Cloşcă-Grigore, 1987; Roth, 1966). This ambition facilitated the publishing of up-to-date information regarding the progress of satellite television, filtered through this sieve of political interests. Thirdly, it's crucial not to overlook the desire of the population to have access to

the latest technologies, particularly in light of the socialist state's inability, both financially and ideologically, to provide such access. During communism, *Tehnium* adeptly built the path for this yearning and attracted to its readership the main actors of the grassroots movement. By including satellite devices in its repertoire, *Tehnium* enabled the population to access transmissions addressed to their western neighbors simultaneously, circumventing the temporal lag associated with technology (Poenaru, 2019). The multi-layered exclusion from the Western satellite industry was hence partially overcome by technostruggles approaches of advised eastern Europeans, supported by a local state-owned publication. The economic reasoning behind a DIY approach has been shown to transcend the regime change.

The analysis went through the intersections of macroscale technological developments and political interests, whose traces were identified in the terrain of *Tehnium*. The article shows how the grassroots and grass routes approaches reflected in the pages of the magazine, and thus complements the studies of alternative TV consumption during socialism in Romania. It also emphasizes how the particular material structures and strategies enlarge the understanding of technostruggles, in regards to the dissemination of a technology with global impact.

8. Further research

In order to provide an exhaustive view of grassroots and grass routes approaches to satellite television in Socialist Romania, the data extracted from *Tehnium* should be combined with other sources such as oral interviews with the main actors as well as other archival data.

Furthermore, as a was a way to avoid censorship, satellite TV devices were showcased independently of television content during socialism, casting their role as serving purely technological quests of being up to date, without consideration for any potential social implications or subversive practices they might incite. Nonetheless, as a further inquiry it would be necessary to reveal what politics the built devices actually contained, thinking here of the frame of analysis of technological politics proposed by Langdon Winner (1999). This would help understand their specific and complex role in the former eastern European state's moment of transition.

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Perceptions on AI creativity in the pre-generative AI era. Insights from computer scientists and artists

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Abstract: Whether it is about literature, music, painting, graphic design, advertising, or other creative domains, Artificial Intelligence (AI) finds its way in. The present study aims to offer a pre-generative AI overview on AI creativity perception. It serves as a benchmark that enables future researchers to compare earlier and recent AI advances so to explore the profound technological shifts currently occurring. Focusing on domain comparative empirical dimension, the paper exploratory investigates perceptions on AI creativity, on AI-human co-creation potential, and AI creativity's ethical and authorship considerations. A set of comparative semi-structured expert interviews with Romanian computer scientists and artists (N=33) is conducted. The data is analyzed using Atlas.ti software. As common grounds for computer scientists and artists, the results show that AI can provide original artworks due to its capacity to manage large amounts of data. However, it is deeply dependent on them. Within the creation process, AI is perceived as a partner or a tool that can augment human abilities. Ethical aspects should be considered both before and after the creation process. Artists, in comparison with computer scientists, emphasize more on the trivialization of the AI creation act and on the unfair and threatening competition. Although they believe that machines should not create, they also agree on machine-centric authorship.

Keywords: AI creativity, computer scientists, artists, AI-human co-creation, ethical considerations, qualitative analysis.

1. Introduction

In July 2021, for the first time, the South African Patent Office named an Artificial Intelligence (AI) system, named Dabus, as the inventor of a food container designed for the packaging industry (Pretz, 2022). Nowadays, scholars discuss the third technological cataclysm; instead of talking about duplication of outputs or about their dissemination on the web, the substitution of human creativity by artificial creativity

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(AI creativity) is at stake. In this case, the main questions addressed are if machines can be creative and if humans will still retain their creator role (Dornis, 2020; Rafner et al., 2023). As in the case of artists that do not fit into the pre-established boundaries and cannot be classified, computers' creativity might push to the development of a new artistic "school" (Miller, 2019). Being a disputable research territory (Amabile, 2020), the link between art, creativity, and AI becomes a paramount-to-study perspective (Olszewska, 2020).

As the presence of AI in creative industries is inevitable (Hong et al., 2020), the current study aims to provide an insight into specialists' perceptions of AI before the widespread use of generative AI technologies like ChatGPT or DALL-E. This research serves as a snapshot for future researchers to compare past and recent advancements in AI and to investigate the significant technological changes happening now. The study explores the complementary visions of Romanian computer science specialists (the technical view) and artists from various domains (the artistical view) on AI creativity. Thus, the research question of the study is: which are the main similarities and differences between computer scientists and artists' opinions on creativity and AI creativity, on AI-human co-creative potential, and on AI creativity's ethical concerns? The research method employed is the expert interview (Döringer, 2021; Gubrium & Holstein, 2002). Thus, a set of 33 semi-structured interviews (17 with computer scientists and 16 with artists) is conducted.

Starting from IBM's Deep Blue computer that defeated in 1997 the world chess champion Garry Kasparov, and Alphabet/Deep Mind's system AlphaZero that has become master in Go game, a game that involves complex possibilities, AI is defined as computer systems able to mimic human-like intelligence and capabilities (e.g., visual perception, speech recognition, decision-making etc.) (Townsend & Hunt, 2019). Having a wide applicability (from GPS navigation systems to personal assistants, chatbots, museum robots that learn the reactions of visitors, or self-driving cars), AI is a profound part of our lives (Mezei, 2020; Dornis, 2020). Born in 1956 at the Dartmouth Conference with no definition being developed back then, AI is mainly characterized today by a strong resemblance with human intellect in performing tasks as image recognition, language understanding, and decision-making (Dornis, 2020). AI development aims to mimic the human brain as closely as possible (Woinaroschy, 2020).

With a reality in which AI is already a co-living technology, opinions on its role are diverse; while some claim that this technology will help in improving life, others emphasize on its uncontrollability and threat to human society (Hong & Curran, 2019). In the context in which machines give the impression of unlimited creativity (Zurth, 2021), questions on the importance of creativity source, on the ethical consideration on a creative output developed by a machine, and on a future conceptualization of the creative process arise (Amabile, 2020). Deep learning technology, completed by increased processing power and data availability, has changed the idea that the ability to create is uniquely attached to humans (Schneider & Basalla, 2020). It is believed that, in time, the difference between natural and artificial intelligence will decrease and AI will be able to become creative in the human sense (Woinaroschy, 2020). Since 1960s, when a painting machine and translational robot was used in the military field, machine learning and artificial neural networks (ANN) have developed to such a degree that, in 2025,

AI-generated revenues are estimated to be up to $126 billion (Zurth, 2021). Creatively speaking, Marvin Minsky, a MIT professor, predicted back in 1982, that, in around 50 years, computers will be able to write Shakespeare-level prose (Amabile, 2020).

Although it is still a developing domain, with a lot of insights and implications to be discovered, AI creativity is largely debated by scholars. There is a wide range of theoretical perspectives studying creativity in the era of AI (Still & D'Inverno, 2016; Esling & Devis, 2020; Mazzone & Elgammal, 2019; Rafner et al., 2023), the role of AI in understanding human creativity (Gobet & Sala, 2019), AI in creative industries in general (Anantrasirichai & Bull, 2022) and in music in particular (Moruzzi, 2018), AI in decision-making and innovative management (Pietronudo et al., 2022), AI in entrepreneurship (Townsend & Hunt, 2019), AI and human creative knowledge work in organizations (Holford, 2019), AI as an enabler for innovation (Truong & Papagiannidis, 2022), or AI creativity and copyright issues (Rosati, 2019). The empirical studies developed on AI creativity, usually using opinion surveys or experimental designs, are not that numerous, but they are approaching diverse perspectives as AI development implications in innovation management (Füller et al., 2022), AI within the evolution of design and innovation in firms (Verganti et al., 2020), AI acceptability and cultural proximity to humanness in the music sector (Tubadji et al., 2021), creative AI and music evaluation (Hong et al., 2020), perception on artworks created by AI (Hong et al., 2019; Piskopani et al., 2023), designers' attitude towards intelligent creativity support (Main & Grierson, 2020), or AI creativity system used to explore how aesthetic experiences are processed (Utz & DiPaola, 2020).

However, to our knowledge, there is a reduced number of empirical studies on AI creativity that compare different domains, especially at the experts' level (Wingström et al., 2022). The novelty of the present paper is threefold. First, besides assessing perceptions on AI creativity and co-creation process, the present approach goes one step further and emphasizes the ethical implications of AI creativity development. The findings signal the need to urgently regulate the excessive use of AI both before and after the creation process.

Second, while the sample involved in previous studies (Wingström et al., 2022) is composed of computer scientist and new media artists that already use AI, the present paper approaches computer scientists and various types of artists (e.g., musicians, copywriters, advertisers etc.) that currently do not use AI in their artworks. Since many artists worldwide do not use AI in their daily creation process, it becomes important to spotlight their view. The research outcomes show an increased fear of unfair and threatening competition in the context of AI development. The trivialization of the creation process and the concerns on AI creativity that exceeds the human one are constantly brought into discussion. In addition, since each of the studied cohorts is aware solely of its own domain, the present paper accentuates the need for a dialogue between computer scientists and artists aiming to create a coherent AI creativity approach.

Third, the chosen case-study, namely Romania, offers an Eastern-European perspective that is in contrast with the technologically mature western democracies. According to data provided by the Employers' Association of the Software and Services Industry (ANIS) (2022), the growth rate of Romanian IT sector is 15-17% annually, being

three times faster than the national average. Likewise, the IT sector is ranked 5th in the top domains with the most employees. In the European Union, in 2021, an average of 8% of enterprises have used AI technologies for text mining, speech recognition, natural language generation, image recognition and processing, machine learning for data analysis, AI-based robotic process automation, or for autonomous decisions. However, in comparison with most of the developed European countries, in Romania, only 1% of the companies have used at least one of the above technologies (Eurostat, 2022). Romanian authorities are working on an AI framework that target education and AI specific skill development, innovation in public and private sectors, and the adoption of ethical guidelines for data protection and cybersecurity (Van Roy et al., 2021). Although there is insufficient statistical data on the adoption of AI in the creative domains in Romania, there are reports that stress an increased interest in AI technologies (i.e., robotic process automation - UiPath) acceptance in different industries, including the creative sector (Deloitte, 2018). In terms of AI readiness, although Romanian society is relatively favorable to a high AI presence, considering the business community and Internet connectivity (broadband 5G potential), the society in general has a medium to low understanding of AI and its social and economic impact (Iuga, 2021). Thus, based on this paradox, investigating experts' opinions on the use of AI in the creative process becomes paramount.

2. On creativity

Creativity is defined as the ability to develop ideas and solutions that are new and effective (Creely & Henriksen, 2019; Wingström et al., 2022). Thus, the idea of valuable novelty appears (Macedo & Cardoso, 2002; Main & Grierson, 2020). It implies that a creative product should not only be new and different from previous outputs, but relevant and valuable as well (Schneider & Basalla, 2020). While creativity, in its original form, has been defined through Graham Wallance's four-stage model (preparation, incubation, illumination, and verification), since the half of the twentieth century, Paul Guilford talks about varying degrees of creativity from one individual to another (Creely & Henriksen, 2019).

On the one hand, it is said that creativity can be reached by combination (combining familiar ideas in unfamiliar ways – analogies, metaphors), transformation (bursting out rules and rewriting the rules; e.g., Einstein's relativity theory or Picasso's cubism), and exploration (working with accepted rules and trying to create new perspectives) (Boden, 2004). Besides these creative designing processes, Gero (2000) also talks about analogy (the matching process between two different problems or domains), emergence (the initial properties of a model recognized beyond its intentional ones), and first principles (breaking down a model and reassemble it differently). On the other hand, creativity is defined by divergent and convergent thinking (Liu et al., 2019). Guilford (1957) essentially defines creativity as divergent thinking, as a high capacity to transform and reinterpret thoughts in situations in which there is not only a unique correct answer or solution (Kim, 2006). In this context, creativity is the sum of four important factors: fluidity (producing many ideas), elaboration (producing large number of details),

originality (producing new, unusual and fresh ideas), and flexibility (producing different ideas) (Justo et al., 2014; Tamannaeifar & Motaghedifard, 2014; Torrance & Goff, 1986).

When defining creativity, the literature emphasizes on four creativity dependent entities (the so called 4 Ps of creativity): person (creative individual characteristics, knowledge and motivations), product (the result of the creative act), process (cognitive processes associated with creativity), and press (the climate, the environment in which a person creates) (Davis, 2009; Kaufman & Sternberg, 2007; Said-Metwaly et al., 2017; Zeng et al., 2011). Thus, based on this taxonomy, later research places creativity within a socio-cultural and constructivist paradigm by emphasizing that it can both be a process within a group and can be learnt and enhanced (Creely & Henriksen, 2019). Csíkszentmihályi (1996) proposes a systems theory based on which he is changing the question from "what is creativity?" to "where is creativity"; thus, he talks about the person that brings novelty, the specialists that recognize and authenticate the innovation, and the culture developed through rules.

Creativity is, in most cases, associated with the artistic domain. However, this stereotypical view is increasingly questioned by including science in creativity related research (Andreasen & Ramchandran, 2012). Debates on domain specific creativity are largely considered (Kaufman & Baer, 2005) and general creativity in comparison with domain specific one is evoked (Amabile, 1996). Putting aside the shared creative aspects of emotions, flow, and the interaction between creator and environment, artists concentrate on creation and expression, while scientists strive to solve problems and achieve understanding (Glaveanu et al., 2013). This difference is also highlighted by Wingström, Hautala, & Lundman's (2022) study that positions the artists as learning from their mistakes and using AI technology to play in comparison with computer scientists that need precise and rigid models.

3. AI creativity

Creativity is considered a very human characteristic (Csíkszentmihályi, 1990) that implies experiencing, self-actualization, and emotions (Du Sautoy, 2019a). However, as the technology evolves, creativity is being judged beyond an individual, a social group, a process, or a product; it is rather integrated within a connected digital space in which machines can be used in augmented human creativity and in constructed virtual environments, problems, and solution (Creely & Henriksen, 2019). Image recognition, image captioning, speech recognition, end-to-end translation, advanced generative models for sequences of text, speech, music, or images become tools for the creative domains (e.g., digital painting, text, and music generation) (Schneider & Basalla, 2020). Considering that AI is defined as the capacity to adapt human abilities to machines, allowing them to evolve, the question is whether AI can be as creative as humans (Karaata, 2018). Specialists are still struggling to get to a consensus.

On the one hand, since creativity is beyond intellect, Liu et al. (2019) consider that, although AI can work for complex computations, it cannot be creative; it can help people in achieving ideas rather than creating them. Since achieving something relevant involves social beliefs, values, and tacit practices that are specific to human beings

(Holford, 2019), it is believed that AI cannot establish what is indeed humanly relevant and cannot become as creative as humans (Boden, 2010; Boden, 2015).

