

## SUSTAINABLE MANAGEMENT IN THE GIG ECONOMY: TRADITIONAL VS. GIG BUSINESS MODEL IN THE DELIVERY SECTOR

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### ABSTRACT

*In a global energy and natural gas crisis and high inflation rate caused by geopolitical tensions and war, the question of achieving sustainability arises. In the stringent needs of today's lives and future ones, governments and privately-held company managers have to prioritise, choosing between the transitions towards the old and the new, between opening coal mines and implementing renewable energy systems, between people and profit, between profit and planet, between planet and people. Thus, the current article explores sustainable management principles by looking at the delivery sector, one of the most affected by the increasing fuel price and technological advancement, in which traditional and GIG economy models coexist and challenge the people, planet and profit status quo. Navigating through the main theories in the field of sustainability from governmental, non-governmental, and environmental perspectives, this article clarifies the GIG economy principles, thriving to find a compiling business model for the delivery sector. The theoretical analysis has served to design a quantitative questionnaire dedicated to GIG workers, which revealed that sustainable management in the GIG economy, applied to the delivery sector, has a long way to go towards respecting the independence criteria imposed by legislation and balancing the fair payment and incentivising eco-practices.*

**KEYWORDS:** *delivery, GIG economy, sustainable management.*

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### 1. INTRODUCTION

The ecosystems of this planet that sustain our health, wealth-creation and well-being have evolved over billions of years. However, modern civilisation first emerged around 5000 years ago, an equivalent to 70 human lifetimes of 70 years, or about 200 generations (Santillo, Johnston, et al., 2007). Nevertheless, for the past 300 years, the Industrial Revolution has radically changed the environmental ecosystem's evolution, and for the past 50 years, we have witnessed technological advancement at an unprecedented pace. So today, machine learning and artificial intelligence algorithms are co-creating with humans, blurring the boundaries between humans and robots in the emerging new domains and business models of the 4.0. Industrial Revolution. The fast-forward technological evolution that overtakes natural resource scarcity opens discussions about imposing a new, more adapted set of sustainable managerial practices in a mass production and mass consumption society, in which too many things are produced, moved and stored inefficiently. Like many other domains, the delivery sector has been reshaped by the Industrial Revolution's 4.0 technology, using cloud computing and big data and analytics, and thus enhanced operational performance (Bag et al., 2021). Still, despite the economic welfare, transport remains the third most polluting sector, responsible for 16.2% of global greenhouse gas emissions, 11.9% of which

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represents road transport (Ritchie & Roser, 2020). In this context of digital marketplace platforms that democratised the delivery sector through the GIGs, consumers have started to pay more attention to the sustainability of the businesses they are interacting with, looking at aspects like trade-offs, traceability, ethics, liability, regulation and self-regulation. Therefore, going beyond philanthropy and corporate social responsibility programmes contributing to the public good and navigating through the sceptical and optimistic theories about the GIG economy constantly growing, the current thesis reflects on the new reality, trying to determine the social, environmental and economic impact of the traditional business models vs. the machine-learning and crowdsourcing-driven GIG platforms in the delivery sector, by identifying a compelling sustainable management model.

## **2. SUSTAINABLE MANAGEMENT IN THE GIG ECONOMY: TRADITIONAL VS GIG BUSINESS MODEL IN THE DELIVERY SECTOR**

Etymologically, the word sustainability derives from the Latin "Sistine", and it is used to characterise a system that can self-sustain. At the level of the dictionary definition, sustainability is defined as a characteristic of an activity that can be run for a long time, and it describes an activity or action that can be sustained and long-lasting. From an ecological perspective, sustainability implies developing and using natural resources without compromising or harming the environment for future generations. It is most often associated with the "physical environment" (Pfeffer, 2010) and "natural environment capital" (Wadham, 2008), biodiversity, renewable energy and climate change. However, it is a multidimensional, three-pillar concept that comprises social, environmental and economic equity.

Probably one of the prominent and well-known theories concerning sustainability is the triple bottom line theory enunciated by John Elkington in his book "Cannibals with Forks: The Triple Bottom Line of 21st-Century Business" (Elkington, 1999), which mentions that there are three components to fulfil to achieve sustainability: economic prosperity, social justice and equality and environmental quality.

Sustainability is strongly correlated to the environment also by the Swedish oncologist Karl-Henrik Robèrt, who enunciated the 4 "System Conditions" (principles of sustainability) in his book "Natural Step". He has been studying humans as a social species and societies as part of the whole biosphere. Therefore, a few ethical principles are recommended to tackle sustainability aspects: preserving the natural capital by diminishing and eventually eliminating humans' contribution to the degradation, reducing and undermining physical means. He suggests replacing scarce minerals and fossil fuels with more plentiful or environmental-friendly substitutes, reducing the disposal of toxic substances and ensuring all people can meet their basic needs, such as food or shelter, including future generations, by benefiting from an equitable share of natural capital. In his vision, the economic system must be seen as a subset of the integrity of natural systems rather than the other way around. Otherwise, the free markets, the systematic accumulation of mined and man-made materials in nature, damage to ecological systems, the current consumption patterns, the distribution of natural capital between human societies and natural systems, and ecological capital as we know them may face serious challenges. The author condemns the abuse of political or economic power, permissive environmental discharge regulation, the use of compounds that are persistent and foreign to nature, fossil fuels and other mined materials beyond natural re-assimilation rates, nuclear energy, genetically modified organism, overfishing, forest destruction, as they irreversibly erode the natural capital upon which the global ecosystem and human well-being depend. (Santillo et al., 2007).

