КРЪГЛА МАСА С МЕЖДУНАРОДНО УЧАСТИЕ

ТЪРГОВИЯТА – НАУЧНО ЗНАНИЕ И БИЗНЕС РЕАЛНОСТ

Сборник с доклади

АКАДЕМИЧНО ИЗДАТЕЛСТВО „ЦЕНОВ" СВИЩОВ

ОРГАНИЗАЦИОНЕН КОМИТЕТ

доц. д-р Теодора Филипова
доц. д-р Петранка Мидова
доц. д-р Симеонка Петрова
доц. д-р Венцислав Перков
гл. ас. д-р Зоя Иванова
гл. ас. д-р Иван Маринов
докт. Никола Илчев

РЕДАКЦИОНЕН СЪВЕТ

Председател:
Доц. д-р Светослав Илийчовски

Членове:
проф. д-р Анета Денева
проф. д-р Теодора Димитрова
проф. д-р Атанас Атанасов
доц. д-р Теодора Филипова
доц. д-р Петранка Мидова
доц. д-р Симеонка Петрова
доц. д-р Венцислав Перков



ISBN 978-954-23-2005-0

СЪДЪРЖАНИЕ

Катедра „Търговски бизнес“: 30 години обучение, академична мисия и проекции на бъдещето
Доц. д-р Теодора Филипова 5

Пленарни доклади

Новата „реалност“ в търговския бизнес
Проф. д-р Данчо Данчев 32

Омниканалното асортиментно планиране и потребителското поведение
Доц. д-р Симеонка Петрова 42

Някои моменти от развитието на корпоративната социална отговорност
Доц. д-р Иванка Николова 52

Тематично направление: Предприемачество и мениджмънт на ресурсите в търговията

Перспективы производства безопасных продуктов питания в условиях организационно-экономической модернизации предприятий пищевой промышленности Украины
Проф. Наталья Валинкевич, д.э.н. 60

Бранд мениджмънт на търговците на дребно
Доц. д-р Виолета Гълъбова 66

Търговски мениджмънт и аспекти на личността
Доц. д-р Явор Янкулов..... 73

Проблемы и перспективы развития коммерческой деятельности торговых предприятий в Украине
Доц. Ангелина Сотник, к.э.н. 81

Офшорните зони като алтернатива за алокация на капитала
Доц. д-р Донка Желязкова 87
Доц. д-р Михал Стоянов

Текстилната индустрия в България – състояние и перспективи
Доц. д-р Сергей Найденов 93
Докторант Калин Киряков

Дефиниране целите на сектор пчеларство от област Русе
Доц. д-р Любомир Любенов..... 99

Антикризисното управление в процеса на глобалната промяна
Доц. д-р Ирена Емилова 107

Иновации и иновационен процес в търговския бизнес
Доц. д-р Анатолий Асенов 112

Елементи и същност на организацията и организации от публичния сектор
Доц. д-р Христо Сирашки 120

HRM системите в търговските предприятия – ключът за успешно управление
Гл. ас. д-р Зоя Иванова..... 128

Глобален недостиг в търговията с графични карти – фактори и тенденции
Гл. ас. д-р Иван Маринов..... 136

Управленски аспекти на търговията в новата дигитална реалност
Гл. ас. д-р Станислава Стоянова..... 144

Въздействие от употребата на пестициди в селското стопанство
Гл. ас. д-р Илияна Кръстева 152

Култура и мениджмънт на ресурсите при търговията с луксозни стоки
Гл. ас. д-р Иво Велинов 159

Предизвикателства пред виртуалното управление на търговския екип
Ас. д-р Надежда Стефанова..... 168

Основные направления развития перспективы „клиенты“ для потребностей стоимостно-ориентированного управления клиентским капиталом
Татьяна Завалий..... 176

Модели на ситуационно лидерство
Синан Пехливанов..... 181

Тематично направление: Иновации и дигитализация в търговията

Cooperation of Business and Science in the Frames of Technology Parks: Cases of Cee Countries
Prof., DSc. Ihor Lishchynskyy 186
Prof., DSc. Mariia Lyzun

Substantiation of Prospects for Trade Development in the Post-Pandemic Period
Doctor of Economic Sciences, Professor, Maryna Baldzhy 195
PhD in Economics, Victoria Odnolko

Start-up проекты в ритейле
Доц. Светлана Бирюченко, к.э.н. 202

Иновации и дигитализация в сектора на търговията
Доц. д-р Искра Пантелеева..... 206

Роля и влияние на изкуствения интелект върху търговията на дребно
Доц. д-р Надежда Димова 214

Завладени от интернет-на-нещата
Доц. д-р Михал Стоянов 220
Гл. ас. д-р Десислава Гроздева

Форми на проявление на дигитализацията на електроенергетиката – икономически аспекти
Доц. д-р Цветелина Ганкова - Иванова 229

Дигитални решения за реализация на земеделска продукция
Доц. д-р Марина Николова 237

„Системните молове“ и дигиталната революция
Доц. д-р Цветнен Цветков 247

Сравнителен анализ на електронната търговия в Европейския съюз
Доц. д-р Маргарита Шопова 251
Гл. ас. д-р Евгени Овчинников

За продоволствието и продоволствената сигурност – от научното знание до бизнес реалността
Доц. д-р Виолета Блажева 259

Изследване на потенциала за развитие на иновативни форми туризъм в България
Доц. д-р Любка Илиева 265
Сиана Спасова

Управление на складовете – процеси, предизвикателства, практики
Гл. ас. д-р Марияна Кътева 272

Марковата активност – индикатор за иновации
Гл. ас. д-р Венцислава Николова-Минкова 279

Пост-кризисното състояние и проблеми на хотелиерския бизнес в България
Гл. ас. д-р Любомира Тодорова 287

Блокчейн в агробизнеса
Гл. ас. д-р Радка Ненова 293

Дигитални решения в туристическия бизнес
Гл. ас д-р Павлин Павлов 301

Тематично направление:
Моделиране и инвестиционни проекти в търговията

Проектный подход как инструмент реализации политики управлении торгово-обменными операциями
Доц. Мария Плотникова, к.э.н. 306
Доц. Оксана Присяжнюк, к.э.н.