While an AI generated outcome can be considered creative, the process in itself, the intentionality of the computer to be creative, is disputable. Since the creative process is at least equally important as the creative outcome, Moruzzi (2018) considers that a minimal AI creativity definition should focus on an autonomous reception of internal and external stimuli, an autonomous selection of stimuli, an autonomous elaboration of the selected stimuli, and an autonomous production of new stimuli based on the previous process. Autonomy is understood as the capacity of the machine to break the rules encoded in the software (Moruzzi, 2018). Likewise, since intentionality is a human behavior feature, questions that arise are to what degree the creativity level of a machine is influenced by the way a human being has designed the code and to what degree does machine learning allow code to change, to improve, to interact with other environmental data and evolve? (Du Sautoy, 2019b).

The literature also infers on the level of originality. While some are saying that AI imitates human work, others consider that the same is true for individuals in their artistic approach (Hong & Curran, 2019). Esling and Devis (2020) consider that AI creativity is reciprocally limited by human creativity, as the former is programmed to mimic the latter's preconceptions. The AI creative process implies the following steps: the artist chooses a collection of items (e.g., images) to feed the algorithm; the AI algorithm tries to imitate the inputs (using generative adversarial networks – GAN); the artist shifts through the outputs and curate the final choice (Mazzone & Elgammal, 2019). Although AI is often associated with human creativity due to its abilities, the human learning process is much more complex. It relies on a combination of genetic inheritance, experience, and prediction-failure reinforcement (Anantrasirichai & Bull, 2022). Thus, while the creative process is mainly done by the artist, AI is rather considered a tool.

On the other hand, AI is believed to have an impressive potential to mimic, augment and even replace the cognitive human processes (Townsend & Hunt, 2019). Technology is increasingly perceived as humanly and capable of achieving human performance (Svedman, 2020). The literature talks about the difference between rule based and end-to-end artistic creations; while the former refer to artistic outputs created by machines previously programmed to do so, the latter refer to artistic outputs created by machines under their own steam (Miller, 2019). Creative AI works as neural networks that discern patterns based on large sets of information and learn through reward ("correct" signal) and punishment feedback ("wrong" signal) (Ng, 2021). In this context, in terms of deep learning process, novelty is strongly dependable on the training data (Schneider & Basalla, 2020). However, while traditional algorithmic art implies writing code for designing the rules of the creation process, machine learning implies programs that learn and progress automatically based on inputs given on the previous experience and data observation and analysis; thus, creative decision, nor initially foreseen by the programmers, can be made (Bonadio & McDonagh, 2020; Mazzone & Elgammal, 2019). While artificial neural networks, designed to replicate the activity of the brain, imply layers (input information, data processing, and data recognition), they are based on machine learning, in which data is fed with no specific instructions (Miller, 2019).

Algorithms, to create works of art, need a human operator to feed it and provide examples from which it can learn (Wellner, 2021).

Hence, when machines' creativity reaches human level of creativity, they will be prepared to cultivate creativity on their own (Miller, 2019). As AI is thought to extend, enhance, and complement human capabilities, it is expected that it will also replace human creativity, originality, and imagination (Townsend & Hunt, 2019). However, as the line between computer-generated work and computer-assisted work is still blurred, Zurth (2021) claims that although there is artificial intelligence, there cannot be artificial creativity. Nevertheless, humor, as a very creative activity, is believed to be the final frontier for AI (Miller, 2019).

Whereas generative deep learning models manage to mimic several human brain creative processes, the creative output consistently depends on the data used to train the program. Thus, while creative outputs are outstanding in some cases (e.g., generated images), other outputs have limited value (e.g., storytelling, in which the consistency of the topic on long periods of time can be lost) (Schneider & Basalla, 2020). Although scholars have got to the conclusion that AI is capable to exceed human capabilities by creating surprising results, the new question arising is if individuals can perceive AI outputs as being humanly creative (Tubadji et al., 2021). Art, in general, has always been related to human creativity and artistic expression. However, the development of AI artwork complicates and redesigns the way creativity is being understood (Hong & Curran, 2019). AI creativity is compared with "Turing Creativity Test", a test designed by Alan Turing in which specialists are not capable of differentiating between an output created by a human being from an output created by a machine (Amabile, 2020). Starting from the Turing Test, studies are preoccupied on AI artwork perception. The theory Computers are Social Actors (CASA) states that people tend to unconsciously use social norms and behaviors in their interaction with technology and evaluate AI creations in a similar manner, using the same evaluation scales, as human artwork (Hong & Curran, 2019; Mou & Xu, 2017; Nass & Moon, 2000). Contrary, other studies argue that people believe that AI is incapable of creating art, although AI and humans' artworks are indistinguishable (McCarthy, 2007).

AI artworks, in comparison with art created by humans, are believed to be evaluated negatively or in a biased manner due to a lack of their understanding or to the believe that creativity is exclusively a human feature (Ragot et al., 2020; Wingström et al., 2022). Consumers tend to prefer human-made products, in comparison with AI-made outputs, because they identify themselves with the creator of those products and attach them a higher cultural value (Tubadji et al., 2021). Furthermore, the way an artwork created by AI is evaluated depends highly on the audience preferences and on existing trends (Anantrasirichai & Bull, 2022). On an experimental design testing assessment of AI-created music, Hong, Peng, & Willims (2020) conclude that the acceptance of creative AI is positively correlated with the way AI music is being evaluated. In the same respect, the level of openness to AI can predict the level of enjoyment regarding its creations (Hong et al., 2020).

4. AI-human co-creativity potential

AI creativity issue is completed by the discussion on the way machines and humans can collaborate in their endeavor to create valuable outputs. AI creativity is considered to have two main perspectives. First, there is the independently creative AI that refers to a competitive relationship between machines and humans and that brings into discussion the question whether AI as an actor can replace human creativity (Gioti, 2020; Wingström et al., 2022). Second, there is the AI that is co-creative with humans, which implies blending computational and human creativity into an interactive process in real time (Karimi et al., 2020; Davis, 2013). Based on this "human in the loop" perspective (Chung, 2021), AI is the partner of the individuals or their tool and helps enhancing inspiration and creativity (Karimi et al., 2020; Wingström et al., 2022).

Thus, since the involvement of AI in creative industries is inevitable, the literature underlines the decision artists need to make between declining AI or accepting it as a collaborator (Hong et al., 2020). AI can be perceived as either a self-sufficient art generator that further develops based on a limited initial input, or as a tool that helps enhancing human creativity and that remains subservient to it (Esling & Devis, 2020). However, the literature emphasizes a third situation, in which AI and humans are partners within the creation process. Thus, the concept of co-creativity, a concept indicating a complex interaction between humans and machines, arises (Esling & Devis, 2020).

Considering that the aim of any new technology is that of helping a certain process or activity by making it more precise, faster, and affordable, Anantrasirichai and Bull (2022), based on a theoretical review, emphasize that AI should be used in the creative industries only as an augmentation of human creativity, and not a substituent for it. Scholars usually emphasize the partnership between human and machine creativity as a strategy to maximize the creative abilities for both (Mazzone & Elgammal, 2019). Recent studies focus on the use of deep learning for creative design both from the perspective of product creation and from the perspective of supporting individuals in their creation process (Schneider & Basalla, 2020). In a survey with professional designers, and concentrating on the collaboration between AI and artists, Main and Grierson (2020) talk about Creativity Support Tools (CST), tools that aim to support more and more people to become more creative. As AI mechanisms, on the one hand, can find complex solutions to solve problems in a rationalizing way (Pietronudo, Croidieu, & Schiavone, 2022) and rely on conformity of data and constrained learning systems and humans, on the other hand, rather rely on imagination and experiences (Anantrasirichai & Bull, 2022), a collaborative relationship seems valuable. Wu et al. (2021) describe the Human-AI Co-Creation Model, which is composed of six levels: perceiving (human perception can be improved by big data and sensors), thinking (humans can think deeper and explore more with the help of AI resources), expressing (humans can explore more rapidly and express themselves, regardless of the talent and training, with the help of AI tools), collaborating (humans and AI complete each other based on their strengths and limitations), building and testing (humans can simulate and predict situations due to AI tools and, thus, can develop more efficient outcomes).

By having an immense capacity to manage data at low costs and resources, AI may be a valuable human assistant in tasks where subjective reasoning is not important

(Truong & Papagiannidis, 2022). In comparison with humans, AI can combine ideas in a more numerous ways and can generate a higher level of surprise and innovation (Tubadji et al., 2021). Being used in all kinds of domains, AI is considered the most important nowadays technology capable of transforming all industries in a similar manner as the Internet did, and in a fast, cheap, and highly quality manner (Füller et al., 2022). In this respect, AI creativity can be perceived as a philosophy, as a strategy, and as a force. It implies an environment in which people can collaborate and get access to all the mankind achievements, regardless of time and space, in which humans and AI can complement each other and increase the efficiency of the creative process, and in which humans can focus on the most creative parts of the process by leaving the complex and time-consuming tasks to AI (Wu et al., 2021).

5. AI creativity and ethical considerations

Relying on the AI-human collaboration within the creative process, it is mandatory to further discuss the ethical and authorship specific aspects. While Turing asked in 1949 *if machines can think*, the question one addresses today is *if machines can create* (Chen et al., 2020). Since machines can be designed to create ideas, works of art, or science works, this question implies ethical and moral concerns (Chen et al., 2020). Likewise, since creativity and technology are ethically neutral constructs, the role of humans in using them in an ethical and wise manner is paramount (Creely & Henriksen, 2019).

Although AI is increasing present in our lives, discussions on possible regulation on AI innovative outputs has only just begun and AI generated works are still left unprotected (Dornis, 2020). As AI can realize paintings, compose songs, write poetry, or write commercial scenarios, the concepts of copyright and authorship are tackled by the literature. It is stated that originality can be questioned since AI can compose Beatles style songs or write a Harry Potter sequel; it means having access to the original works and being trained based on them (Rosati, 2019). The need for copyright protection of AI generated outcomes is still debated and its impact is still guessed. Since users have been keener on taking advantage of innovation than on following copyright laws, scholars pessimistically believe that the society might not be ready for a paradigm shift from human-centric authorship to machine-centric one and copyright law is still not ready to be applicable for the final AI output (Mezei, 2020). Although the copyright for musical, literary and art works created by humans is not doubtful, the copyright for similar outputs created by machines is an uncharted territory (Bonadio & McDonagh, 2020). Usually, copyright law is linked with the idea of originality, originality requirement involving some degrees of human authorship (Bonadio & McDonagh, 2020). The literature stresses that the best way to start approaching the copyright issue in the case of an AI work is the backwards perspective of the causal chain of actions that has led to the output production (Svedman, 2020). The ambiguity in copyright statements is high. While, in US, copyright implies human authorship and denies any process without creative input or intervention from a human being, in Europe, works are described as author's own intellectual creations (Zurth, 2021). As emphasized within the United Kingdom's law that amends the copyright code (Copyright, Designs, and Patents Act), in the case of a computer-generated

work, the authorship belongs to the coder responsible for the AI software (Svedman, 2020). In general, copyright is strictly based on the idea that humans are considered the authors and only products of human creativity can be authorship subject (Zurth, 2021). However, since machines' works resembles very much human works, it is inevitable for corporate stakeholders to request copyright protection (Bonadio & McDonagh, 2020).

Text and data mining (TDM), which is an available and not expensive research technology, implies using large amount of data, extracting, or copying the most relevant one and recombining it. However, the European Union legislation emphasizes that using TDM activities without licensing agreement and lawful access to the original data, used for feeding the algorithm, can be exposed on the copyright infringement (Rosati, 2019). Examples in this respect are Daddy's Car, a song composed based on the Beatles repertoire and style, or the portrait of Edmond Belamy. In this respect, since the right to read does not imply the right to mine, copyright law can be an obstacle rather than an enabler for AI creations (Rosati, 2019). Even AI copyright skeptics admit that machines can produce work for which people are willing to pay, thus being logical for the programmers to be protected (Bonadio & McDonagh, 2020). Starting from the definition of machine learning as a subfield of AI research that focuses on the training process of the algorithms to identify patterns in data and to use them in new data, human input is essential (Dornis, 2020).

However, as nowadays, besides coding, AI implies input/training/machine learning, based on human input, a substantial amount of output is practically generated by the machine (Mezei, 2020). Thus, AI can be considered both the object (the creative content in itself) and the subject (the generator of the content) (Mezei, 2020). Although it can be claimed that behind every machine there is a human being that programmed the machine, in semi-autonomous algorithms the relevance of human choice on the final output is almost irrelevant, awarding copyright ownership to humans being unjustified (Bonadio & McDonagh, 2020). While in copyright theory property rights are justified by a human labor and the human personality imprinted in the work, in the case of AI creativity, the individual that uses an algorithm have no idea how the final work will look like; the un-foreseeability is biased by the algorithm decisions (Bonadio & McDonagh, 2020; Svedman, 2020). Some elements of the copyright law (e.g., algorithms that link the inputs with the outputs can fit into the concept of authorship) are believed to be applicable for AI outputs as well (Mezei, 2020).

Although humans are losing their authorship as algorithms keep on improving and refining themselves in an independent manner, Zurth (2021) emphasizes that, since there still are significant differences between human and machine's intelligence and, thus, creative thinking, AI work is not entitled for copyright protection. Considering that algorithms cannot take initiatives or plan, and that they lack awareness of what they are doing, AI new work can only mean a summary of the creativity of the input guides and inputs (Zurth, 2021). Considering that there is always a human being that writes the AI software and that is responsible for initially generating the entire learning and creation flow (Svedman, 2020), the idea of an AI author is often rejected (Browne, 2022). Moreover, it is worth mentioning that machines do not need rewards to create, as they

only aim to do what they have been programmed for and they do not get tired (Bonadio & McDonagh, 2020).

Since 2016, Japan is the first country that started redesign their legislation aiming to offer protection to AI works. However, not much has happened since then in any part of the globe mainly due to possible consequences of new and untested legal issues, and to a rudimentary statutory framework for the protection of artificial creativity (Dornis, 2020).

6. Methodology

The paper aims to qualitatively investigate, through the expert interview method, the way AI creativity is perceived, in a comparative manner, by specialists from computer science and artistic domains. The main issues addressed are creativity and AI creativity perception, AI-human co-creativity potential, and AI creativity's ethical concerns.

6.1. Procedure

Still being a poorly discussed and researched topic, AI creativity issues require an exploratory approach. Thus, semi-structured expert interviews (N = 33) with specialists from both computer science (n = 17) and artistic (n = 16) domains have been conducted. By using a qualitative method, the present perspective aims to gain a deeper understanding of the knowledge, opinions, and expertise of the interviewees (Kvale, 1994) in specific fields of action (Döringer, 2021). Moreover, it permits the use of the information already discussed in the literature and maintains the open style of the discussion (Galletta, 2013). Although working either in the computer science domain or in the artistic field, for most of the respondents, the topic of AI creativity is new. Thus, the interview helps in getting in touch both with this new theme and with the implications brought into discussion by the interview guide.

Due to time constraints and availability of the respondents, the interviews have been conducted electronically in a written form. Nevertheless, this type of online procedure is valid mainly due to large amounts of information gathered and to the lack of interviewees' availability issues (Hunt & McHale, 2007; Lee & Hollister, 2020). Follow-up questions have been used for clarification or for incomplete answers. The data have been collected from January to May 2022. The interviewees have been informed about the aim of the investigation, the anonymity of the responses and their use exclusively for research purposes.