The same multidimensional aspect of sustainability is seen by Dirk Van Zyl, who introduces the capital concept, stating that natural, human, human-made and social capital must be symbiotic and not go against each other. He suggests a few natural steps to achieve sustainability: reduce and efficiently substitute materials that are in scarcity with those which are more abundant, reduce and

eliminate fabricated substances that are toxic to the environment, reduce the interventions that alter the environment and eventually reduce and eliminate the conditions that refrain people from meeting their basic needs. In a sustainable society, there is a shift from the one-off products towards a new operating, more adaptable, regenerative environment in which ethics, transparency and traceability prevail, from the technical, economic and political decisions, to achieve systems that are optimised as a whole, not just individual parts of the chain. (Van Zyl, 2022).

Another vehiculated concept is sustainable development, which was first widely articulated in 1987's Brundtland Report (World Commission on Environment and Development) from the United Nations, which defines the development that meets the needs of the present without compromising the ability of future generations to fulfil their own needs. It suggests that the only truly sustainable form of progress simultaneously addresses the interconnected aspects of the economy, environment and social well-being. At present, it has been estimated that some three hundred definitions of sustainability and "sustainable development" exist broadly within the domain of environmental management and the associated disciplines which link with it, either directly or indirectly (Santillo et al., 2007).

Sustainability is most often a preoccupation of public policies and non-governmental organisations. However, although managerial practices are mainly concerned with the economic performance of the organisations and less interested in their long-term impact on the environment and community, it has become more and more employed in the business context as well lately.

Historically, sustainability is rooted in companies' activities to benefit the community. In the 1980s, companies ran philanthropic programs, giving the wealth that had already been created to help the local community. Later, in the 1990s, organisations started investing in communities even more by pursuing strategic programmes. Corporate Social Responsibility initiatives dominated the 2000s meant to mitigate the damage they produce in society, and such programmes are prolonged up until today. However, in the 2010s, companies became more aware of their impact on the natural environment and society. They thus started designing more responsible business processes, creating a favourable image for their company and constituting a robust competitive advantage. Still, in many companies, sustainability is a concern of a single department rather than a strategic commitment of board management. Its broad and vague meaning makes sustainability challenging to understand and adhere to on a large scale, mainly because profit-oriented companies prevail the short-term economic results over the long-term strategic goals that can even exceed the lifespan of an adult.

Since organisational science does not include organic or biotic aspects references, only considering "the humanly mediated transactions across organisational-environment boundaries" (Gladwin et al., 1995), sustainable management aims to create economic wealth by opening opportunities to the poor, preserving the planet intact at the same time, or it aims to implement environmental protection measures while ensuring economic growth that will be beneficial to the community. In other words, sustainable organisations need to remain competitive while preserving natural resources and diminishing environmental impairment, alleviate the community's well-being, and mitigate social inequalities.

Sustainability is, therefore, a multi-dimensional concept situated at the crossover of the three pillars: economic, environmental and social fairness, that must be equally addressed to have an end-to-end sustainable system: from the suppliers contracted, distribution channels used to waste management and to the end-user, taking into account the temporal aspect. It is a joint endeavour in which all participants influence the system. It requires each participant to take responsibility for the system and build processes and organisations that support themselves in the long run. In a resilient society, more things are obtained with fewer existing resources, new markets emerge from the new principles of sustainability and regulations are enforced to reach social good without compromising the future of the upcoming generations.

Over the years, global alliances and transnational governmental structures, private stakeholders and civil society have been cooperating to tackle the global issues faced for decades, such as pollution,

fair trade and social inequalities. Various sustainability standards attempt to assess the sustainable impact and framework for organisations, such as Global Reporting Initiative Standards (GRI), Corporate Sustainability Reporting Directive (CSRD), the London Benchmarking Group, The Carbon Disclosure Project (CDP), Sustainability Accounting Support (SASB), The International Integrated Reporting Council (IIRC) or the 17 United Nations' Sustainable Development Goals. The most relevant SDGs for the sustainable management of the GIG economy in the delivery sector are Objective 1 – No poverty, 2 – Zero hunger for the Economic pillar, 8 – Decent Work and Economic Growth, 10 – Reduce inequalities, 17 – Partnerships for the goals for the social pillar, 11 – Sustainable cities, 13 – Climate action, 15 – Life on land, for the Environmental pillar.