Различни възможности за прогнозиране и планиране на застрахователната дейност
Проф. д-р Росен Тодоров 310

Възможности за определяне на ликвидационната стойност
Доц. д-р Светослав Илийчовски 319

Въздействие на преките чуждестранни инвестиции върху вземанията по лизингови договори – нов бизнес в търговията
Доц. д-р Венцислав Перков 327

Преките чуждестранни инвестиции в икономическите сектори на страната
Доц. д-р Добрин Ганчев 335
Доц. дмн Милена Рачева

Организиране на мърчандайзинговите стокови запаси посредством Economic Order Quantity Model – EOQ
Хон. ас. д-р Светла Атанасова 342

A Model for Internet Payment Systems: Qualitative Risk Assessment
PhD Student Valeriu Cernei 351

Производство и търговия с етерични масла – традиция, бъдеще и здраве
Мая Алексиева 358

Тематично направление: Пазарни проучвания и конкурентоспособност в търговията

Increasing the Competitiveness of Ukrainian and Bulgarian Food Industry Enterprises
Doctor of Economic Sciences, Professor, Maryna Baldzhy 367
Graduate student, Aleksandra Nosachenko

The Trade Sector's Response to the Crisis Caused by the Covid 19 Pandemic
Professor Sreten Ćuzović, PhD 375
Associate Professor Svetlana Sokolov Mladenović, PhD
Đorđe Ćuzović, PhD

Конвергенция между омниканалния ритейлинг, маркетинг и логистика
Доц. д-р Виолета Димитрова 385

Състояние и тенденции на пазара на месо в България
Доц. д-р Петранка Мидова 393

Тенденции в заявителската активност и регистрирането на марки със закрила в България за периода от март 2019 г. до март 2021 г.
Гл. ас. д-р Мариела Димитрова 400

Фрагменти от търговията с хранителни добавки и Covid-19
Гл. ас. д-р Борислав Атанасов 407

Приложение на комуникационни инструменти в хипермаркети „Зора“
Гл. ас. д-р Цветелина Кабакчиева 413

Регионални аспекти и проблеми на търговията със селскостопанска продукция
д-р Валери Велковски 422

Инвестиционна активност и търговски възможности пред общините от поречието на река Дунав
Гл. ас. д-р Милен Динков 432

Анализ на улова на калкан (Psetta Maxima) в Черно море
Гл. ас. д-р Георги Русенов 439
Доц. д-р Ангелина Иванова
Гл. ас. д-р Мария Янкова
Ас. д-р Василка Кръстева

Здравният туризъм – елемент на продуктовия портфейл на дестинация България
Д-р Кристина Георгиева 443

Проблеми и възможности пред развитието на интермодалния транспорт в България
Докторант Елена Вълчева..... 451

Ценообразуването като конкурентно предимство
Докторант Илияна Дикова..... 459

Дали бъдещето е тук с иновативните 5G технологии в търговията с услуги?
Милан Чернев 466

Футуристичните доставки като конкурентно предимство на WALMART
Милчо Милчев..... 474

Социално-икономическото присъствие на „Загорка“ ад на пазара
Деница Стоянова 480

Тематично направление: Ефективност и социална отговорност в търговията

Съвременни тенденции и предизвикателства в развитието на кооперативната търговия в България
Доц. д-р Бисер Петков..... 489

Кратки бележки по историята за началото на застраховането в България
Проф. д-р Росен Тодоров..... 496

Sustainability Logistics Infrastructure: Conceptual Considerations and Possible Application
Docent, Candidate of Economic Sciences, Alexander Tanichev..... 501

Съвременни аспекти на търговията с пощенски услуги в България
Доц. д-р Теодора Филипова 512

Съвременните потребители, потребителският активизъм и гражданското общество
Гл. ас. д-р Виолета Петева 520

Сдруженията за защита на потребителите – взаимодействия и ползи
Гл. ас. д-р Миглена Душкова 528

Оценка на рентабилността в търговията
Гл. ас. д-р Николинка Игнатова 536

Организационно развитие чрез социално-отговорно поведение
Гл. ас. д-р Десислава Алексиева 544

Липсата на контрол – предпоставка за фалит на търговска верига (по примера на „Пикадили“ ЕАД)
Д-р Цветан Димов 549

Възможности за оценяване ефективността на дистрибуционните канали
Докторант Велизар Йорданов 557

Тематично направление: Стопанска отчетност и финансиране в търговията

Направления формирования учетного обеспечения системы управления земельными ресурсами
Проф. Татьяна Остапчук, д.э.н. 565

Проблеми при счетоводното отчитане на ДДС при продажбата на стоки в условията на Covid 19
Доц. д-р Галя Иванова-Кузманова 570

Изследване влиянието от прилагането на МСФО 15 приходи от договори с клиенти върху дейността на търговските предприятия
Доц. д-р Иван Андреев 576

Структура на продажбите на дребно – състояние и тенденции
Доц. д-р Красимира Славева 582