The answers have been analyzed in a comparative manner between the two groups of specialists. The data has been analyzed using Atlas.ti v23 software. The interpretation implies coding, grouping, and creating thematical categories derived from the data (Dawson, 2007), accompanied by the most relevant quotations or paraphrased ideas of the respondents. Thematic content analysis is being used, the qualitative data have been summarized from large amounts of information (Krippendorff, 2018).

6.2. Sample

The sample is formed of two groups: one of computer science specialists (*Rcs* code) and one of artists (*Ra* code) (Table 1). The computer science specialists' group contains 17 interviewees (4 women and 13 men), age between 25 and 50 years old (M = 35.58, SD = 8.396). The artists' group contains 16 respondents (10 women and 6 men), age between 22 and 53 years old (M = 31.56, SD = 9.865). The selection process implies a snowball convenience sampling procedure (Parker et al., 2019). This procedure, although not ideal, implies a high level of interviewees' availability and interest in providing valuable and comprehensive answers. Moreover, by purposefully recruiting young and middle-aged specialists, previous knowledge on AI and its implications is assured. Each domain's specializations are diverse and include both traditional (e.g., computer networks or music) and recent specializations (e.g., human-computer interaction or copywriting). The respondents are either practicing their professions in an academic environment (i.e., teaching) and/or in a business one. Nevertheless, the issue of sample representativeness remains. Thus, future research on this topic should account for a wider range of specializations (e.g., poetry, painting, actors etc.) and even conduct comparative analysis between different types of specializations within the same domain.

Table 1. Sample description and respondents' codes

COMPUTER SCIENCE DOMAIN				**ARTISTIC DOMAIN**			
CODE	**Gender**	**Age**	**Specialization**	**CODE**	**Gender**	**Age**	**Specialization**
Rcs1	M	42	Artificial intelligence	**Ra1**	M	27	Music
Rcs2	M	50	Computer science	**Ra2**	F	28	Advertising, Copywriting
Rcs3	M	39	Distributed systems	**Ra3**	F	22	Graphic design
Rcs4	-	32	Software engineering	**Ra4**	F	41	Arts' theory
Rcs5	M	49	Computer networks	**Ra5**	F	39	Graphic design
Rcs6	F	44	Distributed systems	**Ra6**	F	28	Illustration
Rcs7	F	39	Machine learning	**Ra7**	M	25	Graphic design, Graphic drawing
Rcs8	M	27	Artificial intelligence, Computing systems, Networks' security	**Ra8**	M	46	Copywriting

Rcs9	M	39	Human-computer interaction	**Ra9**	F	20	Music, Advertising
Rcs10	M	27	Distributed systems, Computer networks	**Ra10**	M	34	Copywriting, Design, Advertising
Rcs11	F	39	Cyber-physics systems, Real-time systems	**Ra11**	F	22	Copywriting, Content writing
Rcs12	M	26	Artificial intelligence, Computer vision	**Ra12**	M	53	Design, Visual art
Rcs13	F	26	Software engineering	**Ra13**	F	22	Music
Rcs14	M	25	Web developer	**Ra14**	F	23	Poetry
Rcs15	M	25	Artificial intelligence	**Ra15**	M	38	Music
Rcs16	M	37	Cloud computing, Machine learning	**Ra16**	F	37	Music
Rcs17	M	39	Computer networks				

Note: **Rcs** = respondent from the computer science domain; **Ra** = respondent from the artistic domain

6.3. Instrument development

Aiming to have a comparative perspective, both computer science specialists and artists have the same set of questions. The guide is theory-driven and follows four dimensions: creativity understandings, AI potential to be creative, AI-human co-creative potential, and ethical considerations on AI creativity and copyright issues.

The first questions intend to introduce the interviewees into the subject. Thus, they have been asked about their understanding on creativity. The largest part of the interview guide represents a discussion on AI capacity to be creative. In this respect, starting from few examples on creative outputs created by AI (e.g., the Portrait of Edmond de Belamy, the continuation of Harry Potter series), the respondents have been asked on the potential of AI to be creative in general, on the potential of AI to be creative and original similarly with humans (Dornis, 2020; Zurth, 2021), and on AI creativity advantages and disadvantages (Du Sautoy, 2019a; Amabile, 2020).

Based on the previous discussion on AI and creativity connection, the interviewees have been further asked to reflect on the human-computer co-creativity within this process. Building on the idea that AI can be either a threat or a creation

partner, the competition-collaboration dichotomy between humans and computers is approached (Amabile, 2020; Mazzone & Elgammal, 2019; Schneider & Basalla, 2020).

Ethical considerations and copyright issues are further debated. Within the ethical perspective, the initial question whether machines can create transforms into whether machines should create (Chen et al., 2020). Thus, the respondents are asked to comment upon the ethical implication of AI creativity. Furthermore, considering that within the European Union artistic outputs are described as being the own intellectual creation of the author, the addressed questions are if AI outputs should have a copyright and, if yes, who should own it (Bonadio, & McDonagh, 2020; Mezei, 2020; Rosati, 2019; Wellner, 2021; Zurth, 2021).

The content analysis used for interviews transcript's analysis follows a hybrid approach in developing the coding process. It means that some of the codes are based on the literature (deductive approach) and some are created during the analysis and based on the answers of the respondents (inductive approach) (Fereday & Muir-Cochrane, 2006). The categories and codes used for the analysis of the interview are presented in the table below (Table 2):

Table 2. The categories and codes used for the analysis

CATEGORIES	CODES	SUB-CODES	DESCRIPTIONS	LABELS
Creativity	Divergence	Originality	Generating new or rare ideas / Combining	creativity_originality
		Expression of emotions	Conveying an idea using emotions	creativity_emotions
	Effectiveness	Relevance	Adding value or reaching a goal	creativity_relevance
		Problem solving	Finding a solution to a problem	creativity_solution
	4Ps of creativity	Person	Creativity of the person	creativity_person
		Process	Creativity of the process	creativity_process
		Place (environment)	Creativity of the place	creativity_place
	Divinity	Divine inspiration	Creativity as a divine inspiration	creativity_divinity
AI creativity	Positive associations	Originality	AI as capable of large data processing and combinations	AI_creative_YES_originality
		Product	AI as capable to create appreciated outcomes	AI_creative_YES_product
	Negative associations	No consciousness	AI as incapable of understanding what it does	AI_creative_NO_consciousness
		No emotions	AI as incapable of feeling and using emotions	AI_creative_NO_emotions
		No originality	AI incapable of originality in the human sense	AI_creative_NO_originality
	Advantages	Attractiveness/ New experiences	AI as being attractive due to the technological novelty	AI_adv_attractiveness
		Efficiency/data processing	AI as processing large amount of data	AI_adv_data processing
		Personalized output	AI as capable of creating personalized outcomes	AI_adv_personalized output
		Artwork continuation	AI as capable of continuing an unfinished/destroyed artwork	AI_adv_artwork continuation
	Disadvantages	Trivialization	AI as dehumanizing the creative process	AI_disadv_trivialization
		Brain laziness	AI as inducing laziness and comfort	AI_disadv_brain laziness
		Dependency on the data	AI as dependent on the input and training data	AI_disadv_dependency on the data
		Unfair competition	AI as an unfair competition for humans	AI_disadv_unfair competition
		Uncontrollability	AI as an uncontrollable technology	AI_disadv_uncontrollability
AI-human co-creation relationship	Co-creativity	AI as a partner	AI perceived as a partner that augments the human creativity	AI_co-creation_partner
		AI as a tool	AI perceived as a tool used by the artists	AI_co-creation_tool
	Competition	Threat	AI perceived as a threat within the creation process	AI_co-creation_threat
Ethics and authorship concerns	Ethical concerns (should machines create?)	Ethics before the creation process	Ethical rules needed to regulate the AI creation process	AI_ethics_needed to create
		Ethics after the creation process	Ethical rules needed to regulate AI creations	AI_ethics_needed after the creation
		Machines should not create	Ethical rules needed to prohibit machines' creations	AI_ethics_should not create
	Authorship / copyright	Human-centric authorship	The copyright should belong to the humans creating the software	AI_authorship_human-centric
		Machine-centric authorship	The copyright should belong to the AI software	AI_authorship_machine-centric
		One cannot talk about copyright	The copyright issue for an AI creation should not be considered	AI_authorship_no copyright

7. Results

7.1. Creativity understandings

As a breaking through question, the interview starts with a subjective perception on the way creativity can be defined. The common ground of the two analyzed groups is

the originality meaning of creativity. While computer scientists, based on their technical profile, are differentiating themselves by attaching to creativity the idea of problem-solving potential, the artists are rather emphasizing the creative process and the relevance of the creative process. Regardless of the specialization, creativity is mostly defined as something original. For the computer scientists (55.56%), it implies "the capacity to use knowledge and abilities already gained, in an innovative way and in new context" (Rcs9). Creativity is not only about "having a new perspective" (Rcs13) or "surprising ways" (Rcs1), but also about "correlating already known concepts in new ways" (Rcs15). Most of the IT specialists (29.63%) refer to the utilitarian perspective of creativity by emphasizing the idea of finding relevant solutions or building functional programs for the existing problems. Thus, creativity implies "novelty and added value" (Rcs17) at the same time.

From the artists' point of view, creativity has a broader understanding, the ideas of originality, relevance, process, and emotions being underlined. Creativity is perceived by the artists as a complex combination process or procedure through which one gets to an original result (45.16%): "creativity is a cognitive ability […] and implies the ability to synthetize, to navigate through information, perceptions, and materials with the aim of generating new and useful combinations (Ra4). The utilitarian perspective of relevance implies using creativity with a certain purpose, "with a certain intention, be it aesthetic or functional" (Ra1) and finding "innovative and strategic-driven solutions for any issue" (Ra2). Considering the artistic paradigm, creativity is also "a tool to capture the attention of a certain target" (Ra10) or "a solution that appeals both rational and irrational/ emotional factors" (Ra12). The need of expressing oneself through creativity is further mentioned, as creativity is perceived as an accumulation process, "in which ideas are getting together until there is the need for release" (Ra14). The creative process and its relevance are brought into discussion, as creativity is "a gradual and dynamic process […] that generates change, development, and evolution" (Ra4). Moreover, "individual creativity, socially legitimated, becomes culture" (Ra8). The originality, yet understandable, components of creativity are highlighted. Creativity is also perceived as a way of expressing oneself, a way of "giving feelings further" (Ra9). In the same respect, creativity implies the materialization, "in a readable and humanized way, of what an artist feels inside" (Ra7).

7.2. AI creativity perceptions

Based on these initial definitions of creativity, a follow up key discussion with the interviewees is that of the potential of AI to be creative in general and to be creative in a human sense. The results of the analysis are graphically and comparatively presented in Figure 1.

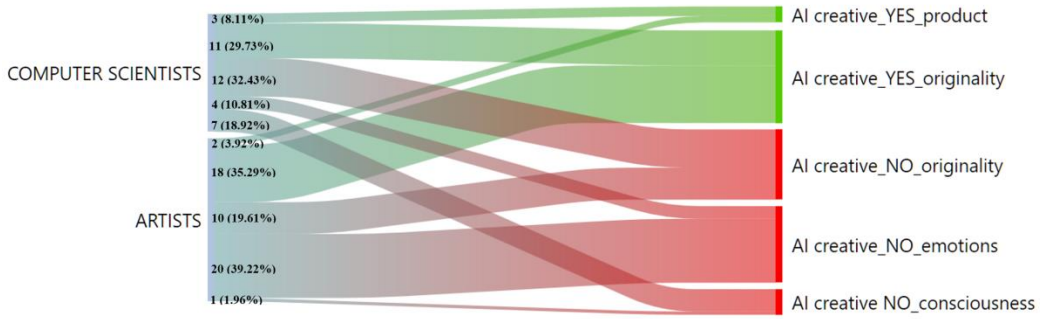

Figure 1. The AI creativity meanings for computer scientists and artists (figure generated in Atlas.ti software)

The data show that the most frequent AI creativity associated issues are those of originality and emotions, either in a positive or in a negative way. Regarding originality, there is a contradiction between the answers, both in the case of computer scientists and artists. On the one hand, AI is original by having the capacity to combine large amounts of data in new ways. While 29.73% of the computer scientists consider that, 35.29% of the artists believe so. It is rather a matter of a great ability to analyze data, to understand patterns, and to combine the elements and empirical evidence received and gained before. Moreover, considering that within the creation process previous experience and knowledge is used, AI needs "a big set of data and someone to say if the process is good or bad" (Rcs10), as in the case of a child's learning process. Seen by artists as rather an extension of creativity, AI creativity can be possible if AI will manage to "possess the ability to have unconventional ideas and visions spontaneously and from seemingly nothing" (Ra2). The artists consider that originality cannot profoundly overlap with creativity or authenticity (Ra12). Thus, they tend to consider that AI can be original, but not creative in the human sense. As a human being is "unconsciously and involuntarily influenced by all the creative experiences and products the creator has come into contact with", technology is fed with information, rules, or templates (Ra1). Thus, although the creative process is different from human to machine, the "result can be similar" (Ra8).

On the other hand, computer scientists (32.43%) consider that, regardless of how much information is used for feeding the algorithm or how much training is done, it is very unlikely for AI to be able to come up with something completely new: "although fed and trained for years with a large number of pictures with animals, AI cannot create a centaur or a cyclop" (Rcs10). In the same way, there is a big difference in the creativity level between "Mozart that wrote his first theatrical piece without seeing such pieces before and a robot that has studied hundreds of such pieces" (Rcs14). A detailed answer of a computer scientist emphasizing the human role in the creative process is presented below:

> "I believe that the creative process starts with an idea, with a moment of inspiration. AI is not there yet. AI needs guidance, basic programming, and optimization. AI can bring new and unique products in the society, but only due to computing power, not to creativity […]. AI implies the concept «man in the loop»" (Rcs17).

The example of AlphaGo is also brought into discussion. The game "used ingenious moves, but they were the results of superior capacity and speed of space search exploration" (Rcs7). If an algorithm is used twice with the same inputs, the results will be similar; and creativity is believed to be "more than just objectively analyzing some data" (Rcs13). Artists (19.61%) consider that AI can function only based on a priori inputs. "AI cannot operate with the concept of «white sheets»" (Ra8) and "for the true creators, the inspiration […] comes from nothing" (Ra5). This is the main considered difference between AI and humans: while the former "recycles used ideas" (Ra11) and "can create artistic outputs only based on a set of examples, […], the latter can come with a story without reading anything before" (Ra6). However, an interesting viewpoint is brought into attention by a quotation used by Picasso: "Good artists borrow, great artists steal" (Ra11). In this respect, humans and machines can be considered similar from the creative point of view.

The contradiction regarding the originality meaning for AI creativity is represented in the following network (Figure 2), together with some quotation examples and other association relationships between codes.