In recent years, sustainability has slowly become a legal obligation since The European provision from Directive no. 95/2014 brought the obligation to declare non-financial information for companies that exceed the number of 500 employees. These entities must prepare and submit a “non-financial statement” to describe the company’s activity regarding environmental issues, social and personnel situations, respect for human rights, and combating corruption and bribery. The non-financial statement must contain a description of the business model of the entity, the policies adopted by the entity in connection with the mentioned situations, the result of the respective policies, the main risks related to the entity’s operations, including business relationships, products or services that may harm the mentioned objectives, a risk management plan, critical indicators of non-financial performance relevant to the entity’s activity. The regulation develops several situations that must be presented in the non-financial statement, depending on the object, as follows: a) from the perspective of environmental aspects, it must present the current and predictable impact on the environment generated by its activities, the use of renewable and non-renewable energy, the effect of greenhouse gas emissions, the effect on water use and atmospheric air use; b) from the perspective of social and personnel aspects, the organisation must explain how to apply the fundamental conventions of the international labour organisation, social dialogue, respect for workers’ rights, dialogue with local communities; c) from the perspective of fighting corruption and bribery, the company must present the policies adopted. (The European Parliament and The Council of The European Union, 2014) Additionally, The European Commission announced The New Green Deal, a new European Union strategy for mitigating climate change, continuing the endeavours that began in 2013, taking a step forward from assessing the problem to identifying the solutions to be implemented by evaluating climate risk and accelerating adaptation measures to increase the global climate resilience (“A European Green Deal”, 2022).

Hence, NGOs like ISO established a standard of quality that measures different managerial aspects, including sustainability. ISO certifications are adopted by 167 countries and refer to different industries’ safety and energy consumption aspects. From the list of over 20 ISO certifications standards, the most relevant for the current thesis on sustainable management in the GIG economy, applied to the delivery sector, are 9000 – Quality Management, 27001 – Information Security Management, 45000 – Occupational Health and Safety Associated, 14000 – Environmental Management, 20121 – Event sustainability management systems, 22000 – Food Safety Management, 26000 – Social Responsibility, 50001 – Energy Management. (“Popular standards”, 2022). For instance, ISO 14000 – Environmental Management – sets environmental targets and best practices concerning air and water pollution, waste management and waste reduction legal regulations for companies “that are reasonably achievable at an acceptable economic cost” (Morris, 2004) by balancing the cost of achieving the environmental targets and the economic well-being of the company.

At the national level, The Recovery and Resilience Plan for Romania mentions the four key objectives of Sustainable Transport: decarbonising road transport in which the “polluter pays”, building alternative fuel infrastructure, ensuring road safety, and reaching an intelligent transport systems strategy. The ecological taxation principle will include charges for polluters and CO2 emissions to stimulate the fleet’s renewal. By 2026, Romanian authorities aim to build alternative fuel infrastructure, installing 30.000 charging points (1.836 existing) that will be built on the

national road and highway network in rural and urban areas. The Romanian authorities aim to ensure road safety by mapping out the black spots, preparing infrastructure and legislation for the "smart" vehicles and implementing a speed management system. The Intelligent Transport Systems aims to increase the efficiency and safety of transport by digitising transport information, preventing road accidents by implementing early warning systems and reducing vehicle pollution (*Planul Național de Redresare și Reziliență*, 2022).

At the entrepreneurial level, traditional business models have been focused on creating economic value for the benefit of their shareholders. In contrast, in the sustainable management paradigm, the economic value is one part of the triple bottom line, considering the creation of environmental and social positive impact as the main drivers of positive change for the benefit of the overall society. The economic aspects concern wealth creation, correct property management and fair employment conditions. At the convergence of economics with social aspects of the triple-bottom-line, business ethics, fair trade and workers' rights preoccupation appear. Therefore, in sustainable capitalism, wealth is equally distributed. Sustainable enterprises seek to create long-term value, considering the environmental, social and economic aspects, valuing opportunities and mitigating risks, building trust within the community and leading to better financial and non-financial results while ensuring fair work conditions for everyone. Sustainable businesses operate and provide goods and services in a manner that is consistent with low carbon emissions and a prosperous, equitable, healthy and safe society. It uses the assets effectively and efficiently to preserve natural resources for the upcoming generations. Thus, the economic pillar of sustainable management must be part of natural welfare rather than a separate component of the economy, it refers to the financial feasibility, and it must reflect long-term managerial vision and integration with the global economy to attain a sustainable business.

Linear economy business models - based on unsustainable mechanisms such as the extraction of raw materials for industry, energy creation based on fossil fuels, water, and soil resource depletion, consumer society and landfill-based waste management systems - are replaced with more sustainable ones, such as circular or GIG economy business models, sprang out from harvesting the differences and redistributing the resources in a holistic approach.