Изисквания към документирането на търговските сделки
Доц. д-р Славена Стоянова 589

Приложни аспекти на финансовия контрол при стопанската отчетност
Гл. ас. д-р Надежда Цветкова 597

SUSTAINABILITY LOGISTICS INFRASTRUCTURE: CONCEPTUAL CONSIDERATIONS AND POSSIBLE APPLICATION

Docent, Candidate of Economic Sciences, Alexander Tanichev,
Baltic State Technical University „Voenmekh“ named after D.F. Ustinov,
Saint-Petersburg, Russia

Abstract: *The paper shows results of theoretical study could be of interest for planning/ monitoring the logistics infrastructure suitable for sustainable development of undeveloped/depressive regions. A holistic approach to designing a research model of sustainability logistics infrastructure and its fragment is itemized are presented.*

Key words: *circular economy, holistic approach, logistics flow, six capital model sustainability logistics infrastructure*

JEL: *Q01, H54*

Introduction

Since the famous so-called Brundtland Report (WCED, 1987) where the very popular (121 000 000 Google-responses for the request „sustainable development“) socio-economic concept „sustainable development“ was, to our mind, rather romantically defined as the „development that meets the needs of the present without compromising the ability of future generations to meet their own needs“ (*ibid*. p. 28), it became difficult to find any domain of economic sciences without considering the sustainability understood herein as the capacity to endure in a relatively long way of balanced development across various domains of life without a loss of quality life for people. There is the threefold imperative of sustainable development (Holden, Linnerud, & Banister, 2016) – (1) satisfying needs (of businesses, individuals, communities, and societies as a whole); (2) ensuring social equity; and (3) respecting environmental limits – that corresponds to the Elkington's 3P-paradigm („Profit-People-Planet“) (Elkington, 1994). Three folds of the said imperative are well intertwined and must be supplied with investments from capital sources of different nature represented in the model of five capitals (The Five Capitals…, 2021): natural capital, human capital, social capital, manufactured capital, and financial capital. Obviously, the key issue of any modification of the model for the development of a socio-economic system, and especially its transformation into a sustainable system, is the issue of creating an infrastructure corresponding to the tasks of desired transformation (Beauchamp & Adamowski, 2021).

Justification of the need to build a holistic model of the sustainability logistics infrastructure

In the explicit way the infrastructure relates to the manufactured capital because consists of the basic physical and organizational structures and facilities

(*e.g.*, buildings, roads, power supplies) needed for the operation of a society. However, designing ang building any infrastructure demands to occupy and engineer lands (natural capital); designing, constructing, and exploiting infrastructures demands well-qualified people (human capital); preparation and provision of life and socialization of highly qualified specialists depend on the relevant institutions (families, communities, businesses, trade unions, schools, and voluntary organizations); infrastructures *per se* are composed from different material objects (manufactured capital); finally, the integrating role of financial capital (e.g., shares, bonds or cash) is non-questionable in spite the fact the financial capital has no real value itself but is representative of any natural, human, social and manufactured capital.

The application of the said five capitals model to assess the course of sustainable development began to receive justification (Harte, 1995) almost immediately with the appearance of the term „sustainability capital" (Figge, Hahn, 1988). Nevertheless, we would like to modify this model. The point is that social capital, in principle, with some excuses, can be reduced to institutional capital, since the first one can be defined (Iyer, Kitson & Toh, 2005) as institutions, relationships, attitudes and values that govern interaction between people. At the same time, having been applicable to sustainability items, the said model could be, to our mind, reengineered to form the six-capital model (Figure 1).

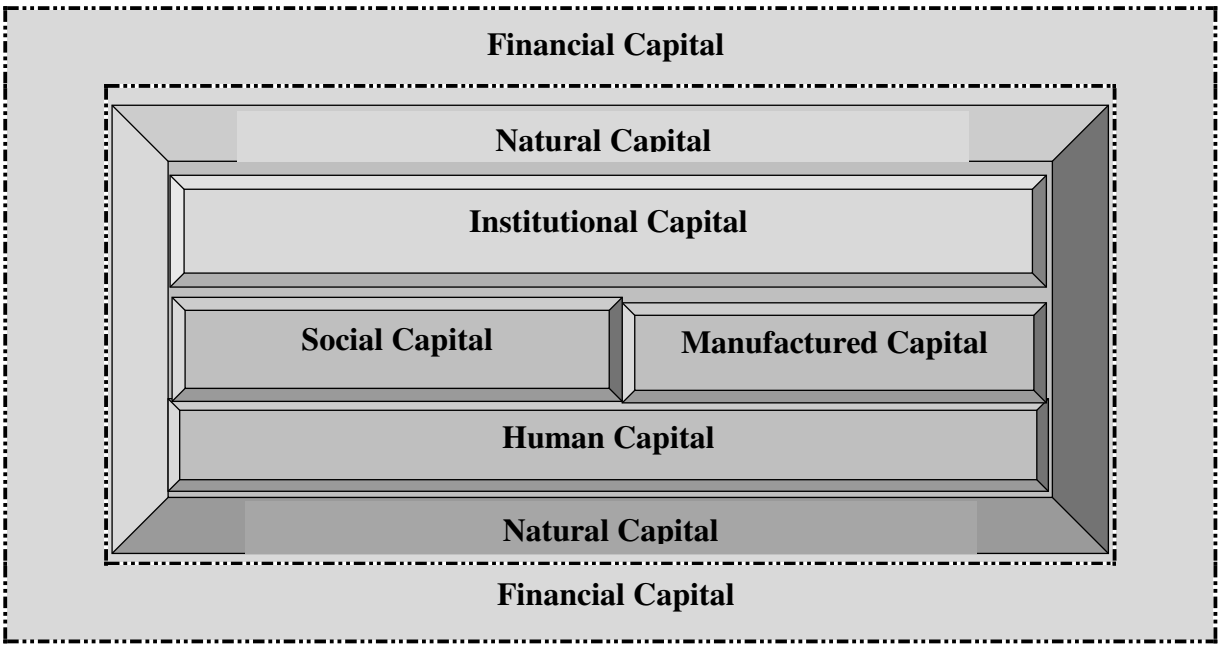

Figure 1. Six capital model as a layout of different nature investment sources necessary for building the sustainability logistics infrastructure