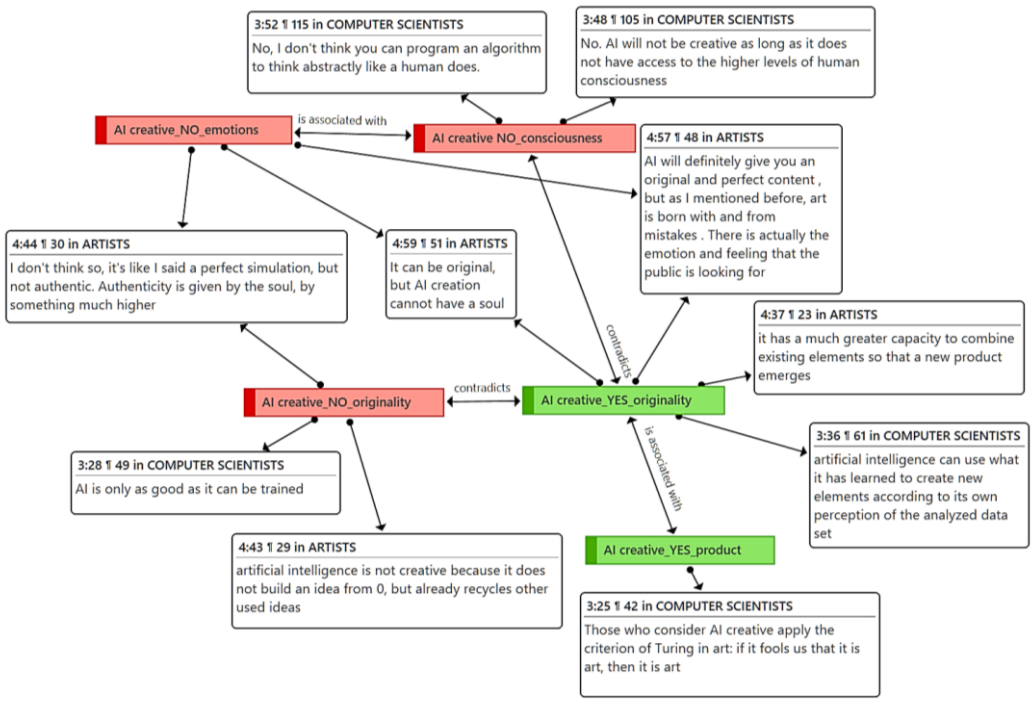

Figure 2. The network representation of AI creativity
(figure generated in Atlas.ti software)

The AI creativity link with emotions is brought into discussion by a few computer science specialists (10.81%) and by a larger number of artists (39.22%). They consider that AI cannot be creative due to the lack of feelings. Almost all interviewed

computer science specialists claim that AI cannot be creative in a human sense, at least not for now and especially due to its lack of emotional or mental capabilities. If one talks about the creative domain, "AI creations might not be differentiated from human creations if AI learns to use stimuli to create emotions in the individuals that watch or listen to the artistic output" (Rcs9). However, the artistic understanding is missing: "As long as AI does not have what we call «feelings», it cannot create real art" (Rcs8). Some artists consider that creativity and originality should be fed with experiences, feelings, vibrations (Ra6, Ra16), sensitivity, authenticity (Ra12), and inspiration (Ra13) and they are still exclusively human characteristics. Machine creativity can "get close to human creativity, but it will never be identical with its spontaneity", mainly due to the lack of emotions (Ra11).

Besides emotions but strongly associated with them, the issue of consciousness is debated. Computer scientists (18.92%), in comparison with artists (1.96%), are the ones that mostly consider that AI cannot be creative since it does not understand the inputs used for training (Rcs16). Moreover, to be creative, one needs free will and it is still questionable if AI can think and should think (Rcs17). AI can be original through "immense computational power and space and it can find solutions to problems impossible to be analyzed by humans"; but it cannot have complex reasoning mechanisms born out of the way the mind and the soul perceive the universe (Rcs17). The only creativity of an AI is that of the software developers, correlated with "an observer that that does not know what it is behind" (Rcs2).

One problematic perspective is not to delimitate human and AI creativity, but to imagine an AI creativity that exceeds human creativity (Ra11). Some respondents, although skeptical, claim that, considering the wide technological development, it is likely that, sometime in the future, AI will be able to behave humanly, to replicate the human brain and the consciousness (Ra2, Ra7).

Building on the potential of AI to be creative, the interviewees have been asked to debate on the advantages and disadvantages of AI creativity. The following figure (Figure 3) sums the data.

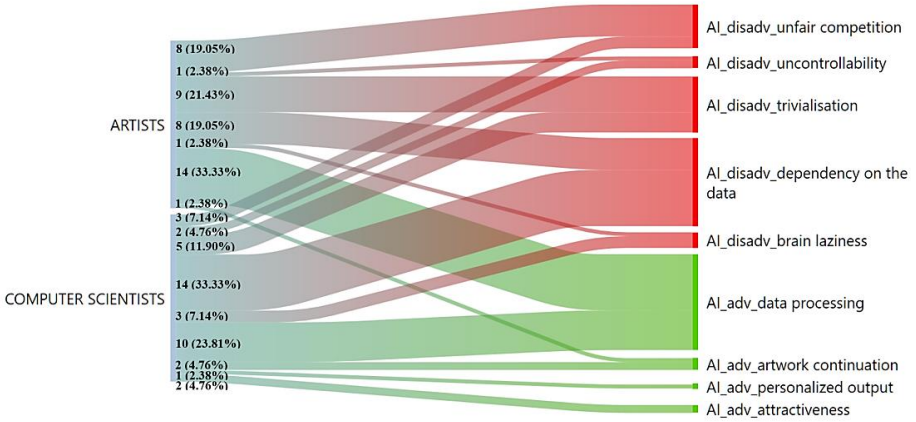

Figure 3. The AI creativity perceived advantages and disadvantages (figure generated in Atlas.ti software)

Some of the advantages detected by the respondents refer to the capacity of AI to continue an unfinished artwork ("the completion of some extremely important works of art in history, which due to certain unfortunate situations were not finished or were lost or destroyed" (Rcs15)), to attract the consumers due to its novel experiences, and to design personalized outputs. However, the main AI creativity advantage emphasized by both the computer scientists (23.81%) and artists (33.33%) is the capacity to process large amounts of data, a process impossible to be done by humans. Interestingly, the dependency on the data is perceived as a disadvantage at the same time. Although there is a wide amount of information an AI can rely on when creating an artwork, its level of creativity is conditioned by and cannot exceed the training inputs. The figure below (Figure 4) presents the contradictory relationship between data processing capacity and the dependency on the data. Some quotation examples belonging to both interviewed specialists' categories are used to sustain this link.

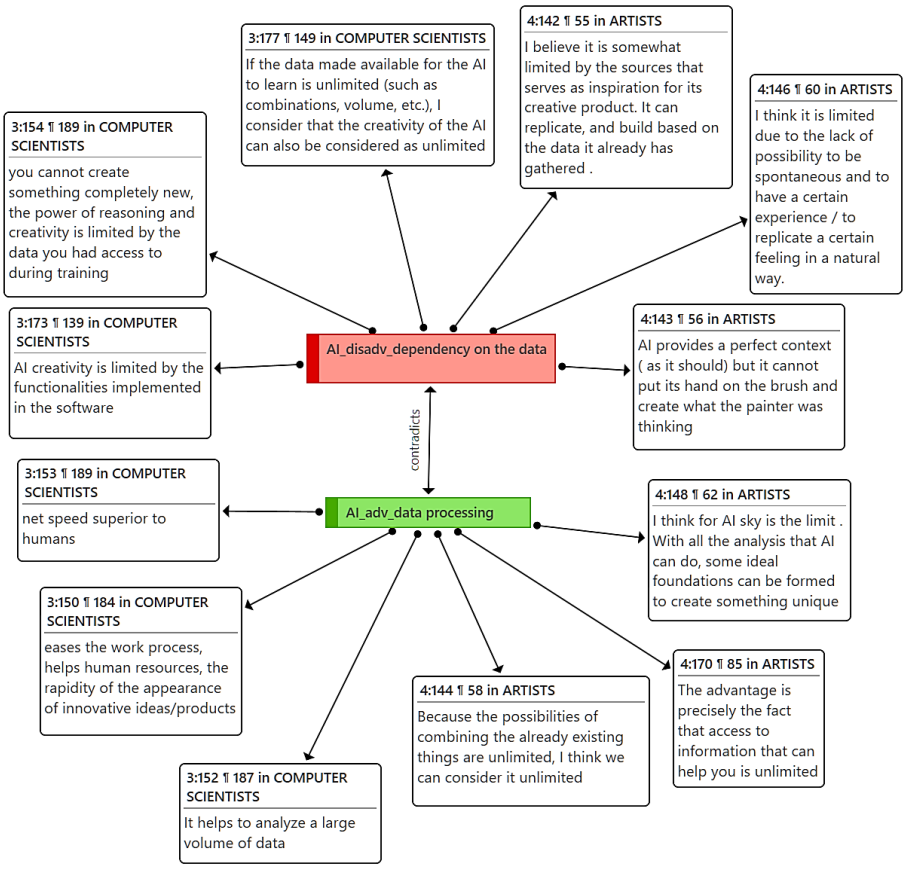

Figure 4. The network representation of the dichotomous perspective on AI's data processing potential (figure generated in Atlas.ti software)

Besides the incapacity of the AI creativity to surpass the data and functionalities of the software, another interesting disadvantage mentioned by many respondents

(11.90% of the computer scientists and 21.43% of the artists) is trivialization or dehumanization of the creative process. It becomes "*ordinary*" (Rcs3), "*overrated as the human-to-human relationship becomes neglected*" (Rcs17) and "*inexistant when art is exposed*" (Ra13). There is the impossibility to transmit emotions (Ra7), the sentimental and authentic part of the creation being lost (Ra9, Ra12). Furthermore, AI creativity is perceived as an unfair competition "*being less time consuming and preferred to a human creative routine*" (Ra2). This disadvantage is mainly associated with the emerging artists (Ra1) and with the possibility to have AI artworks being evaluated similarly with the human ones (Ra14). Likewise, AI creativity is considered a trigger for brain laziness. It reduces the "*human brain functionality and intellectual capabilities due to already digested information*" (Rcs4). The interviewees also consider that although AI has the potential to make life easier, "*comfort in this respect is not a positive thing*" (Ra6). Finally, AI, if it is increasingly developed, is considered uncontrollable and censored.

7.3. AI-human co-creativity perceptions

Asked about the possible dual AI role, either a partner or a threat, the majority of the respondents, regardless of their specialization, consider AI to be rather a co-creation partner (an entity that complements the artists) and a tool (a device through which the artists can ease the creative process). As expected, the threatening role of AI creativity is mainly emphasized by the artists (21.21%). The obtained data are presented in the Figure below (Figure 5).

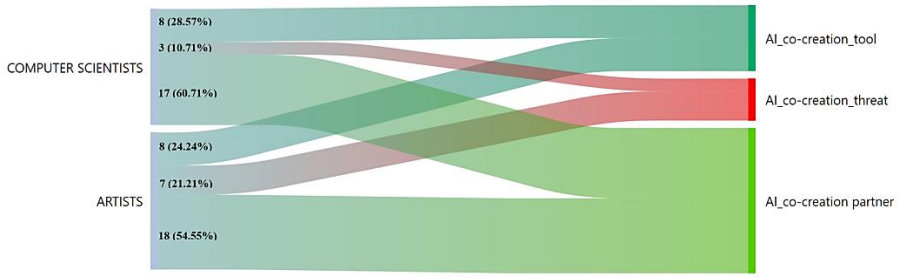

Figure 5. The AI-human co-creativity perspective
(figure generated in Atlas.ti software)

The computer science specialists consider, in their majority, that artists that take advantage of AI have a competitive benefit. Thus, AI is rather a partner that stimulates and augments creativity "through identifying subtle correlations in the available data and through its capacity to analyze and extract useful information from big data bases" (Rcs9). The software can either provide indications or confirm an output (in the case of limited creativity), but the artist should be the decision-maker within the creation process (Rcs4). Or, having a different approach, AI can be reasonably considered as "a tool (rather than a collaborator) by easing some mental processes" (Rcs15). Computer science experts consider that AI, in the actual context, cannot directly compete with the specialists from the creative industries (Rcs9). On the contrary, by helping in repetitive

tasks and by having it integrated in private spaces (e.g., smart houses) and, thus, creating the needed ambiance, AI helps humans save time for creative processes (Rcs17).

The artists' opinion on the creative role of AI is more nuanced. Some respondents (54.55%) consider that, with no doubt, AI can be a collaborator for the artists, and it can augment a creative idea (Ra3, Ra4, Ra5, Ra6). AI can be a partner for the artists in their sensitive moments and in repetitive tasks (Ra11). However, it will not be able to augment something that does not exist; thus, the initial idea is very important (Ra3). AI creations are the results of human stimuli (Ra13). Moreover, AI can improve a work with elements the artists have not thought about (Ra6). The feelings and human experience can be combined with the research and creation methods of AI (Ra9). Artists consider that AI is "useful when it supports human creativity, providing inspiration or shortcuts in the early stages of the creative process" (Ra1). Due to the constant request of fresh content, specialists from the creative industries are often out of ideas and inspiration. Thus, AI can be useful in providing new insights (Ra11) and to optimize creative processes that usually require a large number of specialists (Ra10). Other opinions are carefully debating the possible AI roles. AI "can be a technical support for creators (speed, replacement of purely functional stages of the creative process), a creative partner (offering ideas), but one that deserves careful analysis to observe in the final artistic product the relationship between the artistic contribution of artificial intelligence and the artistic contribution of human creation" (Ra1). The way AI is perceived in the creative process depends on how much freedom, independence, or ownership to replicate human nature is given to machines. If AI potential is limited, it can become a partner (Ra7). Artists consider AI creativity a valuable assistant to humans. An example "is the Sagrada Familia. In terms of architectural vision, AI helped the team to create potential sketches of how this church could have looked in Gaudi's vision" (Ra2).

The following figure (Figure 6) shows the AI-human co-creativity potential relationships and some representative quotations belonging to both computer scientists and artists.

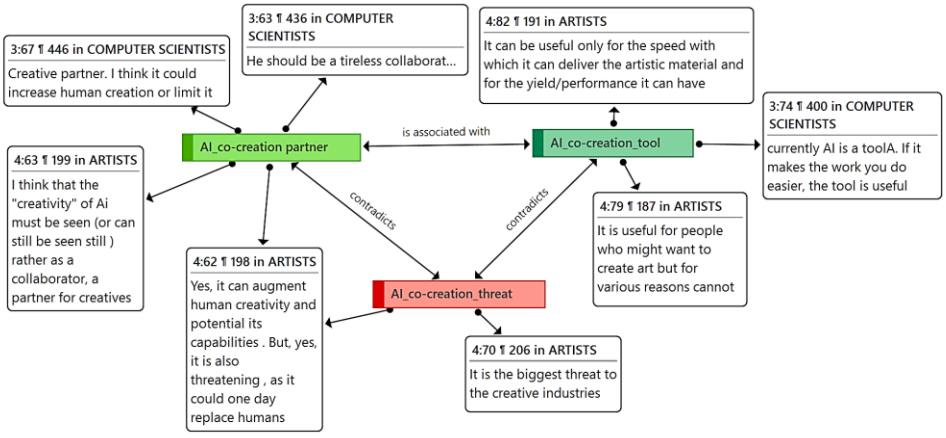

Figure 6. The network representation on AI-human co-creative perceived relationships (figure generated in Atlas.ti software)

The partner or tool labels for AI are in contradiction with the threatening instance of AI, an issue much wider emphasizes by the artists. “The ease and speed with which such AI technology could launch artistic products can affect human creators in terms of success, money, and market share” (Ra1). Some emphasize the fact that AI is the “biggest” threatening for the creative industries (e.g., programmatic advertising), since there are algorithms that performed much better than hundreds of people together (Ra10). Considering that the human component is missing, AI can be an enemy for creations (Ra16). However, “the spark and the depth of human understanding are still far to reach for AI” (Ra2). An interesting opinion states that since humans are the ones that attach a creative value to a work, from a certain moment on, AI generated art will not be something extraordinary and people will return to the human created art (Ra14).