Particularly, the GIG economy redefines value creation and property ownership to ensure economic sustainability in the long term, adapting the business models from a linear model (in which we process, produce, use and dispose of) to a circular economy model in which the resources are reorganised around the 10R of sustainability and eventually disposed of, while remaining competitive and relevant on the market. Adopting Industry 4.0 and vertical and horizontal integration of the firm and 10R principles applications of a product life cycle (refuse, rethink, reduce, reuse, repair, refurbish, remanufacture, repurpose, recycle and recover), businesses can better control their costs. For instance, refuse happens when another product fulfils the same function of an object, rethink means using the product more intensive, and reduce refers to the reduction of resources needed to manufacture the product. Reuse implies discarding the product to another user if the functionalities are in good condition. Repair means restoring the products to their initial function so they can be used longer. Refurbishing brings the old product to present use. Remanufacturing using components of discarded products in a new product with the same functions, repurposing the means to use parts of a product in a new product with another function. Recycling implies processing materials to manufacture a new product with the same or lower quality. Recovering implies the incineration of materials for energy recovery (Bag et al., 2021).

Therefore, a new type of economy is rising, in which the production loop continues after the usage and disposal of the products and resources. Sustainable management is focused on obtaining more functionalities with less or the same resources. New markets emerge from the new principles of sustainability, redesigning how we manufacture, procure and dispose of products, and enforcing regulations to reach social good.

### **3. ENVIRONMENTAL PILLAR OF SUSTAINABLE MANAGEMENT**

Natural processes, such as decaying vegetation, volcanic eruptions and fires, are the most significant source of natural pollution. However, it is dispersed in the atmosphere and presents a lower concentration in particular areas. In contrast, man-made pollution, which is significantly lower than natural, is concentrated in some regions of the globe. It causes actual damage to the population and living animals and plants, leading to numerous health problems, such as heart and lung-related disease. (Morris, 2004) At the crossroads of economic with environmental aspects of the triple-bottom-line theory appears the preoccupation with responsible procurement, conservation, consumption and depletion of resources of the company, protecting nature and preserving wildlife while doing business. The Planet pillar of sustainability most commonly refers to the gas emission limits, water, energy efficiency, paying attention to energy consumption from renewable sources and non-renewable sources, materials management information for the provision of services and products, and waste management information such as the collection of post-consumer materials. Some recent policy instruments focus on ecological and human health measures as integrators of environmental impact or upon mandatory take-back or recycling targets for end-of-life products.

The primary artificial air pollution mainly consists of the combustion processes used for manufacturing operations, whereby hydrogen and carbon in a fuel combine with oxygen from the air. If the process is complete, only carbon dioxide and water vapour are released, accompanied by the emission of light and heat. However, if combustion is incomplete, carbon monoxide, oxides of nitrogen and sulphur, unburned hydrocarbons and ash are released into the atmosphere. The primary air pollutants divide into the following classifications: Particulate matter, Gaseous sulphur compounds, Gaseous nitrogen compounds, Carbon monoxide and dioxide, Organic compounds, Halogen compounds and Other inorganic compounds. Pollutants are divided into primary and secondary ones, either emitted directly from pollutant sources or formed by chemical reactions between primary pollutants and natural components in the atmosphere. Sulphur dioxide and hydrogen sulphide mix with atmospheric oxygen and water vapour to produce secondary pollutants such as sulphur trioxide and sulphuric acid. Many primary pollutants, such as organic compounds and nitrogen oxide, decompose under sunlight and other atmospheric parameters to produce photochemical oxidants, damaging cellulose, nylon and acrylic materials, and vegetation. Chlorofluorocarbons and carbon dioxide are thought to be depleting the ozone layer in the Earth's atmosphere and allowing increased amounts of ultraviolet radiation to penetrate the atmosphere causing global warming. Carbon dioxide and water vapour absorb the long-wave radiation emitted from the Earth's surface. In the delivery sector, pollutants produced by vehicle exhausts include carbon monoxide, particles, volatile organic compounds and sulphur dioxide, hydrocarbons and nitrogen oxides. The last two react with sunlight and warm temperatures to form ground-level ozone, whose main ingredient in smog, can cause respiratory problems and lung damage. Softer pollution, such as odours, noise, vibration and shock, may cause inconveniences, annoyance or irritation to humans, making them subject to legislative limits (Morris, 2004).

Producing and using multi-means of transport using fossil fuel for delivery place transport on the the third most polluting sector, being responsible for 16.2% of the global greenhouse gas emissions, out of which 11.9% represent road transport (Ritchie & Roser, 2020) and the increasing automotive production and energy consumption predicts even more bleak scenarios, and that opens up discussions on sustainability of processes, companies and countries.

### **4. SOCIAL PILLAR OF SUSTAINABLE MANAGEMENT**

Sustainable businesses have in their centre humans as part of the ecosystem, and not against it, in which the social benefits prevail over profit, and the community can sustain itself at the present moment and in the long run. The social pillar of sustainability promotes community, helps to keep property and ensures equality between individuals. It also takes care of cultural identity, social

inclusion and civil rights. At the crossroad of social with environmental aspects of the triple bottom line, environmental justice and natural resources stewardship emerge.