Source: Author based on (Tanichev, 2021)

Thus, our rationale for applicability to understanding the emergence of the six capitals model as a holistic framework of sustainable development pushes towards - based on the ancient principle of similarity - the search for a holistic

approach to developing the concept of logistics infrastructure in the light of the science of sustainability (Spangenberg, 2011) which could be termed as the sustainability logistics infrastructure.

Essay on conceptualizing the sustainability logistics infrastructure

Logistics *per se*, considered as a purposefully organized and controlled set of means that provide the movement of material direct and reverse flows, cannot but have a negative effect on the environment. Therefore, one of the directions for the formation of sustainability logistics is the development / implementation of logistics solutions that minimize the destructive and / or polluting impact on the environment. Here, the actual logistics - in terms of the concept of sustainable development - is a factor of *unsustainable development*. On the other hand, it is logistics, in the hypostasis of the logistics infrastructure, being properly structured and managed, that is a factor of sustainable development by minimizing the total length of transport arms, using ecology friendly vehicles, building the topology and intensity of logistics flows in the space-time continuum (storage with refrigerators included as „The Time Machine“ by H.G. Wells) and implementation of logistics risk management. The dialectic of logistics manifests itself in one of the paradoxes of green logistics (Rodrigue et al., 2001), namely, in the contradiction between expected / apparent efficiency and efficiency of logistics, expressed in terms of sustainability. The efficiency requires any logistics to comply as much as possible with the 7R-paradigm of successful logistics (right place, right time, right profit, etc.), but the sustainability effectiveness – in the case of green logistics – requires following the principles and ensure sustainable development (Cherenkov, Tanichev, 2021).

Before conceptualizing the sustainability logistics infrastructure, we need to consider some approaches to the simpler concept „logistics infrastructure“ (Cherenkov et al., 2020). Till today, the subject field of logistics – in many Russian textbooks – is often limited by transport, storage, and in-plant operations. However, in more modern textbooks, the logistics is defined as the science of organizing, planning, controlling, and regulating movements of material and information flows in space and time from their primary source to the final consumer or intermediate processor. Besides, keeping in mind the human factor so necessary for any development, one cannot but include into consideration human and command/instruction flows. An infrastructure can be seen as an integral factor of economic growth, which is critical for any newly developed or reengineered regions. Considering the extremely fragmented physical infrastructure in the said regions perspective research/design focus should be, in first turn, targeted on information / transport logistics channels. The main goal of these channels is to integrate regional socio-economic space to provide opportunities to implement politics of sustainable development thereto. Infrastructure security and reliability concerns the quantity of spare capacity which is a prerequisite for a proper functioning system. However, increasing a spare capacity that is used

traditionally is such a decision that involves the creation of the very extensive supply network where the total length of partial supply chains and, consequently, logistics transaction costs and risks are sharply increased. It seems to us that an alternative solution can be found within the framework of the circular economy model (Peake, & Brandmayr, 2019, p. 40) which involves using resources much more wisely: designing sustainable products that require fewer resources to make and use, that last longer and can be remanufactured once they get to the end of their life cycle. In these conditions, the task of building a logistics infrastructure for sustainability appears to be solvable, but it becomes extremely multidimensional. Developing this thought Russian scholars have begun move towards under-standing the logistics as a three-part system (industrial, social, and institutional), that later was transformed into the six-part one (Wende, Rykalina, & Stepanov, 2015): (1) institutional infrastructure; (2) social infrastructure; (3) research infrastructure; (4) regulatory infrastructure; (5) serving infrastructure; (6) technical infrastructure. For this article, such a multidimensional representation of the concept of „logistics infrastructure" serves not so much as a research framework, but as a confirmation of the correctness of our searching for a holistic approach to conceptualizing a sustainability logistics infrastructure.

To confirm our decision, we present herein a part of very thorough analysis of the essence of infrastructure and its place in a market economy, corresponding by its thoroughness to the pedantry of German economic school (Buhr, 2009). This model has been got during passing the following logical avenue. The first „mile" – a result of a formal synthesis of relevant definitions for „logistics" and „infrastructure" we have got from well-spread textbooks: logistics infrastructure – a set of interconnected service agencies and material objects that make up and provide the basis for managing material, human, information (financial management included), and governing direct and reverse flows to minimize logistic transaction costs and risks*. Considering that most scholar working on issues of sustainability logistics are concentrated on the reduction of negative environmental impacts of logistics operations (Wang et al., 2018) , the second „mile" is presented by including into the definition just above the following *coda*: „*while permanently and strictly adhering to the principles of sustainable development*". Therefore, because the modern sustainability logistics infrastructure is inconceivable without its digital replica, the dozen year old verbal model (Buhr, 2009) taken as a starting point has been enlarged with the „digital" quadrant and modernized herein by us in the light of the concept „sustainability" as it seen on Figure 2.