7.4. Ethical considerations on AI creativity and copyright issues

The initial question “can machines/AI create?” has been transformed into “should machines/AI create?”, the ethical consideration being brought into discussion. The majority of the opinions (100% of the computer scientists and 89.48% of the artists) stress that ethical considerations are mandatory when discussing the AI creativity issue both regarding the creation process per se and the creation output (after the creation process). The following figure (Figure 7) allows a numerical and a visual representation of the main results in a comparative manner between computer scientists and artists.

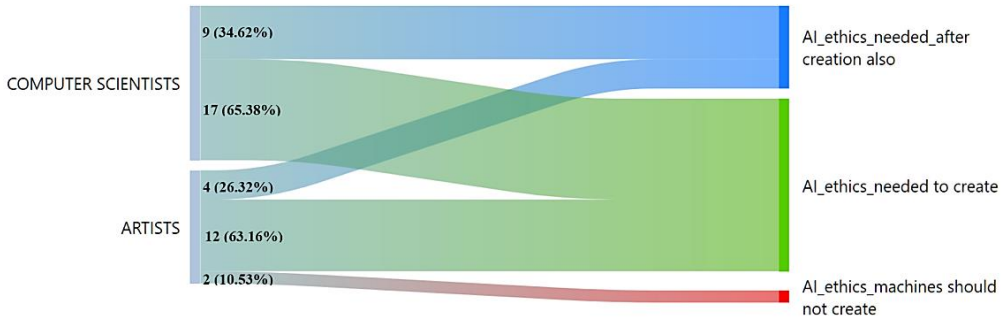

Figure 7. The distribution of AI creativity ethical considerations
(figure generated in Atlas.ti software)

Some of the computer scientists clearly state that AI should create (“anyone or anything can create and should be let to create”, Rcs16), mainly if it helps in solving problems and in leading to innovations and inventions (Rcs13, Rcs15). Other respondents emphasize the critical role of humans. “Machines cannot do anything. Only people can start a machine and give it something to do. If those people are missing ethic, disasters can happen (Guns do not kill people. People kill people)” (Rcs2). Thus, AI is rather a tool that can be used with good or bad purposes, people being the deciding entity (Rcs12). A set of values, principles, and moral rules should stipulate what is good or bad (Rcs5) and external contribution should be acknowledged (Rcs4). AI should create, but not freely

(Rcs6) and in controlled environments (Rcs7). In the context of a self-consciousness AI, there is the need of extreme caution and cultural maturity; "I do not think we have any of them yet" (Rcs8). "It would not be wise to create a self-consciousness AI that can think and can truly create. I do not know if the AI ethical principles would overlap the ethical principles of humans", mainly considering that there are progressive algorithms (Rcs17). Moreover, there are also ethical issues on the way AI creations are used (Rcs9). Ethical issues are needed after the creation process as well and they are related to the ways the AI creations are being used (Rcs3).

Artists' opinion on the AI creation perspective is well defined. Although technological improvement is natural and there is, without doubt, a need for progress, AI development should avoid abuses and should have boundaries (Ra7, Ra10, Ra11). Likewise, "machines should create as long as they serve human needs, making life easier, more interesting, more fulfilling" (Ra1). In this context, responsibility is systematically brought into discussion. As the capacity to create means power, "machines should be able to create, but under the same ethical principles as humans do" (Ra2). The main danger is when the machines create for the wrong people (Ra3), when they act against humans (Ra12), or when they become self-conscious and create beyond the limits they have been programmed for (Ra15, Ra4). Thus, limits, rules and ethical considerations should be designed. Considering creative industries, the ethical issues are linked to the control of an excessive use of technology for financial purposes (large quantities of artworks in short amount of time), that put traditional art in the shade, over-saturate the art market, and discredit human artists (Ra1). One of the respondents even claims that machines do not create, since they do not have creativity; "in the best case they generate or innovate based on data combinations and optimization" (Ra8). Others categorically claim that, since creation is a human expression and human beings cannot be replaced, machines can help but they should not create (Ra5, Ra6, Ra16).

Continuing the ethical considerations, copyright is still a very sensitive issue when it comes to AI artworks. The following figure (Figure 8) presents the respondents' opinions on the authorship issue.

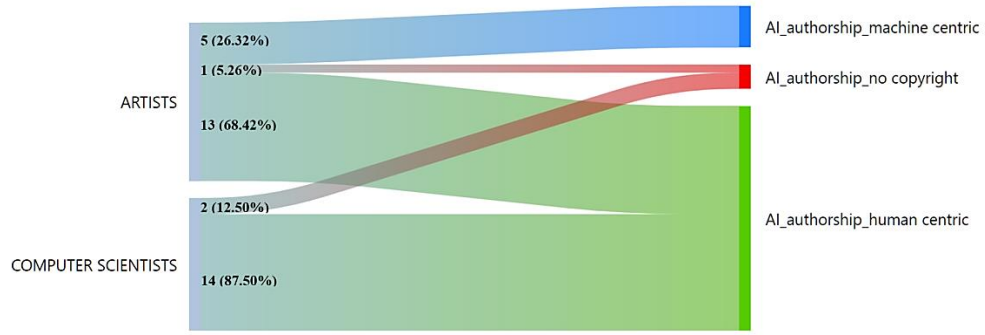

Figure 8. The distribution of AI creativity authorship perceptions
(figure generated in Atlas.ti software)

There is a clear consensus among the computer science (87.50%) specialists emphasizing that the copyright for AI creations should belong to the person/persons or

company that have created the algorithm (e.g., the engineers that have designed the system, the specialists that have provided the training data etc.). Moreover, there should never exist a discussion about the copyright of an AI generated content (Rcs16). "Only the person creates something, AI just generates an output" (Rcs3), and "compare the similitude of something that it sees with something that it saw" (Rcs16). Not being a real creation process, one cannot talk about intellectual property (Rcs16). An interesting comparison is with a song that is the intellectual property of a band, although there might have been used existing musical techniques or guitars produced by tertiary companies (Rcs15). Or, another example is that of including, in the invention patent, the car one drives, only because it is used every day to bring that person to work where she creates the new product (Rcs17). Some of the respondents claim that it is very difficult to establish if the real author of an artwork is AI or the person that created the algorithm. However, it is clear that, for now, AI is only a tool (Rcs9). Although there is a case of an invention patent given to an AI, it is recognized only in a few countries (Rcs17).

Most of the artists (with only two exemptions) consider that copyright should be considered in the case of AI creations, especially since AI does not copy an artwork but creates something new based on the given information (Ra11). The largely accepted idea is that the creators of the creator, the team behind the AI algorithm should own the intellectual property. Projecting this discussion in the future, when AI might be given human similar rights, the copyright might belong to the AI in itself (Ra7). Or, if one only considers that AI can be original and unique in its creations, one can apply the NFT rules (Ra7). Interestingly, one respondent considers that the copyright should rather be given to the person using the algorithm, not to the ones developing it (Ra1). An example in this respect is an app that generates paintings based on certain words and sentences chosen by a user; thus, the final creation is rather the result of the user initial choices, not the software behind.

The following figure (Figure 9) summarizes the main findings regarding the authorship issue and offers a few examples of interviewees' positions on it.

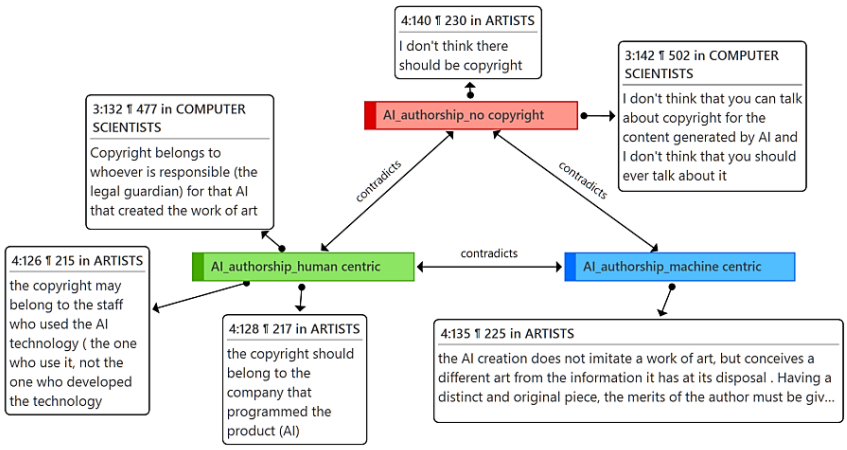

Figure 9. The network representation on AI creativity authorship issue (figure generated in Atlas.ti software)

8. Discussions

Both computer scientists and artists largely associate creativity with originality. It implies either new ideas or new combinations and perspectives. This association is in line with most of the existing piece of literature on creativity (Main & Grierson, 2020; Smith & Yang, 2004). Computer scientists also attach to creativity the idea of problem solving, of using creativity to find solutions to the existing problems. In contrast, artists are rather interested in the utility meaning of creativity (Schneider & Basalla, 2020) and in the creativity of the artistic process *per se*.

Relying on the way creativity is defined, AI creativity implies a more debatable perspective. On the one hand, AI creativity is associated with originality, especially by the artists. On the other hand, AI is considered not to have the potential to be truly original, being able only to combine information. AI creativity can be translated mainly through its potential to process large amounts of information, to combine it, and to use it for assisting or inspiring the artists, as suggested by Creely & Henriksen (2019). AI can generate and innovate, can be original, but cannot create. This strong conclusion is in line with Liu et al.'s (2019) and Zurth's (2021) views. Both cohorts consider that AI does not have yet the capacity to be creative in the human sense. It is dependent on the input data and on the algorithm, as Schneider & Basalla (2020) also consider. Interestingly, the interviewees have not highlighted the possibility of AI to make creative decisions nor initially foreseen by the programmers, as claimed by Mazzone & Elgammal (2019) and Bonadio & McDonagh (2020). They have rather insisted on the missing of human characteristics, such as emotions, intentions, reasoning, spontaneity, curiosity, and vision. Artists consider that AI creativity will be possible only when machines will be able to simulate human emotions, curiosity, and needs and that the human soul and flaws are the once giving beauty to art. Thus, although one can argue on AI creativity, this concept seems a bit too profound to be attached to machines. Computer scientists, by insisting on the consciousness issue, consider that machines, although creating, cannot understand what they are doing. As the literature emphasizes, AI is not able to combine skills, to be aware of the cultural meanings, to deeply understand social interactions (Wingström, Hautala & Lundman, 2022; Hertzmann, 2018). Moreover, it does not have an identity, feelings, or vivid experiences (Mazzone & Elgammal, 2019). Within the AI creativity debate, artists bring into discussion the possibility for humans to not fully understand the AI outputs and, thus, to mis-consider the understanding of creativity. At the same time, an important issue being emphasized is the possibility to witness an AI creativity level that exceeds human creativity. These two latter aspects need further exploration.

In terms of advantages and disadvantages, another debatable issue is that of data use. On the one hand, both analyzed cohorts consider that AI, within the creative process, can manage large amounts of data, impossible to be manages by humans. On the other hand, the interviewees state that the outputs developed by my machines depend on the data they are processing. This conclusion can be found in the works of Du Sautoy (2019b) or Schneider & Basalla (2020). Besides the data processing aspect, the artists are

keen on issues like trivialization and dehumanization of the creation process, together with the rise of unfair competition. These variables can be added within future research perspectives and further investigated.

Building on the way AI creativity is being perceived, AI-human co-creativity issues are further brought into discussion. For most of the respondents, either computer scientists or artists, AI is a partner or a tool for stimulating and augmenting creativity and for speeding up the process of creation. This conclusion reflects the ideas of Mazzone & Elgammal (2019), Schneider & Basalla (2020), Main & Grierson (2020), and Wingström et al., (2022). Likewise, based on more than 110 interviews conducted internationally, data reveal that a large part of artists from countries as United States of America, UK, Germany, or Japan consider AI as being suitable for the assistant role (Pfeiffer Report, 2018). However, most artists see the threatening side of AI creativity, a perspective slightly missing in the existing literature. The main arguments refer to being able to perform better than many people, in a much shorter amount of time, and with higher visibility. Interestingly, as additional debate directions, computer science specialists, by relying on the fact that AI creations depend on the training data, stress that artists using AI for their creation limit themselves to pre-established patterns. Furthermore, they claim that human creativity is vital as AI cannot augment something that is missing.

Finally, the ethical considerations are discussed. Most of the respondents recognize the major role of the human being when talking about originality, as Bonadio & McDonagh (2020) state. AI is rather considered a tool and humans are the ones responsible for drawing regulations, limits, and ethical considerations. Moreover, there is an undisputed opinion that AI should create in a utilitarian manner, only as long as the output serves human needs in terms of problem solving and innovation. The idea of machine ethics is a mature debate (Müller, 2021) that started with Asimov (1942) who developed the three laws of robotics: a robot should not harm a human being; a robot should obey the rules given by humans, except when such rules are in conflict with the first rule; and a robot must protect itself, except when this rule is in conflict with one of the first two rules. Thus, the human being remains the central entity. The copyright should undoubtedly belong to the persons that have created the algorithm and such intellectual property statement should exist (Zurth, 2021). Artists also bring into discussion the need to regulate the excessive use of technology; since AI can create many artworks in a very limited amount of time, there is the issue of unfair competition between AI and human artists to be further debated. At the same time, the concept of "creation" needs a re-definition since some of the artists strongly consider that machines cannot create in a creative manner. This idea follows the debate on who is or can be an AI artist, an idea developed by Browne (2022).

9. Conclusion

AI capacities are increasingly developing in all domains. As we talk today about companies launching virtual assistive applications (e.g., ChatGPT, Google Bart, Microsoft Bing Chat, DALL-E etc.) and friendly and humanly designed machines,

studying the impact of this domain is paramount. The present study develops a comparative analysis between Romanian computer scientists and artists on the perception on AI creativity and its implications. The main discussed issues refer to the understanding of creativity in general and of AI creativity in particular, to AI-human co-creativity process, and to ethical considerations and authorship issues. The study aims to provide a benchmark on AI creativity perception from the pre-generative AI era, allowing future research to further compare it with upcoming significant technological advancements.