The social pillars of sustainability may also refer to gender equality and professional diversity, implementation of the conventions of the International Labour Organization, Organisational Culture Index, respect for the right of workers to be informed and consulted, details on the working conditions, social dialogue, with local communities and actions taken to ensure the protection and development of these community's initiatives, respect for trade union rights, workplace equality policy, HR managerial practices, salary practices, safety at work, healthy work/life balance, or staff retention metrics. Like many organisations, GIG economy businesses must consider managerial and financial key performance indicators to achieve genuine sustainability without limiting them.

The independent contractors of the sharing economy perform short-term jobs, investing their assets and know-how, and have the freedom to simultaneously perform casual control-free tasks independently for many apps to supplement their income (Sprague, 2015). Nevertheless, the main concern about the sustainable management of the GIG economy is human resources management, especially about precarious working conditions enabled by the platforms of the GIG economy businesses. Furthermore, when it comes to the GIG economy, there are two types of opinions: some are eager to enter and value this opportunity, on the one hand, and many critics of this type of business model claim the precarious work conditions that, despite the long-hours work could not provide sufficient earning to live a decent life. The GIG economy still struggles to ensure reasonable employment and trade-off to build resilient communities.

## **5. MANAGING TRADITIONAL VS GIG BUSINESS MODELS IN DELIVERY**

Logistics management is concerned with finding the right products in the appropriate quantity, delivering them in the proper conditions to the correct address and at the right time, to the most suitable price. Logistics implies receiving, transporting and storing goods in the warehouses and using cross-means of transport (boat aircraft, road transport and two-wheel vehicles) to ensure an integrated approach, finding the right balance between the quality of services provided and their costs. Logistics is concerned with timing, inventory expenses, and customer satisfaction while minimising the supply chain's risk and length. Efficient logistic management addresses the suppliers' real-time communication and tracks inventory and transit, mixing the shipment and customs queues. A sustainable managerial approach in transport considers the impact of each logistics stage. It maps out all the stakeholders, looking at the dynamics from an ethical point of view, ensuring quality contextual solutions instead of universal ones.

Like many other businesses, the delivery sector has been decentralised, so a new business area emerged: on-demand jobs, known in the literature as the GIG economy, were favoured by the global platforms that enabled new opportunities for collaborative work, by allowing companies to split work into GIGs and assign them to a person who is available to do it (Ginès apud Cano et al., 2021) through a digital platform. The adoption of the GIG jobs accelerated because the middle class has reached a comfortable economic level that allows them to own a smartphone, car, and house and find new ways to monetise their assets through a shared economy. The new delivery companies are changing their business models, collaborating with independent contractors in exchange for a commission instead of having full-time employees. This mindset shift has gained many adopters, so companies like Uber (Eats), Glovo and Deliveroo have had rocket growth in the past years. In the delivery sector, start-ups in the sharing economy have played a key role in the free-market capitalist economy, contributing to job creation and an increase in the real per capita income (Saravathy, 2001). The GIG economy delivery businesses operate platforms supply and demand meet, relying on independent contractors who can work with their assets, such as their car, mobile phone and internet connection, choosing their work schedule and being able to establish their tariffs, in exchange for a commission charged by the platform. In contrast, logistics companies rely on employees, most of them working full-time, using the equipment provided by the company, and

performing a 9 to 5 job for a monthly salary. Therefore, with laborious operational flows, traditional logistics companies are challenged by tech start-up companies that use machine learning algorithms to efficiently manage their activity and scale up very fast, opening markets in territories that the big players neglected.

The GIG economy has shifted the work paradigm facing new challenges, making the transition the fourth industrial revolution, in which the Fordist mechanisms with solid protection and production processes are replaced and redefined from “welfare to workfare, from full employment to employability” (Leonardi & Chertkovskaya apud Leonardi & Pirina, 2020).

The word “GIG” comes from music and defines an artist’s short performance. In economics, the term “GIG” also requires talent, skills, expertise and experience, but this time it refers to short-term, specific, specialised, task-based work. GIG typically means micro-tasking, work fragmentation into simple activities that can be easily codified so that the worker performing that task becomes an interchangeable part of the process and can be replaced with little disruption. As a result, in the GIG economy, employment ceases to fulfil its traditional social functions, such as a source of professional identification, prestige and becomes a commodity (Gandini apud Malik, Visvizi & Skrzek-Lubasińska, 2021). The GIG economy transitions from hourly-paid jobs performed by full-time employees toward project-based jobs performed by independent contractors. GIG economy enables freelancers to attain flexibility, offering convenient jobs in which they can choose what to work, when to work, how much to work and where to work, creating value through a distributed value generation model instead of a top-down one.

