

A broad definition of the Data Economy
and its current main forms.

GENERAL PRINCIPLES OF THE NEW DATA ECONOMY

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Abstract

The paper seeks to establish a broad definition of what the data economy is in its current main forms and proposes a set of key principles for developing alternatives that more effectively respond to the economic challenges posed by data ownership, individual entitlement, and collective wealth creation. It also aims to encourage academic engagement in the research of these issues in order to broaden the solutions and methodologies proposed.

Keywords:: Data economy, data ownership, property rights, data value.

O artigo busca estabelecer uma definição ampla do que vem a ser a economia de dados em suas principais formas atuais e propõe um conjunto de princípios essenciais para o desenvolver alternativas que respondam, mais efetivamente, aos desafios econômicos derivados da propriedade de dados, do direito individual e da geração de riqueza coletiva. Pretende, ainda, estimular o engajamento acadêmico na pesquisa desses temas, de forma a ampliar as soluções e os métodos sugeridos.

Palavras-chaves: Economia de dados, propriedade de dados, direitos de propriedade, valor do dado.

JEL classification codes: A11, D80, K11

Introduction

In its broadest definition, the data economy consists of a global digital ecosystem in which data are collected, assembled, organized, prepared, and exchanged by a network of players for the purpose of delivering value and information. Considered valuable resources, they can be shared among different agents to drive growth, innovation, and market interoperability, generating, as an effect, the overall improvement of information symmetry.

Produced by a variety of economic players, data are usually collected by digital means, such as applications, search engines, social media, e-commerce, physical store management systems, corporate management systems, payment portals, and a growing number of devices, mobile or otherwise, connected via the "Internet of Things" (IoT). In general, the data economy thrives on advances in information technology, especially the growing popularity of machine learning, automation, and artificial intelligence applications.

Participation in the data economy enables a person or organization to access and exploit the full potential of its data assets. This exploitable potential arises mainly from sharing data, aiming at problem solving, developing innovation, and deploying emerging technologies. (Bonti et al., 2021)

Consumers in the real economy play a central role in the data economy, since they contribute directly to the value chain associated with the production and collection of data for analysis. (Allen, 2016)

This contribution allows value to be extracted from data by capturing and monetizing behavioral information that can be leveraged in financial and marketing planning, as well as in product development, among other activities. The monetization of personal data has given rise to a specific market in which individuals share their data with companies according to various types of business rules and schemes. (Elvy, 2017)

The growth of the personal data economy is fueled by the rapid increase in mobile devices that collect real-time data such as geographic location and consumer purchasing decisions, among other metrics. These data detailing the consumer's digital actions has become an important source of value creation in the digital economy. However, in recent years, its indiscriminate use has led to significant

abuses and distortions, thus raising the demand for the creation of official regulations and protective laws. (Lammi and Pantzar, 2019)

When talking about value, some participants in the data ecosystem think only of monetary value. They focus on pricing issues, how best to include the data in a balance sheet, or how to induce or control their scarcity.

Others refer to value as the ultimate contribution to economic welfare, i.e. value derived from increased knowledge and innovation, or even job creation, general productivity growth, growth in the economy, and social security.

For others, more relevant than its contribution to the market is its role as an identity shaper, an attribute increasingly valued among economists for its practical use as an anchor for economic decisions.

The different views of data economy

Data economy can be described in at least four different ways.

A. The neoclassical view

Within neoclassical economic theory, "complete" information or the availability of relevant information to all market participants leads to economic efficiency. In the theory of perfectly competitive markets, perfect competition occurs when all companies sell identical products, market share does not affect prices, players can enter or exit the market without barriers, and buyers have perfect and complete information. It is, therefore, an economy that is entirely influenced by the full availability of information. When all consumers know all the prices of a product, competition forces prices down, increasing general welfare.

According to this principle, all data should be open to promote full information symmetry between market players (companies entering a new market, established companies, and consumers). This has been the motto of the data monetization business for the past decades and the playbook of the data brokers.

In other words, they say, all information can and should be collected and distributed for a price, in order to reduce information asymmetry and increase market efficiency. This can be seen as a positive factor; after all, everyone wants to have the

necessary information at hand to make a financial decision. In principle, then, the data market has a clear and recognizable utility.

However, this is not always the case. It is well known that, under the rule of absolute symmetry, information sharing can either increase or decrease market balance. This can be seen in the use of personal data collected by companies.

Critics of the neoclassical position point out that the secondary use of personal information raises specific economic problems. A consumer may rationally decide to share personal information with a company, expecting to receive a net benefit from the transaction. However, they have almost no knowledge or control over how the company will use their data in the future.