To confirm our decision, we present herein a part of very thorough analysis of the essence of infrastructure and its place in a market economy, corresponding by its thoroughness to the pedantry of German economic school (Buhr, 2009). This model has been got during passing the following logical avenue. The first „mile" – a result of a formal synthesis of relevant definitions for „logistics" and „infrastructure" we have got from well-spread textbooks: logistics infra-

structure – a set of interconnected service agencies and material objects that make up and provide the basis for managing material, human, information (financial management included), and governing direct and reverse flows to minimize logistic transaction costs and risks. Considering that most scholar working on issues of sustainability logistics are concentrated on the reduction of negative environmental impacts of logistics operations (Wang et al., 2018), the second „mile" is presented by including into the definition just above the following *coda*: „*while permanently and strictly adhering to the principles of sustainable development*". Therefore, because the modern sustainability logistics infrastructure is inconceivable without its digital replica, the dozen year old verbal model (Buhr, 2009) taken as a starting point has been enlarged with the „digital" quadrant and modernized herein by us in the light of the concept „sustainability" as it seen on Figure 2.

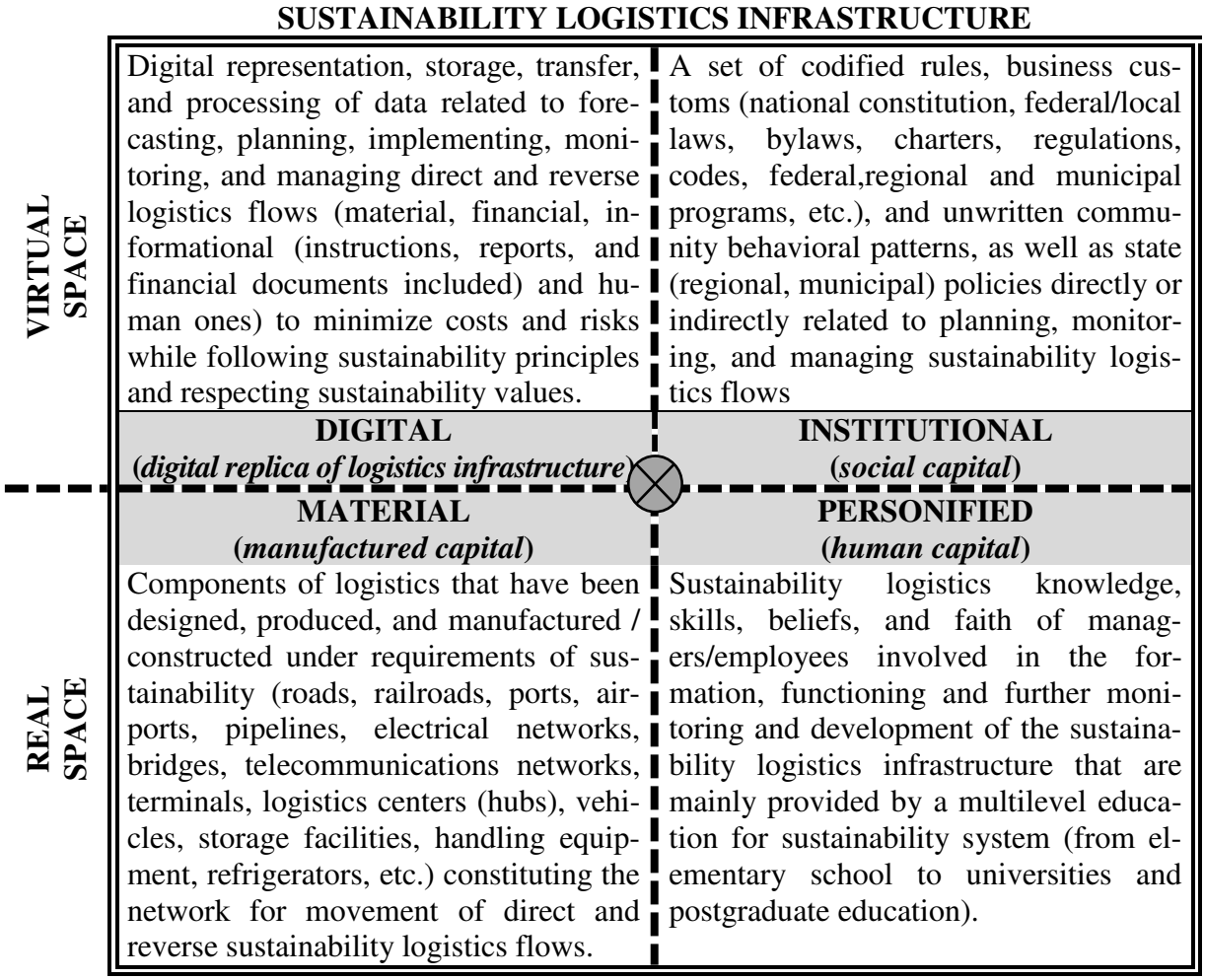

Figure 2. Verbal model of the sustainability logistics infrastructure
Source: Author based on (Cherenkov et al., 2020)