This new model of work, also known as the “logged labour”, has three particularities: 1) the component labour processes are split into separate “tasks” or logs (as the trees), which are treated as standardised and interchangeable from the point of view of execution and reward, although they might require a specific level of skills, 2) the management and control processes are moderated by online platforms, with the worker or service user required to be online to be notified of what work is available and the progress of its delivery and 3) the interactions of the service delivery are managed online and can be tracked, monitored and stored to build ever more sophisticated artificial intelligence algorithms to enhance the efficiency of future ones. In the GIG economy, both workers and clients are monitored, meaning that the activities are also “logged” in the sense that was historically used to describe the tracking of movements in ships’ logs or other types of logbooks (Huws, 2020).

The GIG economy comprises independent contractors, project-based workers, freelancers, part-time jobs, temporary jobs or jobs in the sharing economy. Nowadays, self-employed and micro-enterprises can advertise their projects on the GIG work online marketplace platforms, opening work possibilities worldwide. Unlike regular jobs, GIG job platforms connect buyers and sellers for particular tasks. GIG jobs can be performed in many industries. The most frequent roles are couriers, taxi drivers, personal shoppers, and babysitters, which require low skills, to more skilful activities such as handmade artists, branding specialists, video-editors, programmers, advisors, voice-over artists, engineers who manage their online reputation in order attract customers for further projects.

There are many types of GIG workers, considering the interaction with the platform: 1) people who already have a full-time job and perform GIG jobs as a hobby in their leisure time, getting to know people and have different experiences, 2) people who are people who already have a full-time job and perform GIG jobs as a hobby, 3) people who have a part-time job and seek to diversify their income sources, and 4) unemployed people who rely on the GIG platforms as their only income source. In the neoliberalist context, uncertainties predominate, and social relations change. Human capital is rising, and so is self-entrepreneurship, and the GIG economy appears to be re-establishing the work model. (Huws apud Leonardi & Pirina, 2020). The GIG economy platforms are meant to supplement income rather than become a unique income source. The so-called “platformization” is based on crowdsourcing (Casilli apud Leonardi & Pirina, 2020) and has slight varieties. There are labour on-demand platforms like Uber, social platforms like Facebook, and “crowd work” or



“micro-work”, such as Amazon Mechanical Turk or Google Translate, decreasing social protection by transferring the costs onto workers.

In collaborative economies, the difference between employment and self-employment and self-entrepreneurship, on the one hand, and consumers and prosumers, on the other hand, blurs, creating space for improvement of the current framework regulations. Companies prefer autonomy over state regulation and collective jurisdiction in this uncertain context. In the GIG economy, also referred to as the “Platform work”, including here the online economy, service providers become collaborators about the platform where they enrol. Platforms for collaborative work intermediate the connection of supply and demand, however, trade unions and governmental actors challenge the independent status of the GIG workers, and numerous initiatives are requesting stricter regulations about the GIG platforms, accusing poor working conditions and uncertainty, invoking the lack of labour protections and social security. GIG workers can choose their schedules and workplace, and it is relatively easy to enter this market. However, it comes with a setback regarding social security, health insurance, sick leave, holiday or retirement contributions.

GIG or sharing economy offers, on the one hand, flexibility, in a freelancing regime (Malik, Visvizi & Skrzek-Lubasińska, 2021), for workers, including migrants who might not meet the requirements to get a job, on the other hand, challenges the work conditions, imposing new labour standards for sustainable governance.

Today’s GIG economy platforms provide real-time information on the delivery status, increasing customer retention and satisfaction and easing communication between the client and the independent contractors. Algorithms-based businesses from the GIG economy eliminate the human interface from the logistic chain, increasing transparency and traceability, providing information on the drivers and customers, history, and estimated time of arrival, allowing evaluation between the users of the platforms, displaying information on how ecological the delivery was, in a decentralised manner that involves gaining earnings and managing online and offline reputation. With more flexible and self-regulated standards and procedures, GIG jobs gain more adepts, eliminating laborious paper-related procedures for calculating the tariffs considering the time, volume and weight of the parcels. Digital-native delivery platforms process data in real time and use them to improve the algorithms for subsequent use cases within the app, leading to improved efficiency of the delivery processes and opening up the market for amateurs who can value their assets for extra earnings. The GIG economy platforms employ artificial intelligence to set dynamic tariffs to accurately predict the supply and the demand from a given time and use routing optimisation, avoiding returns and rejected parcels due to miscommunication between the couriers, the consignee and the receiver. Although GIG businesses are more environmentally-friendly than traditional logistic businesses, from the perspective that they are paperless and use optimisation of their processes with AI and carpooling, they have a long way to go to achieve sustainability in all their processes ensuring economic feasibility, social equity and environmental preservation.