The main findings show both similarities and differences between the two analyzed cohorts. The common ground refers to the fact the AI, within the creative process, can provide original artworks mainly due to its capacity to combine and to manage large amounts of information. At the same time, AI is profoundly dependent on the training inputs. AI is rather perceived as a partner or as a tool that can augment human abilities. Ethical aspects are mandatory and should be considered both before the creation process and after the artwork is finished. Thus, human-centric authorship is emphasized by both computer scientists and artists. The main differences between the two groups refer to the way artists perceive an artistic creation. Thus, in comparison with computer scientists, they emphasize more on the lack of emotions when talking about a machine, on the trivialization of the creation act conducted by an AI, and on the unfair and threatening competition.

This study contributes to the existing literature by being one of the early empirical attempts to shed light on the issue of AI creativity perception in a comparative manner in different domains. The paper offers an in-depth comparative approach, exploring the complementary vision of both computer science specialists (the technical view) and artists from various domains (the artistical view) on AI creativity and on the ethical concerns related to it. Based on their responses, some of the already existing debates have been reconsidered, yet others are being born. Some of the new incoming concerns are the possibility to have AI creativity that exceeds human creativity; the risk of brain laziness if AI creativity is being largely used and accepted, the need to assess the usefulness and value of the output, the need to regulate an excessive use of AI creativity for financial purposes, or the need to redefine the concept of "creation" in the AI context. Thus, further empirical research is mandatory.

The paper also has managerial contributions. Relying on the feedback received by the interviewees, this analysis has implications on the way the issue of AI creativity is perceived by both computer science specialists and artists. Some of them have admitted that the interview guide comprises aspects they have never thought about, although they proved to be important for their domain of expertise (e.g., copyright considerations in AI development). Consequently, this research not only explores and opens for debate the unknown ground in the domain but helps in creating connections and in raising new questions. Furthermore, the study continues the discussion on the legal aspects of AI creativity and accentuates the need to further regulate the domain.

Relying on the fact that computer scientists and artists have divergent opinions on the traits of the AI artistic output, one important implication of the study is the opening of a dialogue between the two cohorts to balance their perceptions on AI creativity implications. Although the economic value of an AI created work is high due to the

rapidness of production and the limited cost, the cultural and moral values may be low due to the lack of emotions, which seems to remain one of the main unattained AI characteristics (Tubadji et al., 2021). However, by admitting the impossibility to stop AI development, computer scientists can help artists to better understand and use AI as a co-creative partner, to increase their efficiency, and to replace the redundant work. Likewise, AI creativity ethical implications can be discussed between the two sets of specialists for creating acceptable legal frames.

Being an exploratory approach, the main limits refer to the methodological design of the research. The sample is limited and a larger number of experts with a well-defined background in AI development and artistic experience is needed. Likewise, the inclusion of other artistic professions (e.g., painting, literature etc.) is required. The unequal gender distribution, both within each group and between them (more men in the computer science group and more women in the artists' group), might have biased the results, although gender is not considered here an important variable. Furthermore, the online interview might have reduced the willingness of the respondents to interact and to fully and enlarged express their opinion. Thus, further research should include face-to-face individual or group interviews. The research can also be extended with an opinion survey for a broader picture of the way consumers understand and perceive AI creativity. This perspective can follow the path developed by Hong et al. (2020), Main & Grierson (2020), Utz & DiPaola (2020), or Tubadji et al. (2021) and assess AI acceptability on specific domains, as music, painting, literature, advertising, new media etc. For a more in-depth understanding of the phenomenon, experiments on authorship disclosure for an artwork can offer a causal perspective. Although the results of the present research can be extended to other East-European countries that have a similar technological and social context as Romania, comparative investigations between different countries are important. They can help not only in understanding specific features of that certain setting, but also in providing best-practices and public policies examples. Finally, as the present investigation reflects experts' opinion on AI creativity from the pre-generative AI era, a valuable research perspective involves replicating the study during the AI renaissance age. This would allow for a comparative analysis to understand any changes in perception over time.

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Legitimating CSR discourse on Facebook during the pandemic: A comparative analysis of Romanian food retail companies

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Abstract: Crisis situations, such as the COVID-19 pandemic, determine organizations to reshape their way of communicating with stakeholders. Facebook is one of the communication channels used by food retail companies to transmit CSR messages during the pandemic. Approaching the quantitative content analysis, the current paper reveals the themes and legitimation that emerged from Facebook posts about corporate social responsibility made in the first year of the pandemic by the food retail companies Carrefour Romania, Kaufland Romania and Lidl Romania. The analysis is centred on 289 posts from the Facebook pages of the three companies, published between March 2020 and February 2021. According to the results, the most common communication topic used by Lidl and Carrefour was responsibility towards customers. In the case of the Kaufland company, the most frequent topic was that of responsibility towards medical personnel, patients and health institutions. The findings additionally reveal that Kaufland and Carrefour, the companies that outline the objectives and methods for implementing CSR initiatives, primarily employed the strategy of rationalization legitimation. Lidl employed authority legitimation as its most common strategy, citing authorities in the fields of public health and corporate social responsibility.

Keywords: legitimation strategies, CSR discourse, food retail companies, Facebook, pandemic.

1. Introduction

The concept of corporate social responsibility (CSR) has gained momentum in recent years, as the specialized literature shows (Istudor & Suciu, 2020; Paliwoda-Matiolanska et al., 2020; Yang et al., 2022), and people are increasingly interested in the products they buy and their origin or the impact that producers have on the environment (Quiles-Soler et al., 2023). Bittner and Leimeister (2011) state that corporate social responsibility communication constitutes an important part of corporate reporting, having a significant impact on the organizational image and on the relationship with stakeholders. Research (Caruana & Ewing, 2010; Öberseder et al., 2013; Hetze, 2016) also shows that people are interested in the social responsibility actions of organizations and inquire about what companies do before buying their products. CSR communication on social media has been analysed (Mandviwalla &Watson, 2014; Paliwoda-Matiolanska et al., 2020; Jiang &

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Park, 2022; Topor et al., 2022) and studies show that communicating CSR projects on social networks positively influence companies' reputation or people's perception and online presence gives organizations the opportunity to build long-term relationships with the public.

The pandemic context has brought major changes in terms of companies' communication strategies, organizations being forced to adapt their communication regarding CSR actions, to be attentive to the needs of consumers and to respond to these needs through transparent and fast communication. As stated by Mileti and Fitzpatrick (1991, in Moreno et al., 2020), in the context of a pandemic, the public needs to receive and understand information, risks and actions to take, as well as to make decisions and be able to act on the information received. Topor et al. (2022) say that companies are willing to adapt their discourse according to the expectations and needs of the communities. Thus, (inter)national organizations focused their actions and corporate social responsibility initiatives on coronavirus related campaigns during the pandemic.

The purpose of this study is to outline the communication themes and legitimation strategies that were employed in the discourse surrounding corporate social responsibility (CSR) from the Facebook posts of three Romanian food retail companies during the first year of the pandemic: Carrefour Romania, Lidl Romania and Kaufland Romania. Organizations from the food retail sector were selected because they have a direct impact both on the consumers who come into contact with their services and products every day and on the environment, through the influence they have on the choice of sustainable products, food waste, plastic in packaging or the gases resulting from the transport of goods. Also, this field was heavily publicized since the first weeks of the COVID-19 pandemic in Romania in terms of the safety of customers or employees and food stocks in supermarkets.

This paper aims to answer the following research questions:

RQ1: Which topics did the three organizations cover in their pandemic-related Facebook posts regarding corporate social responsibility?

RQ2: In the pandemic setting, how did the three corporations, between March 2020 and February 2021, discursively legitimize their CSR initiatives on Facebook?

RQ3: Which of the legitimation strategies of the three organizations were the most prevalent in the pandemic-related CSR discourse based on their Facebook posts?

2. Literature review

2.1. Corporate social responsibility discourse and legitimation strategies

Suchman (1995) says that legitimation is understood to be the compliance of companies to a collection of societal standards, definitions, values, and beliefs. Furthermore, the author states that organizational legitimation relies on the communication of actions between companies and stakeholders. van Leeuwen (2008) created a framework for examining legitimation strategies in discourses. It includes four discursive strategies of

legitimation: authorization, which refers to "legitimation by appeal to the authority of institutions such as legislation, conventions and traditions, or the institutionalized authority of a specific actor" (van Leeuwen, 2008, p. 105), moral evaluation, which refers to "discourses of value" (van Leeuwen, 2008, p. 106), rationalization, which refers to "the goals and uses of institutionalized social action and to the social knowledge that endow them with cognitive validity" (van Leeuwen, 2008, p. 106) and mythopoesis, which refers to "narratives whose outcomes reward legitimate actions and punish non-legitimate actions" (van Leeuwen, 2008, p. 106). A new legitimation strategy, normalization, was introduced by Vaara et al. (2008) and it corresponds to conformity from authorization category in van Leeuwen's framework. This strategy refers to legitimation by reference to normality.

In the literature, we find some research about the legitimization strategies used by companies in various communication media. In the wake of an oil platform accident, Breeze (2012) investigated legitimation strategies in the letters sent to shareholders by five oil companies. To determine the primary themes in these letters, the author developed a coding scheme that includes nine categories: mentions about the risks from industry, mentions about the accident, mentions about exploring new areas, mentions about environmental responsibility, mentions about social responsibility, mentions about substitute technologies, legitimation of the petroleum sector, statements regarding workers and monetary outcomes.

Starting from the theories about the communication of inclusion, diversity, equity and accessibility (IDEA), Zhang (2022) analysed the CSR communication on Facebook of 48 American companies from various fields of activity, including the top Standard & Poor's, regarding the four aspects: inclusion, diversity, equity and accessibility (IDEA). Using quantitative content analysis, the author states that, in terms of legitimation strategies, companies motivated or justified their actions most often with references to performance, values and audiences, and less often with references to consumer activism or crises.

Hahn and Lülfs (2014) started from the theories based on the economic reports made by companies and from the socio-political theories of the reports made by organizations to analyse the CSR reports made according to the GRI (Global Reporting Initiative) model of the companies listed according The US Dow Jones Industrial Average and the German DAX Index. Thus, regarding the level of responsibility that companies assume according to legitimization strategies, the research results of the authors Hahn and Lülfs (2014) show that legitimization through abstraction within the moral evaluation involves companies evading responsibility, given that negative incidents are attributed to larger entities, such as the entire industry (Hahn &Lülfs, 2014, p. 27). Likewise, legitimation through rationalization involves the transfer of negative events onto other institutional practices, such as the pursuit of economic growth (Hahn & Lülfs, 2014, pp. 28-29). Regarding legitimation through authorization, Hahn and Lülfs (2014, 29) state that this strategy involves associating negative aspects with personal or impersonal authorities that have a higher status.

2.2. The corporate social responsibility discourse in the pandemic context

He and Harris (2020) state that one of the effects of the COVID-19 pandemic was the acceleration of the development of long-term CSR strategies by organizations which are aware of the balance they must maintain between profit and consumer needs. Companies were also forced to adopt much faster response strategies in this crisis, given the unpredictable evolution of the pandemic from one day to the next, and to develop their online communication strategies while physical interactions being limited. Regarding consumers, the authors state that the pandemic has an impact on them in terms of awareness of consumption behaviour, both on their own person and on society.

Analysing the communication strategies, communication channels and types of messages sent by the Spanish authorities during the COVID-19 pandemic, Moreno et al. (2020) state that stakeholders' need to seek information is greater during a crisis. To find out how companies managed CSR communication on social media in this context, Yang et al. (2022) analysed how US Fortune 500 companies communicated their CSR measures in the context of the COVID-19 pandemic on their Facebook pages and how online users responded to their posts. Three themes were identified: updated data for the online users, businesses response to the crisis and company contributions. The results of their research show that the posts about proactive CSR initiative during the coronavirus pandemic received more comments and shares from online users and companies in industries severely affected by the pandemic (such as retail, transport or wholesale) received more comments with an intense emotional component. Also, the posts about actions for external stakeholders received more positive reactions than those for internal stakeholders. Yang et al. (2022) state that in the case of a long-lasting crisis, companies must pay attention to the fact that the needs of communities can change, and organizational strategies must be adapted. These studies emphasize how crucial it is to recognize and comprehend the topics covered in CSR communication in order to examine how businesses discursively validate themselves when addressing these issues.

2.3. Food retail companies and corporate social responsibility communication

Istudor and Suciu (2020) state, in the context of CSR reporting by food retail companies in the European Union, that activities that can bring a competitive advantage in a society include adopting sustainability measures in accordance with current international standards.

Regarding the reporting of CSR results, Istudor and Suciu (2020) conducted a study of the sustainability reports of six food retail companies in the European Union, drawn up according to GRI standards. Mentioning the link between CSR and these organizations, the authors emphasize the importance of food retail companies in terms of the impact they have on the economic, social and environmental fields in the nations where they conduct their businesses, given the fact that, due to the structures of their supply chains supply, they can influence product quality and have an impact on food waste. Furthermore, Istudor and Suciu (2020) state that food retail organizations can support the production of organic food and sustainably sourced products.

Regarding the CSR policies of companies in the food, soft drinks and packaging industries, Topic et al. (2020) showed that organizations in the food industry had the highest number of CSR policies described on their websites. The most common CSR policies were about managing waste and recyclable packaging, diversity in the workforce and supporting local communities.

Further, analysing how the food retail company Lidl incorporated CSR messages in its corporate and marketing campaigns in the UK and Croatia, Topic and Tench (2016) demonstrate how Lidl's communication strategy in Croatia was based on social situation analysis and promoted job opportunities in an environment where employee rights and workplace harassment were discussed. Regarding the determination to implement CSR campaigns, the authors mention that in Croatia, the Lidl company was motivated by European Union programs that rewarded organizations that applied social responsibility programs, and CSR was invoked as a justification to increase sales and customer satisfaction.

Regarding CSR campaigns, Hartmann et al. (2015) state that cause marketing has positive effects on consumer trust in food retail companies. However, regarding the communication of cause-related marketing campaigns, the authors state that organizations that carry out such actions must communicate transparently with the public, providing details about the impact they have by purchasing the organization's products and supporting the campaign. Otherwise, the impact on consumer trust in companies can be major, negatively influencing organizational reputation and customer loyalty.

In addition to the fact that food retail companies can have a great influence on sustainability by choosing sustainable products or avoiding food waste, they must communicate CSR actions and measures taken, given the growing concern of consumers in terms of social responsibility. Also, through communication campaigns, reporting and CSR actions, organizations can strengthen their relations with the public, but inaccurate or non-transparent communication can lead to damage to reputation and consumer trust.

3. Methodology

3.1. Corpus

The corpus consists of 289 Facebook posts from Kaufland Romania, Carrefour Romania and Lidl Romania that were published from March 2020 until February 2021. The selection of the corpus was made according to the following criteria: first, the Facebook posts published by the three companies on their pages the COVID-19 pandemic in Romania first started (i.e., March 2020) during one financial year (i.e., February 2021) were selected, then, from the posts addressing CSR topics were selected. Lidl Romania had 148 Facebook posts, Kaufland Romania, 57 and Carrefour Romania, 84. The posts were collected using CrowdTangle (https://www.crowdtangle.com/).

In relation to the frequency of the CSR Facebook posts published during March 2020 and February 2021, the Lidl Romania company published most of them in September, namely 37, then 16 in December and January. Kaufland Romania

organization published the most Facebook posts in October, namely 10, then nine in February and eight in September. Carrefour Romania company published the most posts in January, namely 16, then 15 in March and 12 in April and November, being the only enterprise among the three organizations under analysis which published the most CSR posts during the pandemic's first two months.