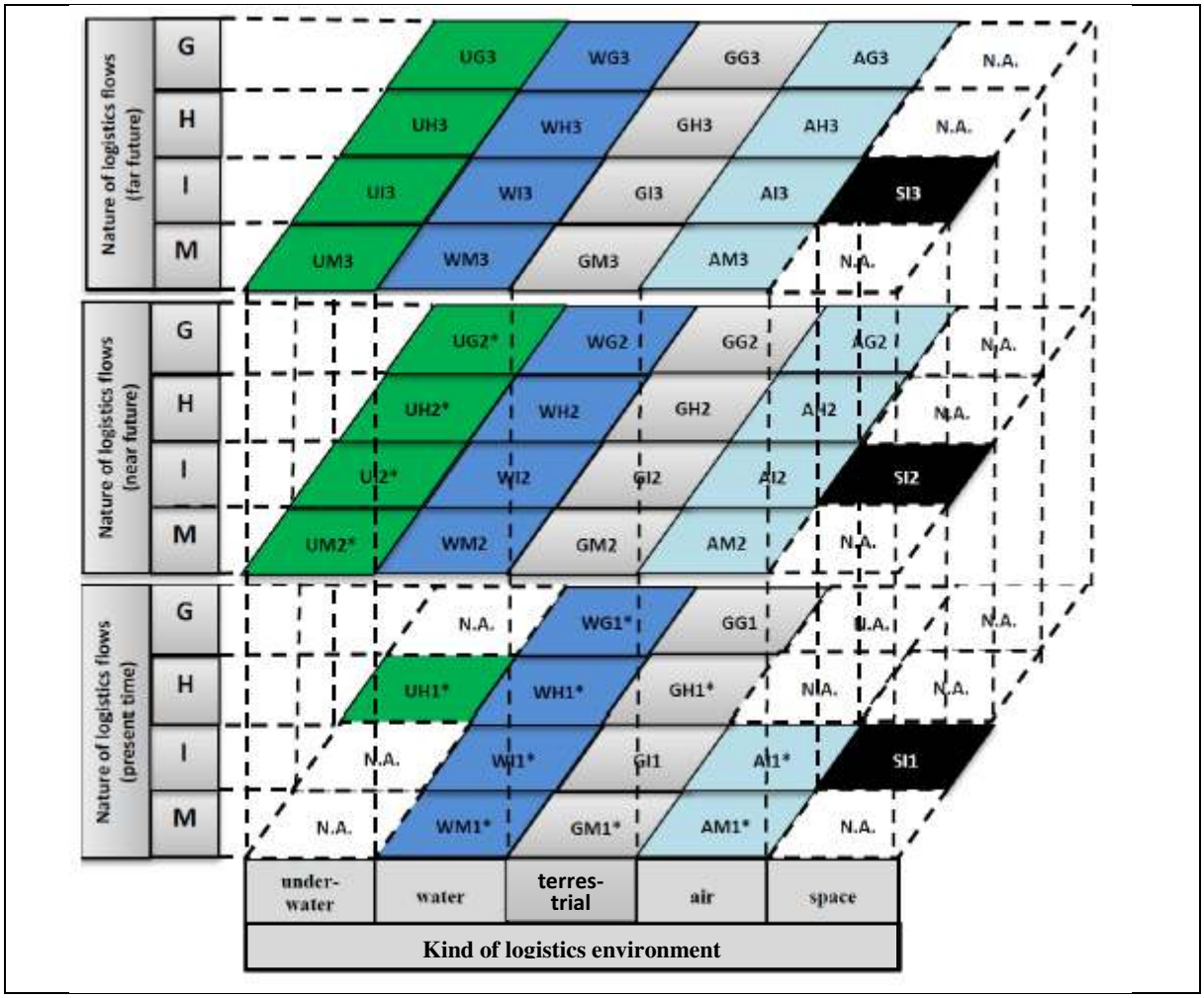

Figure 3. Conceptual holistic research model for designing the sustainability logistics infrastructure

Legend: **M** – material flows; **I** – information flows (financial documents mainly); **H** – human flows (managers, employees, workers, military personnel and members of their families); **G** – governing commands/instructions; *decoding the acronyms for information flows*: **UI*** – underwater (off-line and on-line by cables); **WI*** – water (off-line on board); **GI*** – aboveground and underground (cables and radio relay communication lines); **AI*** – air (off-line on board)**; SI*** space (radio and laser communications); unpainted rhombuses with **N.A.** means the lack of or negligible logistics flows.

Source: Author based on (Cherenkov et al., 2020)

A way to design the research model for designing / monitoring the sustainability logistics infrastructure

The conceptual research model presented herein (Figure 2) has been designed in the form of three-dimensional matrix (5x4x3) on the next pillars: (1) **X** – „**kind of logistics environment**“ („underwater“, „water“, „terrestrial“, „air“, and „space“); (2) **Y** – „**temporal levels of existence, implementation and designing**“ („now“, „near future“, and „distant future“); (3) **Z** – „**nature of logistic flows**“ („material“, „information“, „human“, and „governing“). **N.B.!** Financial documents and settlements are included into information logistics flows. Therefore,

without going into details, the following algorithmic sequence of actions could be presented as an initial stage of conceptual understanding and future designing a sustainability logistics infrastructure (table 1).

Table 1. Simplified algorithmic sequence of actions for conceptual understanding and future designing a sustainability logistics infrastructure

STAGE	SHORT COMMENTS
first	a need for a certain logistic flow (defined departure and arrival points included) for a certain region on the way towards implementing the sustainable development concept is revealed/requested
second	operating characteristics of the given logistics flow (for example, nature of delivery, cargo characteristics, throughput, frequency of shipments, time of delivery, etc.) are determined
third	the most suitable logistics environment for the given flow is defined
fourth	means of ensuring the movement of the given logistic flow (for example, kind of vehicles, communication equipment, etc.) according to criteria of minimizing impact on environment are determined
fifth	possible routes of the considered logistic flow are laid and the one that best meets the criteria for minimizing the impact on the environment is selected
sixth	business entities (actors) responsible for managing the given logistics flow are identified
seventh	the given logistic flow is finally checked against sustainability criteria (*non-compliance with the specified above criteria implies the return of designing this logistics flow to the previous stages*)

Source: Author based on (Cherenkov et al., 2020) with some alterations

The procedure described above (table 1) turns out to be multivariate in the case of a full-scale sustainability logistics infrastructure and requires processing of huge arrays of time-varying data, which requires to apply modern digital technologies (in particular, Big Data's 4Vs class) (Logistics trend…, 2018).