The rise of GIG economy online platforms began in 2008 when the economic crisis determined workers to look for new opportunities. Between 2010 and 2020, online marketplaces faced enormous growth in the global spread, primarily because of technological development and accelerated by The Covid-19 pandemic. The pandemic even caused forced digitalisation that changed the status quo, so remote work has become a matter of the so-called digital nomads. However, it has become a normal lifestyle for every worker for almost two years. The Covid-19 crisis has constrained workers, mainly from HoReCa, to retrain and embrace GIG economy jobs, such as on-demand delivery platforms, such as Uber Eats, Glovo, Deliveroo, Food Panda and Tazz. In Romania, the history of the GIG economy delivery platforms has been ten years, starting with 2013 when the Food Panda App entered the market, which Glovo bought in 2021. In 2018, Uber Eats entered the Romanian market and exited a few years later. Glovo continues to be one of the most significant players in the market, competing with Estonian Bolt Food and Romanian-held Tazz.

Nevertheless, GIG jobs are not new. In the 1980s, for instance, people used a radio connection with the central office, and that created the “pony express” jobs, in a system in which an indefinite number of “delivery boys/girls” could decide to make themselves available at any time and be contacted by radio to be notified of particular delivery tasks. Today, a new phenomenon emerges, the same person performs several different kinds of service using digital platforms, known in the literature as platform amphibians, or “slashers” (derived from the word “slash” = the oblique stroke): for example, a plumber/driver or an electrician/babysitter (Ichino, 2018), some of the workers are multi-apping, using them simultaneously.

In the new context, public authorities are trying to regulate the new economic activities and attempt to keep a proper differentiator between the traditional and the GIG jobs. Therefore, in Romanian legislation, self-employed workers must meet specific criteria to maintain their status. Otherwise, they could be qualified as employees. Thus, the Romanian fiscal code considers self-employment as any activity carried out by an individual to obtain income, which meets at least four of the seven criteria: The natural person must have the freedom to choose the place and the way of carrying out the activity, as well as the work schedule. The second criterion is that the individual has the freedom to carry out the activity for several clients. The third criterion states that the risks inherent in the activity are assumed by the natural person carrying out the activity. The fourth criterion specifies that the activity is carried out by using the patrimony of the natural person who carries it out. The fifth criterion implies that the individual performs the activity by using his intellectual capacity and/or his physical performance, depending on the particularities of the activity. The sixth criterion refers exclusively to freelancers (doctors, accountants, lawyers, consultants etc.), and it mentions that the natural person is part of a professional body/order with the role of representation, regulation and supervision of the profession. Moreover, the Seventh criterion eventually implies that the natural person has the freedom to carry out the activity directly, with employed staff or through collaboration with third parties by the law. (*Ghidul Fiscal al Contribuabililor care Realizează venituri din Profesii Liberale Elaborat de Direcția Generală de Asistență pentru Contribuabili*, 2022)

Sustainable management in the gig economy does not apply not one-size-fits-all principles, so to obtain a compiling sustainable business model for the delivery sector, the current thesis combined Henri Fayol’s functions of management (Fayol, Gray and Fayol, 1984) theory with John Elkington’s triple-bottom-line theory, to create a matrix for sustainable management with the managerial functions currently applied in business: Planning, Organising, Staffing, Leading and Controlling, with around People, Planet and Profit aspects applied to the GIG economy and traditional business models in the delivery sector.

Planning is an essential management function that has long been associated with humans. Yet, technological development allows artificial intelligence algorithms to predict supply and demand and autonomously optimise resources. GIG economy businesses rely upon computing planning, unlike most traditional business models in the delivery sector.

The traditional business models are organised around delimited job responsibilities and hierarchical management levels with bosses. In contrast, the GIG model offers convenient and flexible conditions so that a more significant number of people can join, controlled by (unbiased) artificial intelligence algorithms.

In terms of staffing, in the traditional business models attracting and hiring processes are more people-oriented, with rigorous selection criteria to offer a fixed programme (part/full-time) employee contract, whereas the GIG economy is more technology-oriented, with less rigorous selection, offering flexible time in freelancing-regime contracts, pursuing the seven independence criteria of the GIG workers, as a particularity. Training is a hybrid of e-learning modules and personal instructions in both companies. In terms of rewards, traditional delivery companies offer pecuniary rewards, as well as other complementary benefits, such as leisure time activities coupons/discounts, employees’ legal benefits (maternal leave, pension contribution, health insurance, days off for marriage or giving birth, union rights, social protection, unemployment

compensation), public recognition through Employee of the Month kind of programmes, whereas the GIG business models are offering financial bonuses only.

Whereas traditional business models in the delivery sector address B2B, B2C, and C2C market segments, the GIG ones are a rather three-side marketplace model (B2B2C), involving Businesses/Peers, Drivers, Customers and the App as an intermediary, the last one being optional for the traditional business. So, the traditional business models imply personal leadership. In contrast, unseen algorithms lead the GIG platforms, and control of the workers is instant, according to some parameters, such as the customers' ratings.

Monitoring and controlling happen at specific milestones or triggers in the traditional delivery companies, mostly managing customers' complaints, whereas the GIG ones are real-time updated and can have instant repercussions, positive or negative, on bonus and even temporarily suspension or permanent banning from the app.