3.2. Research methods

Thematic analysis was performed using quantitative content analysis. This includes two categories from the analysis schemes developed by Yang et al. (2022): organizational contribution for society (renamed in this analysis as responsibility to communities or NGOs) and organizational crisis response for internal stakeholders (renamed in this analysis as responsibility towards employees). Also, the coding scheme for thematic analysis includes two other categories from the analysis scheme developed by Nistor (2023): actions for health institutions and patients (renamed in this analysis as responsibility towards medical professionals, patients and health institutions) and actions for customers (renamed in this analysis as responsibility to customers). Moreover, three other categories for the thematic analysis were developed and adapted for this research according to the specifics of the analysed corpus, as environmental responsibility, responsibility towards suppliers/ partners, awards/ distinctions.

Then, another coding scheme was created to determine how retail food organizations legitimized their CSR initiatives. This comprises three of the four legitimation strategies outlined by van Leeuwen (2008): authority legitimation, moral legitimation and rationalization legitimation. The fourth strategy, namely mythopoesis, was not present in the corpus under analysis and, thus, was not incorporated into the coding schemes. Nistor (2023) previously developed this coding scheme to identify the legitimation strategies from press releases of food retail companies in the pandemic context.

The analysis was conducted using the categories below:

- responsibility towards medical professionals, patients and health institutions - this category contains measures for medical professionals, healthcare facilities, and coronavirus-affected patients. The following subcategories were found within this category:
  - financial or medical equipment donations: this subcategory contains references to medical supplies that organizations have given to healthcare facilities;
  - food donations for medical staff: mentions of providing food to medical staff are included in this subcategory.
- responsibility towards customers – this category contains elements pertaining to how organizations present the actions they did for their clients. The following subcategories were found within this category:
  - tips for combating food waste: this subcategory includes posts in which companies gave their customers advice to combat waste;
  - measures taken for customers in the context of the pandemic: posts in which the organizations mentioned any kind of actions taken to protect

customers from the effects of the pandemic (e.g., disinfection of common spaces or implementation of home delivery services).

- responsibility towards employees – posts that discuss the pandemic-related measures companies have taken for their employees fall under this category. The following subcategory was found within this category:
  - actions made for workers in the light of the COVID-19 pandemic: posts in which the companies mentioned any kind of actions taken to protect employees from the effects of the pandemic (e.g., actions taken by companies in offices and stores for employees or monetary benefits that organizations provided to their employees).
- responsibility towards communities or NGOs – posts that discuss the CSR initiatives that organizations have done for specific NGOs or the communities in which they operate fall under this category. The following subcategories were found within this category:
  - food donations for disadvantaged people: references to corporate donations of food to individuals living in underprivileged areas impacted by the pandemic;
  - measures taken to support education: posts in which the companies mentioned the actions taken to support the education of students in Romania;
  - donations to NGOs that help animals: posts about donations made by companies to NGOs that helped animals in shelters;
  - donations for NGOs working to limit the effects of earthquakes: posts about donations made by companies to help NGOs to limit the effects of earthquakes;
  - donations for NGOs that facilitate the digitization of Romania: posts about donations made by companies to NGOs which carried out digitization programs of the country;
  - financial donations to NGOs or disadvantaged communities: posts about financial donations made by organizations to NGOs or disadvantaged communities;
  - measures to support tourism: posts about programs undertaken by companies to support tourism;
  - tips for healthy eating: posts in which companies offered clients advice on healthy eating;
  - blood donation: posts about the blood donation campaigns in which the companies have been involved;
  - measures to protect the falls from the national heritage: posts about actions to protect heritage;
  - donations to NGOs that facilitate village lighting: posts about donations made by the organizations to NGOs that facilitated village lighting.
- environmental responsibility – posts in this category highlight the steps businesses have taken to safeguard the environment. The following subcategories were found within this category:

  - measures to combat food waste: this subcategory includes posts in which the companies mentioned the actions taken to combat food waste;
  - measures to combat pollution: this subcategory includes posts in which the companies mentioned the actions taken to combat pollution;
  - sustainably sourced or local products: this subcategory includes posts about sustainable or local products;
  - collection of used oil: this subcategory includes posts about the used oil collection campaigns.
- responsibility towards suppliers/partners – posts that discuss the CSR initiatives that businesses have carried out on behalf of their partners or suppliers fall under this category. The following subcategories were found within this category:
  - measures taken for suppliers or partners in the context of the pandemic: it consists of posts in which the companies mentioned actions taken for suppliers or partners within the framework of the COVID-19 outbreak;
  - measures taken to support local producers: this subcategory includes posts in which the companies mentioned measures taken to support local producers.
- awards/ distinctions – posts that discuss awards that businesses have received for their CSR initiatives or campaigns fall under this category.
- other (no concrete facts specified) – this category includes other CSR topics that could not be included in the categories above.

Starting from van Leeuwen's framework (2008), Nistor (2023) developed an analysis scheme for discursive legitimation strategies in CSR communication from press releases of food retail companies. Using this previously developed coding scheme, the current analysis scheme contains the following categories and subcategories:

- authority legitimation, with the following subcategories:
  - conformity: refers to posts that include sentences showing "what most people do" (van Leeuwen, 2008, p. 109);
  - tradition: refers to posts that include sentences showing that the actions taken by the companies were justified by the fact that this is "what they have always done" (Leeuwen, 2008, p. 108);
  - personal authority: refers to posts that include sentences showing "the status or role of people in a particular institution" (van Leeuwen, 2008, p. 106);
  - impersonal authority: refers to posts that include sentences about "laws, rules or regulations" (van Leeuwen, 2008, p. 108);
  - expert authority: refers to posts that include sentences containing explicit expertise "by mentioning credentials" (van Leeuwen, 2008, p. 107) or implicit expertise, where "the expert is well known in the given context" (van Leeuwen, 2008, p. 107);
  - role model authority: refers to posts that include sentences about "role models or opinion leaders" that "may be members of a peer group or media celebrities imitated from afar" (van Leeuwen, 2008, p. 107).

- moral legitimation, with the following subcategories:
  - evaluation: refers to posts that include sentences containing "evaluative adjectives" that "communicate both concrete qualities of actions or objects and commend them in terms of some domain of values" (van Leeuwen, 2008, p. 110);
  - abstraction: refers to posts that include sentences presenting practices "in abstract ways that moralize them" in connection with "discourses of moral values" (van Leeuwen, 2008, p. 111);
  - positive comparison: refers to posts that include sentences showing comparisons "associated with positive values" (van Leeuwen, 2008, p. 112);
  - negative comparison: refers to posts that include comparisons "associated with negative values" (van Leeuwen, 2008, p. 112).
- rationalization legitimation, with the following subcategories:
  - instrumental – goal orientation: refers to posts that include "purposes of an action" (van Leeuwen, 2008, p. 114);
  - instrumental – means orientation: refers to posts that include sentences showing "the means by which an action is achieved" (van Leeuwen, 2008, p. 114);
  - instrumental – effect orientation: refers to posts that show "the outcome of actions" (van Leeuwen, 2008, p. 115);
  - theoretical – experiential: refers to posts that include sentences about "commonsense knowledge", formulated through "proverbs, moral maxims and wise sayings" (van Leeuwen, 2008, p. 116);
  - theoretical – scientific: refers to posts that include sentences containing "scientific information" (van Leeuwen, 2008, p. 117);
  - theoretical – definition: refers to posts that include sentences where "one activity is defined in terms of another" (van Leeuwen, 2008, p. 116);
  - theoretical – explanation: refers to posts that show descriptions of "one or more of the actors involved in the practice" (van Leeuwen, 2008, p. 116);
  - theoretical – prediction: refers to posts that include "predictions based on expertise" (van Leeuwen, 2008, p. 116).

The sentence served as the unit of measurement in the coding scheme, and the coding tables indicated which categories were present by 1 for a present category and 0 for an absent category.

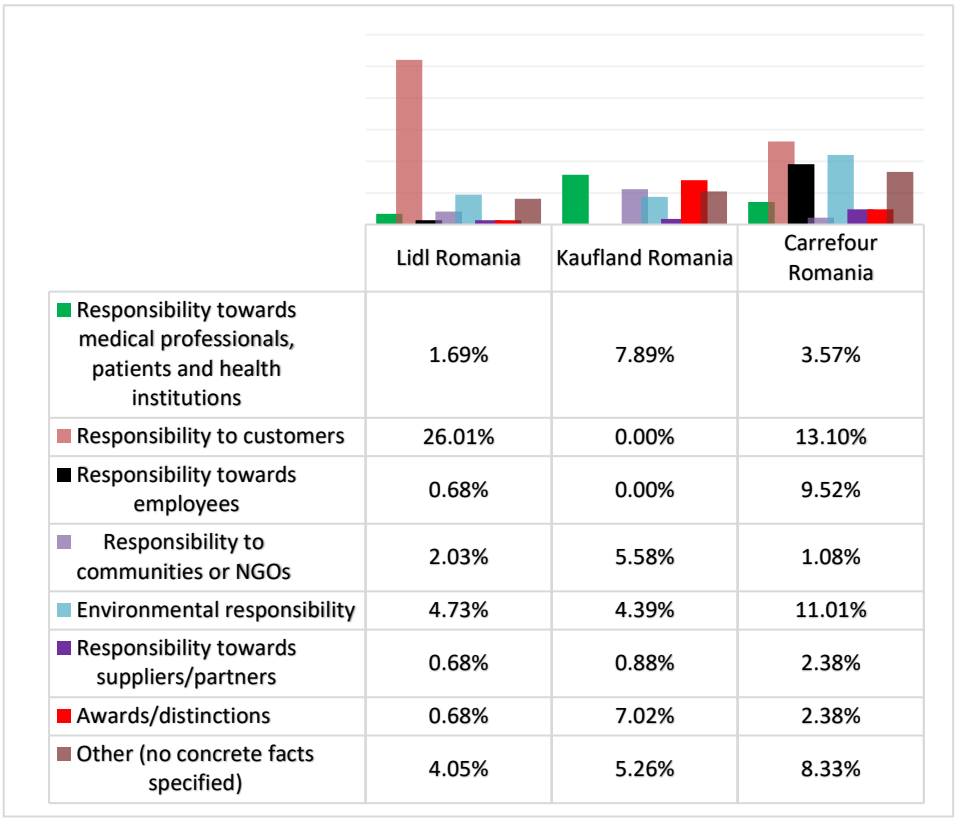
4. Results

4.1. Topics on the corporate social responsibility of food retail companies in Romania

The frequency of topics is shown in figure 1. As observed, the most frequent topic used by Lidl Romania was responsibility towards customers (26.01%). The company

frequently posted tips on combating food waste for customers. The second most popular topic (4.73%) was environmental responsibility, focusing on measures and campaigns for combating pollution. The least frequently used theme was responsibility towards employees, responsibility towards suppliers/partners and awards/distinctions.

Kaufland Romania employed responsibility towards medical professionals, patients and health institutions (7.89%) as its most used topic, mentioning financial or medical equipment donations that the company has made. Next, the organization shared information about the prizes or distinctions it obtained for CSR campaigns and actions (7.02%). Responsibility towards suppliers/partners was the subject that Kaufland company communicated the least (0.88%), this theme being present in one Facebook post about supporting local producers. Additionally, two topics were absent from the Kaufland Romania company's examined posts, namely the responsibility to customers and responsibility towards employees.



	Lidl Romania	Kaufland Romania	Carrefour Romania
Responsibility towards medical professionals, patients and health institutions	1.69%	7.89%	3.57%
Responsibility to customers	26.01%	0.00%	13.10%
Responsibility towards employees	0.68%	0.00%	9.52%
Responsibility to communities or NGOs	2.03%	5.58%	1.08%
Environmental responsibility	4.73%	4.39%	11.01%
Responsibility towards suppliers/partners	0.68%	0.88%	2.38%
Awards/distinctions	0.68%	7.02%	2.38%
Other (no concrete facts specified)	4.05%	5.26%	8.33%

Figure 1. Topic frequency in the CSR Facebook posts of food retail companies in Romania, March 2020–February 2021

The most frequent topic used by Carrefour Romania was responsibility to customers (13.10%), namely the measures taken by the company to protect customers in the context of the Coronavirus pandemic. The organization shared information regarding environmental responsibility (11.01%). The company frequently posted about measures

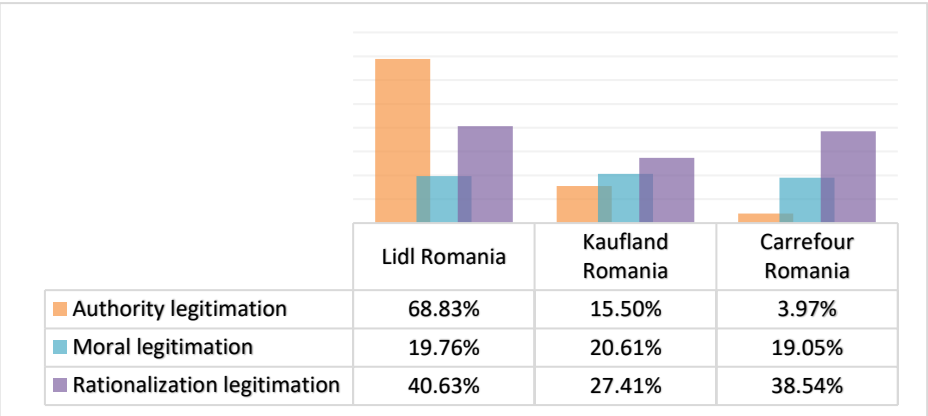
for fighting pollution and local or sustainably obtained products. The organisation communicated the least about responsibility to communities or NGOs (1.08%). Within this category, the company posted about food donations made to disadvantaged communities.

Therefore, Lidl Romania and Carrefour Romania communicated most often about responsibility to customers, highlighting the measures they have taken for them in the context of the pandemic or offering advice to customers to combat food waste, while Kaufland Romania had the most recurring theme, namely that of responsibility towards medical professionals, patients and health institutions, mentioning food donations for medical personnel or financial and medical equipment donations. Additionally, during the period under analysis, Kaufland Romania did not communicate on the topic of actions for customers or employees, in contrast to Lidl Romania and Carrefour Romania, which communicated measures taken for these categories of stakeholders to prevent or reduce the negative effects of the pandemic communicated.

4.2. Legitimation strategies present in Facebook posts on the corporate social responsibility of food retail companies

RQ2 and 3 focused on examining how frequently the three food retail companies used legitimation strategies in their CSR Facebook posts in the pandemic context.

Figure 2 illustrates that Kaufland Romania and Carrefour Romania used rationalization and moral legitimation as discursive legitimation strategies more frequently. Additionally, Lidl Romania employed authority and rationalization legitimation as its most common discursive legitimization strategies.