Hypothetical application of the research model for designing a project of sustainability logistics infrastructure for the Arctic region

The development of such a vast territory as the Russian Arctic (the contemporary official name since 2014 is the Arctic zone of the Russian Federation) is a vital task for today and future generations of not only Russians but all world people. The Arctic's unique nature is under intensifying pressure from pollution, climate change and unsustainable development. It is vitally important that increasing economic development such as hydrocarbon exploitation and new shipping routes takes fully into account the preservation of this unique and highly vulnerable environment (Arctic, 2021). It is a reason why sustainability issues are permanently discussed on different levels of international and national organizations. Therefore, the conceptualization of sustainability logistics infrastructure seems to us to be the first and very important step towards its physical implementation, which is so necessary for the sustainable development of the Arctic.

The holistic framework of sustainable logistics infrastructure presented herein is considered only as conceptual one but, to our mind, could be put into the basement of future digital solutions. Considering the application of the circular economy model as the best decision for the implementation of the concept of sustainable development in the Arctic justified (Didenko et al., 2021), we would like to highlight a pair of pillars for the mechanism of this model, namely, using drones as transportation / communication means and digital replica of infrastructure networks (Skripnuk, Cherenkov, & Didenko, 2019). Today, the logistics infrastructure of the Russian Arctic is significantly fragmented and underdeveloped, which creates many problems for its sustainable development. Besides, there are following obstacles on the way of reengineering the this infrastructure: (1) lack of large settlements and absence convenient logistics links between them; (2) high costs of necessary for developing infrastructure resources; (3) high degree of economic and social dependence on the rest of Russia (named by locals as „mainland"); (4) severe and volatile weather conditions demanding special construct materials and extra consumption of energy; and (5) safety and comfort problems with arranging human presence resulting in negative migration and labor shortages. The previous SWOT analysis of the prospects for the development of the Russian Arctic (*ibid.*) has shown several weaknesses in the prospect of arranging logistics flows, both within the Russian Arctic, and with the rest of the Russian Federation. This situation highlights the necessity of preliminary research focused on getting to a draft of sustainability logistic infrastructure or rather its fragments that could be networked later. The process of creating an integrated sustainability logistics infrastructure based on the said fragments requires processing very large data sets. Therefore, the conceptual framework presented here could be considered useful in developing the necessary software for collecting, sorting, and processing relevant data. One fragment of prognostic matrix corresponding to the research model (Figure 3) is presented below (table 2).

Table 2. Hypothetic sustainability logistics infrastructure in the Arctic with three stages of digitalization

CLF	LD	COMMENTS
AM1	**1**	The outdated traditional Arctic aviation of Russia (airplanes and helicopters), inherited from Aeroflot Polar Aviation now continues to be used by companies to transport people and cargo. Minimum digitalization (*e.g.,* GPS/GLONASS and personal mobile devices). The initial stage of introduction of unmanned air vehicles or drones (remote control). Digital remote-control channels.
AM2	**5**	The advanced stage of using drones (even for people transportation – remote control and mainly autonomous control). On-board computers serve not only for preliminary processing collected data but for flight control and emergency decision making (AI introduction).

AM3	**10**	The air and amphibious drones equipped with „green“ powerful long-life batteries for transportation, rescue operations, environmental monitoring Drones' on-board computers are capable not only to preliminary process collected data but to be involved as partial computers – when they form swarms of drones – in distributed computer and communication networks (AI applied in full scale).
AI1	**1**	An obsolete traditional Arctic aviation (airplanes and helicopters) equipped with analog voice channels. Still the communication „dispatcher-pilot“ is an analog voice channel
AI2	**5**	Drone on-board computers serve not only for preliminary processing collected data but for flight control and emergency decision making.
AI3	**10**	Drones virtually united into swarms for the exchange and distributed processing of digital data. Drones' on-board computers (having AI) are capable not only to process preliminary collected data but to be involved – when they form swarms of drones –in distributed computer and communication networks.
AH1	**0**	Traditional air people transportation. Digital devices in pockets of people.
AH2	**5**	Part of the air people transportation could be provided by drones Digital channels of communications and navigation for manned aircrafts and remote control of passenger drones
AH3	**10**	Much of the air people transportation is provided by drones Digital systems are fully responsible for air traffic and flight safety.
AG1	**0**	Such cases are not revealed now.
AG2	**5**	Under consideration.
AG3	**10**	

Legend: **CLF** – code of logistics flow (code acronyms can be deciphered in the Figure 1 by analogy with acronyms for information flows); **LD** – estimated level of digitalization.
Source: (Cherenkov et al., 2020) slightly upgraded by author

Conclusion

The considerations and suggestions presented herein are mainly based on scholar sources and represent a result of our theoretical and conceptual study. The main idea that the author wanted to show was to substantiate the need to integrate interacting capitals of different nature to achieve sustainable development goals. Such a holistic multicapital approach presented in the frame of the six-capital model (natural capital, human capital, social capital, manufactured capital, institutional capital, and financial capital) has been transplanted onto logistics infrastructure where for getting to its sustainability was necessary to integrate (by analogy with the case of capitals) logistics flows of different nature (material, information, human, and governing ones). This metamorphosis is explained by interdisciplinary nature of sustainable development (Cherenkov et al., 2021), that requires to study a research object with the help of different disciplinary knowledge. Therefore, the said transplantation was a starting point to elaborate the holistic research model of sustainability logistics infrastructure. Author considers the said model not as a

scholastic exercise but the conceptual background for further research focused on problems of sustainable development of such underdeveloped and very important for country regions as the Russian Arctic is for Russian Federation. A brief essay of the possible application of this model to the construction of infrastructure in the Russian Arctic should serve this purpose. Finally, the list of references could be of use for those who begin to become involved into similar issues.