Both types of businesses make deliveries using multi-means of transport, such as cars and drones. However, traditional businesses also use planes and shipping boats, whereas the GIG economy uses scooters, motorcycles, (e-)bicycles, and even public transport. Regarding people, both types of businesses have their headquarters with management, HR, accounting, marketing, support (call-centre/chat/e-mail and even chatbots) departments, and on-field operational teams: couriers as employees for the traditional businesses, and independent contractors for the GIG ones. Another particularity the traditional businesses have is the warehouse, with officers and pickers who prepare the orders and more recently pick-up points within the city. GIG economy businesses have recently built express warehouses inside the city.

In terms of the planet, one should take into consideration the natural resource usage and human-made pollution. In the traditional delivery businesses, the company owns the assets, cars, phones, voice and internet subscriptions, software, work equipment (bags, jackets, t-shirts, caps), POS, scanners, and packaging using paper and plastic. In contrast, in the GIG economy, the contributors own it, so car fleets with the same type of cars generate almost the same gas emissions, and renewal is challenging. In contrast, the GIG companies use various vehicles (with different years of manufacture, fuel type and gas consumption), so they require imposing restrictions for polluting models. Moreover, in the delivery sector, routing influences sustainability, while in traditional businesses, it is planned by humans. GIG businesses use artificial intelligence algorithms to optimise routing for increased operations efficiency and impose dynamic tariffs.

In terms of Profit, traditional businesses are hourly-based instead of task-based, providing a fixed salary, and a somewhat limited amount of money with slight increases. In contrast, GIG offers task-based, flexible schedule and payment rates, freelancing contracts with no limit of time and higher earnings than regular jobs, implying gamification principles such as challenges for incentives and weekly bonuses announced by unremovable periodic notifications (for pending orders) to push couriers to more and more work, yet with specific insecurity regarding daily earnings.

A questionnaire on sustainable management in GIG economy, applied to the delivery sector, filled in by GIG economy workers in the delivery sector has revealed a few sustainable management practices that the GIG economy companies in the delivery sector must apply. The GIG workers declare that companies should encourage the use of environmentally friendly means of delivery, such as bicycles or electric scooters, bikes and cars by: renting them to couriers at a reasonable price and even increasing the rate to be able to deliver with eco or newer means of transport. Also, couriers ask for support in purchasing electric vehicles and suggest that the delivery must be performed in specific time slots for increased environmental efficiency. The delivery companies can take measures on the financial side such as increasing the rate per km in line with the inflation rate and according to the means of transport used: currently, bike couriers are paid worse than driver couriers for the same number of delivered orders. Also, accommodating more than one order can increase efficiency and payment.

Moreover, GIG workers suggest including achievable and higher-paid performance bonuses and multipliers according to which tariffs are calculated. GIG workers suggest payment for time lost at

the restaurants, the distance from the point of departure to the restaurant, and the ride to the drop-off points for refused orders. Moreover, contributing to the change in legislation regarding taxes and duties with collaborators and hourly rates for couriers are suggested as improvements. The GIG workers suggest improving the fiscal measures and changes in the algorithms of the applications, as well as increasing transparency, as accounts are banned by the apps without prior notification or suspended if orders are refused a couple of times. Workers also suggest combating undeclared work instead of creating systems to support undeclared work through fictitious declarations and reports prepared by the partner companies that 'play the role of employers' only on paper and not with the couriers. The couriers claim inexistent rights compared to the rights of employees with a work permit. Also, they suggest improved communication with the other operators in the app, such as the company's call centre employees, who cannot help the couriers, collaborators and clients. GIG workers ask for freedom to choose where and when to deliver parcels: a particular area where they want to deliver, and total flexibility in choosing and cancelling the working hours regardless of the time, as well as unlimited hours in the calendar available to work.

## 6. CONCLUSIONS

GIG economy has opened up new possibilities through democratised, more transparent delivery systems that allow real-time updates, instant communication, optimisation delivery time, and improved customer relationship and retention rate, translated into cost-effective distribution and long-term money savings. It allows marginalised workers by the traditional employment criteria, like mothers, migrants, students, and unqualified workers, to value their assets and earn much more than they could in a regular job; however, is this model genuinely sustainable?

Multi-variables implied by the GIG economy business models must be optimised to ensure sustainability from the economic, social and environmental perspectives and custom organisational policies must be applied by algorithms, identifying the most frequent business scenarios.

In conclusion, sustainable management in the GIG economy applied to the delivery sector needs custom regulations and frameworks for each of the GIG type of participants, and, more importantly, their enforcement, taking into consideration the routing optimisation by the means of transport and type of fuel used, incentivizing more eco-friendly approaches, as well as adapting to the workers' physical capabilities. In a sustainable company, women should not be asked to carry 25 kg of cement in a backpack and be penalized for refusing the order by unexplained algorithms.

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