	Lidl Romania	Kaufland Romania	Carrefour Romania
Authority legitimation	68.83%	15.50%	3.97%
Moral legitimation	19.76%	20.61%	19.05%
Rationalization legitimation	40.63%	27.41%	38.54%

Figure 2. Legitimation strategies in the CSR posts of retail companies (March 2020 - February 2021)

We examined which subcategories were most commonly used by food retail companies for each legitimization strategies. As observed in table 3, within each legitimation strategy, the two most used subcategories were the same for the three companies, namely: authority legitimation was present most frequently in Facebook posts about CSR through expert authority and tradition, moral legitimation was achieved most

frequently through abstraction and evaluation subcategories and rationalization legitimation was present most often through instrumental – goal orientation and instrumental – means orientation subcategories.

Table 3. Frequency of the two most prevalent subcategories within each legitimation strategy category in the CSR Facebook posts (March 2020 - February 2021)

	The most frequent two subcategories from each legitimation strategy		
Legitimation strategy	*Carrefour Romania*	*Lidl Romania*	*Kaufland Romania*
Authority legitimation	Expert authority (75%)	Expert authority (64.15%)	Expert authority (64.15%)
	Tradition (10%)	Tradition (17.92%)	Tradition (22.64%)
Moral legitimation	Abstraction (53.13%)	Abstraction (52.99%)	Abstraction (65.96%)
	Evaluation (45.31%)	Evaluation (42.74%)	Evaluation (34.04%)
Rationalization legitimation	Instrumental - goal orientation (28.19%)	Instrumental - goal orientation (28.9%)	Instrumental - means orientation (30.4%)
	Instrumental - means orientation (28.19%)	Instrumental - means orientation (27.03%)	Instrumental - goal orientation (29.6%)

4.2.1. Authority legitimation

Figure 2 and Table 3 above show that authority legitimation strategy was used most frequently by Lidl Romania (68.83%) than by Kaufland Romania (15.50%) and it was the least used by Carrefour Romania (3.97%). In the posts of all three companies, expert authority and tradition were the most present subcategories within the authority legitimation strategy.

In the subcategory of expert authority, the companies mentioned persons or institutions with expertise in a certain field. The expert authority subcategory was used most often by Carrefour Romania (75%). The organization highlighted the collaborations it has with reputable organizations in the industries where it had carried out social responsibility initiatives. Words like the following demonstrate this: “County Committees for Emergency Situations” (Carrefour Romania, 2020, March 13), “Directorate of Public Health Bucharest” (Carrefour Romania, 2020, April 14) or “the civic group Geeks for Democracy” (Carrefour Romania, 2020, June 23). Then, with the same frequency (64.15%), Lidl Romania and Kaufland Romania employed the subcategory of expert authorization. Lidl Romania made reference to professionals, including authorities or organizations that it worked with to carry out CSR initiatives, such as “The S.M.U.R.D Foundation” (Lidl Romania, 2020, April 8) or “Cluj Food Bank” (Lidl Romania, 2020, April 15) and Kaufland Romania mentioned institutions with expertise such as

"Foundation for the Development of Civil Society" (Kaufland Romania, 2020, August 11) or "Blood Transfusion Center from Bucharest" (Kaufland Romania, 2020, August 14).

The companies demonstrated, on the one hand, through explicit expertise, that their campaigns were endorsed by organizations with health, social or CSR expertise, entities that can get directly involved in helping underprivileged communities or mitigating the effects of the pandemic, and one the other hand, through implicit expertise, that they collaborated with well-known NGOs.

Within the tradition subcategory, the companies mentioned either the continuity of actions or campaigns started in the past, or their experience in the communities in which they operate. This subcategory was the most frequent in the Kaufland Romania company's posts (22.64%) and was reflected in sentences such as "For two years, Kaufland Romania has been supporting Romania in good condition" (Kaufland Romania, 2020, August 11), "For 15 years we have been making the story a reality" (Kaufland Romania, 2020, September 18) or "for the third year in a row, we got first place in the list of the most sustainable companies in the country" (Kaufland Romania, 2020, November 19). Then, in the posts of Lidl Romania, the subcategory of tradition was present most often (17.92%) through sentences such as "We continue to act #ForABetterFuture and get involved in the communities we are part of" (Lidl Romania, 2020, September 18) or "SMURD turns 30 today! We are happy to be with them for 5 years and support their projects" (Lidl Romania, 2020, September 25). Carrefour Romania used the tradition subcategory (10%) in its Facebook posts, through statements such as "We continue to be with communities that need help" (Carrefour Romania, 2020, September 1) or "The Carrefour Foundation celebrates 20 years" (Carrefour Romania, 2021, January 28).

These examples suggest that the organizations have close connections with the communities, and they have the necessary experience to understand their needs. Also, by mentioning the continuation of supporting certain CSR projects, the companies strengthen their status as socially responsible organizations, and show transparency.

4.2.3. Moral legitimation

As observed in Figure 2 and Table 3, the moral legitimation strategy was used most frequently by Kaufland Romania (20.61%), followed by Lidl Romania (19.76%) and Carrefour Romania (19.05%). All three companies employed abstraction and evaluation more within the moral legitimation strategy.

The food retail companies presented practices in the abstraction subcategory highlighting traits of moral principles. This subcategory was most frequently encountered in the posts of Kaufland Romania (65.96%), using phrases like "vulnerable communities" (Kaufland Romania, 2020, May 6), "frontline medical personnel" (Kaufland Romania, 2020, May 13) or "to overcome the negative effects caused by COVID-19 more easily" (Kaufland Romania, 2020, June 19). Carrefour Romania (53.13%) and Lidl Romania (52.99%) used abstraction as well. In the Facebook posts of Carrefour Romania, abstraction was present through structures such as "the most exposed categories during this period" (Carrefour Romania, 2020, March 19) or "we act together, #fromCare for those who care" (Carrefour Romania, 2020, April 9). In the posts of Lidl Romania, we find this subcategory in phrases such as "we supply responsibly" (Lidl Romania, 2020,

April 2) or sentences such as "The refrigerator and freezer are our basic allies in the fight against food waste" (Lidl Romania, 2020, June 30).

The three companies appealed to the emotional side of people through these phrases emphasizing the abstraction subcategory of moral legitimation. This could affect the people to whom the messages were addressed and persuade them to participate in corporate social responsibility campaigns or implement the company's COVID-19 pandemic recommendations.

Within the evaluation subcategory, the communities referenced in the CSR initiatives within the framework of the pandemic were bestowed with certain evaluative adjectives by the food retail corporations. Carrefour Romania used the evaluation subcategory within moral legitimation (45.31%), using evaluative adjectives in phrases like "The measure of protection is actually the measure of care towards customers and employees alike" (Carrefour Romania, 2020, March 19) or "You know you're shopping safely when you keep your distance" (Carrefour Romania, 2020, March 21) to describe the actions that people had to do to be safe, in the context of the pandemic. The evaluation subcategory was also employed by Lidl (42.74%) and by Kaufland (34.04%). The companies described the stakeholders affected by the pandemic through expressions such as "critical patients" (Lidl Romania, 2020, April 8) or "exposed due to poverty and social exclusion" (Kaufland Romania, 2020, May 22).

As we can see, within the evaluation subcategory of moral legitimation strategy, the retail companies highlighted how the pandemic affected the stakeholders for whom they carried out corporate social responsibility initiatives. They also identified the stakeholders that these initiatives affected and the people who benefited from them.

4.2.4. Rationalization legitimation

Rationalization legitimation was more present in the posts of Lidl Romania (40.63%), followed by Carrefour Romania (38.54%) and Kaufland Romania (27.41%). The most common subcategories found in the rationalization legitimation strategy across all three companies were instrumental – goal orientation and instrumental – means orientation, as shown by Table 3.

Within the instrumental – goal orientation subcategory, the three food retail companies explained the goals of their CSR campaigns, so as to obtain the support of communities or clients and to openly discuss the rationale behind their actions within the framework of the pandemic. The instrumental – goal orientation subcategory was used by the three companies in phrases such as "with the aim of stopping and collecting the waste brought by the water" (Lidl Romania, 2020, June 5), "so that the magic of the Holidays reaches the less fortunate" (Kaufland Romania, 2020, December 22), or "we want to be able to deliver every order as quickly and safely as we can" (Carrefour Romania, 2020, March 22).

In the case of campaigns in which organizations have encouraged communities to get involved in CSR actions, presenting the goals could bring more transparency and positively influence the communities' decision to get involved in the companies' actions.

Within the instrumental – means orientation subcategory, the three companies described in their posts how they carried out specific actions or corporate social

responsibility campaigns. In Kaufland company's posts, this subcategory (30.4%) was present through phrases such as "we brought the holiday spirit home to 100 seniors by delivering food packages to their homes" (Kaufland Romania, 2020, April 21), "More than 75 volunteers mobilized to clean the waste from the Defileul Oltului area" (Kaufland Romania, 2020, September 4) or "Kaufland Romania supports the expansion of the Donorium network in 15 cities, reaching a total of 22 blood transfusion centers in the country" (Kaufland Romania, 2020, September 23). Carrefour Romania and Lidl Romania explained how they implemented measures to mitigate adverse consequences, in the pandemic framework, through expressions such as "protective panels are installed at cash registers in all large supermarket chains" (Carrefour Romania, 2020, March 19) or "We support Romania's ability to treat critical patients, covering the costs of the country's first mobile intensive care unit" (Lidl Romania, 2020, April 8).

Using rationalization legitimation strategy to explain how they got involved in actions for communities or for health institutions and patients, the companies showed transparency in communication, presenting concrete figures and data.

5. Conclusion and discussion

This study attempts to look into the ways that food retail companies Carrefour Romania, Lidl Romania and Kaufland Romania posted information about their CSR initiatives on Facebook during the COVID-19 pandemic. The article aims to show what themes emerged in their posts on Facebook during a fiscal year, following the onset of the pandemic in Romania, as well as the legitimation strategies employed.

In light of the Coronavirus pandemic, the main research question (RQ1) aimed to pinpoint the topics that the three organizations covered in the CSR-related Facebook posts. The findings indicate that the theme of responsibility to customers was the most present in the posts of Lidl Romania and Carrefour Romania through measures taken for them in the context of the pandemic or through advice to combat food waste. Instead, Kaufland Romania communicated most frequently about responsibility towards medical professionals, patients and health institutions and did not discuss responsibility to employees at all.

The research of Yang et al. (2022) can be connected with these findings regarding communication themes. By examining how businesses shared information about their corporate social responsibility initiatives on Facebook during the pandemic, the authors were able to identify three main communication themes: company contributions, organization responses to the crisis, and actualized data for online users. In line with Yang et al.'s study (2022), this article also showed that the most frequent communication themes were centred on internal stakeholders, i.e. employees, and on external stakeholders, i.e. clients and communities, by communicating the actions taken by companies to limit the negative effects of the pandemic. Moreover, comparing the results with those of Zhang's (2022) research, we can see, on the one hand, that both focus on topics that include audience references. In the case of this article, the audience that was mentioned most frequently was made up of customers of food retail companies. On the other hand, Zhang's (2022) research shows that topics about activism or crises

were the least communicated within the companies they analyzed, while in this research, these were the main themes. Furthermore, Topic and Tench (2016) showed that the CSR communication strategy is based on understanding the social situation, as in the current research, where the understanding of the pandemic context was essential. Also, the research of Topic and Tench (2016) showed that CSR helped to boost consumer confidence or sales, and comparing this result with the current research, we can observe a common point, namely the use of CSR communication to increase customer trust. This can be seen by the fact that one of the most frequent communication themes in the three companies' posts was responsibility towards customers, through messages showing the safety measures taken by the organizations for the safety of customers when shopping.

The second and third research questions sought to demonstrate how, within the framework of the COVID-19 outbreak, the food retail organizations discursively legitimized their corporate social responsibility initiatives in their Facebook posts. The results showed that Lidl Romania and Kaufland Romania used rationalization legitimation the most often, followed by authority legitimation. This strategy was achieved through the subcategories instrumental – goal orientation and instrumental – means orientation, the two companies explaining on Facebook why they engaged in certain CSR activities and need community or client support, and the ways in which they carried out these actions. Lidl Romania employed the expert authority subcategory to deploy legitimacy through authorization more frequently than Kaufland Romania and Carrefour Romania. Lidl Romania has enhanced its reputation with clients and partners by frequently mentioning individuals or organizations that possess knowledge and stature in the fields of CSR and public health.

These findings on legitimation strategies are consistent with Breeze's (2012) study, where the discursive legitimation strategies from the letters to shareholders in the annual reports of oil companies during a crisis context were examined. References to social responsibility from Breeze's research can be associated with authority legitimation by expert authority from this article, mentions about employees from Breeze's research can be associated with moral legitimation by evaluation in this paper, legitimation of the industry from Breeze's research can be linked to authority legitimation by tradition from current research while mentions about financial results from Breeze's research can be associated with rationalization legitimation by effects from the current article. We can see that although the media analysed in the two researches are different, there are legitimization strategies that coincide. An explanation could be the fact that both papers analyse a corpus from a crisis context.

Moreover, when it comes to one of the most frequently encountered strategies in the Romanian retail companies, namely instrumental legitimation through rationalization, we can see a correlation with Hartmann et al.'s study (2015). The authors show that communication transparency is essential when organizations want to receive support from communities in CSR campaigns, providing details about the impact they have by purchasing the organization's products and supporting the campaign. In the Facebook posts of the three food retail companies, we identified the frequent communication of the goals and effects of CSR campaigns in which people were encouraged to donate food for the communities affected by the pandemic. This was achieved through the transparent communication of the donation campaigns outcomes.

A connection can be observed between the communication themes present in the Facebook posts and the legitimation strategies. When the organizations communicated about responsibility towards communities or NGOs, mentioning donations or supporting disadvantaged personnel, the legitimization was achieved through expert authority and tradition. The experience of the companies in the communities, the continuation of some actions with tradition or the collaboration with NGOs with notoriety and expertise in the field of CSR were mentioned to reinforce transmitted messages. When companies have communicated about responsibility towards medical professionals, patients and health institutions, mentioning donations of medical equipment or financial support, rationalization legitimization strategy was present by explaining the goals, means and effects of the actions taken by the organizations.

The present findings indicate that the companies have changed their communication strategies in response to the unique requirements of corporate social responsibility in light of the COVID-19 epidemic. They have taken actions with the aim of protecting employees and customers or with the aim of helping communities affected by the pandemic, and communicated them in Facebook posts. As stated by Yang et al. (2022), in the context of a long-lasting crisis, companies must pay attention to the fact that the needs of communities can change, and organizational strategies must be adapted. Therefore, we can observe that the three Romanian retail companies have adapted their communication strategies to the pandemic context.

This study can contribute to the research of CSR communication of organizations in the context of a crisis, with focus on social media discourse. Also, this study can contribute to the research about the legitimation strategies used in CSR communication, highlighting the specificities of a certain field, namely food retail. Moreover, this study may serve as a foundation for the tailoring of social media CSR communication strategy by communication experts from different organizations that carry out corporate social responsibility activities.

Regarding the limits of the research, this paper focuses on a single communication platform, namely Facebook, but future research can comparatively analyse CSR communication from several media to see what the similarities and differences between them are. Another limitation is that this article solely examines company-published postings rather than user-generated comments. Further research may examine individuals' comments on CSR-related Facebook postings.

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