References

1. Arctic In: Environment (2021). European Commission. Retrieved August 17, 2021, from: https://ec.europa.eu/environment/international_issues/arctic_en.htm
2. Beauchamp, P. & Adamowski, J. (2021). An Integrated Framework for the Development of Green Infrastructure: A Literature Review, *European Journal of Sustainable Development* 2(3): 1-24 Doi: 10.14207/ejsd.2013.v2n3p1
3. Buhr, W. (2009). Infrastructure of the Market Economy *Discussion Paper No 107-03* Universität Siegen, Siegen, Germany, Retrieved August 16, 2021, from: http://www.unisiegen. de/fb5/vwl/research/diskussionsbeitraege/
4. Cherenkov, V.I. and Tanichev, A.V. (2021). Logistics dualism in the context of sustainable development, *New Economy Issues*. 1 (57): 52-57.
5. Cherenkov, V.I., Skripnuk, D.F., Tanichev, A.V. & Safonova, A.S. (2020). A conceptual framework of logistics infra-structure for implementing the circular economy model in the Russian Arctic, *IOP Conference Series: Earth and Environmental Science* 539 (2020) 012077 doi:10.1088/1755-1315/539/1/012077
6. Cherenkov, V.I., Starov, S.A., Tanichev, A.V. & Blagov, E.Yu. (2021). Sustainability Branding of Private Labels: from Interdisciplinary to Transdisciplinary Approach, *Vestnik of Saint-Petersburg State University. Ser. Management* (forthcoming)
7. Didenko, N., , Skripnuk, D., Ilin, I., , Cherenkov, V., , Alexander Tanichev, A. & Kulik, S.V. (2021). An Economic Model of Sustainable Development in the Russian Arctic: The Idea of Building Vertical Farms, *Agronomy*, 2021, 11, 1863. https://doi.org/10.3390/agronomy11091863
8. Elkington, J. (1994). Towards the sustainable corporation: Win-Win-Win business strategies forsustainable development, *California Management Review*, 36(2): 90-100
9. Figge, F. & Hahn, T. (1988). The Cost of Sustainability Capital and the Creation of Sustainable Value by Companies, *Journal of Industrial Ecology* 9(4): 47-58 https://doi.org/10.1162/108819805775247936
10. Harte, M. J. (1995). Ecology, sustainability, and environment as capital, Ecological Economics, 15:157–164. http://dx.doi.org/10.1016/0921-8009(95)00043-7

11. Holden, E., Linnerud, K. & Banister, D. (2016). The Imperatives of Sustainable Development, *Sustainable Development* 25(3) Retrieved August 19, 2021 from: https://www.researchgate.net/publication/308791774_The_ Imperatives_of_Sustainable_Development
12. Iyer, S., Kitson, M. & Toh, B. (2005). Social Capital, Economic Growth and Regional Development, *Regional Studies* 39(8):1015-1040. DOI: 10.1080/00343400500327943
13. *Logistics Trend Radar* (2018). Version 2018/19 Retrieved August 17, 2021, from: https://www.logistics.dhl/content/dam/dhl/global/core/documents/pdf /glo-core-trend-radarwidescreen.pdf
14. Peake, L. & Brandmayr, C. (2019). *Building a circular economy: How a new approach to infrastructure can put an end to waste*, London: Green Alliance Retrieved August 16, 2021 from: https://green-alliance.org.uk/building_a_ circular_ economy.php
15. Skripnuk, D.F., Cherenkov, V.I. & Didenko, N.I. (2019). Crossborder Integration of Supply Chains: Problems and Digital Solution Concept, *Atlantis Highlights in Computer Sciences* 1 204-212 https://www.atlantis-press.com/proceedings/icdtli-19/125918509 Retrieved August 17, 2021, from: https://ec.europa.eu/environment/international_issues/arctic_en.htm
16. Spangenberg, J.H. (2011). Sustainability science: a review, an analysis and some empirical lessons, *Environmental Conservation* 38 (3): 275–287
17. Tanichev, A.V. (2021) A multicapital approach to implementing the sustainable development concept *Proceedings of the International Banking Institute* (Saint-Petersburg, Russia) (forthcoming)
18. *The Five Capitals - a framework for sustainability* Forum for the Future, Retrieved July 14, 2021 from: https://www.forumforthefuture.org/the-five-capitals
19. Wang, D.-F., Dong, Q.-L., Peng, Z.-M., Khan, S. & Tarasov, A. (2018). The Green Logistics Impact on International Trade: Evidence from Developed and Developing Countries, *Sustainability* 10(7) 2235 https://doi.org/10.3390/su10072235
20. WCED 1987 World Commission on Environment and Development *Our Common Future* (Oxford: Oxford univ. press, UK)
21. Wende, F. D., Rykalina, O. & Stepanov, V. (2015) Defining the concept and content of logistics infrastructure, *Logistics*, Retrieved August 16, 2021, from: https://customsexpert.ru/articles/opredelenieponyatiya-i-so.htm (in Russian)