In the name of full information transparency and market health, the company may sell consumer data to a third party. However, consumers do not have a share in the profit and may even be forced to pay extra if the third party misuses their data, as in the case of spam, or if they are victims of unfair price discrimination, for example.

Given that the negative impact on consumers is not internalized by companies, there is a clear imbalance of power and risk distribution. (Acquisti, 2010)

On the other hand, individuals may want to increase their data security and prevent misuse of the information they provide to market agents. Despite the benefits, they may not want to sell their data to companies that have intrusive policies and seek to restrict its use in the secondary market.

The solution treats the problem as a service issue. In the so-called "Pay-for-Privacy" model, risk protection is offered as a luxury product that can be accessed for a fee.

However, it is well known that the high cost of these services, combined with factors such as poverty and other barriers, can prevent consumers from purchasing privacy protection on market terms. We then witness a stalemate between individual law and commercial law.

The privacy protection laws that have emerged in the last decade were a reaction to this state of affairs, an attempt to restore the balance between individual rights and an increasingly active and powerful data market. For the defenders of the neoclassical view, this intervention not only represents an intrusion of the State into the symmetry of the market, but also increases inefficiencies, either by raising the price of products or by slowing down growth.

B. Personal data economy

This type of economy proposes that data subjects can directly negotiate the use of their data on a secondary market, generating income and making the free flow of information more fluid.

In this case, the monetization of data by individual data subjects assumes that consumers have transferable rights or ownership over the data they generate. The critical point of view supporting such a position is the scientific consensus that digital information is not intangible, but physical and tangible matter. Data governance, including personal information, is best achieved by taking advantage of existing legal systems that govern the ownership, use, and transactions of other physical assets in the real economy. (Ritter, Mayer, 2017)

However, this statement is problematic because multiple companies can simultaneously claim rights to such data, which is particularly true for data generated by, for example, autonomous vehicles or IoT devices.

From a legal and economic perspective, there is still no established doctrine that explicitly defines which entity has ownership rights to the information. The definition is ultimately given by the companies that mediate this type of market, which buy or obtain the rights to use the data generated directly from the owners. (Ritter, Mayer, 2017)

Many of these companies claim that their mission is to help people discover the value of their personal data and to compensate them for the assets they produce by becoming controllers of their data assets. Once the company establishes a monetary value or potential price for the available information, the data is displayed in a marketplace where buyers make their choices and place purchase bids. Once the transactions are completed, the owners are notified and properly compensated.

One of the main criticisms of this model is that it provides only an illusion of ownership and control over the data, since the company's terms and conditions and privacy policies indicate that the ultimate purchasers of the data can monetize it or release it on the secondary market once the data owner has transferred its rights to the data. This transfer is often defined as a "non-exclusive, perpetual, irrevocable,

royalty-free, sub-licensable and transferable right to aggregate, use and disclose the data for any purpose." (Elvy, 2017)

Another criticism is that it severely compromises the possibility of the data owner receiving a fair reward, since the model does not take into account the future value, which eliminates the possibility of properly calculating opportunity costs; the balance required in a commercial transaction disappears and definitely compromises the symmetry between sellers and buyers.

Another important point is that while more economically advantaged consumers can avoid participating, those in worse economic conditions may be compelled to sell their data at any opportunity, especially if the compensation is significant. Thus, low-income people and other vulnerable communities may end up dominating the personal data economy, not only distorting the information available, but also widening the exploitation of inequalities. (Elvy, 2017)

C. Fair data economy

In this economy, which claims to be fair and functional, data is controlled and used in an ethical way, because its main objective is to expand the commercial usefulness of data and to guarantee its use in scientific or academic research, so that it serves the development of societies and generates products of general interest for humanity.

This economy is therefore linked to the principles of impartiality, neutrality and autonomy of scientific production, and advocates that individuals have the necessary technical capacity and contractual trust to share their personal data widely through consent and portability.

The acronym "FAIR" indicates that the data are prepared to meet the principles of findability, accessibility, interoperability, and reusability. The main idea of the model, defined by a consortium of scientists in 2016, is to create a universal standard for data production, information representation, and consumption by the entire spectrum of society. (Wilkinson et al., 2016)

Governments and institutions must take on the task of defining the technical protocols and general rules of governance to create a friendly, reliable and fair environment for data sharing. This would allow the emergence of a "lingua franca"

capable of ensuring transparency of processes, symmetry of information, and greater portability of transactions involving personal, academic, or commercial data.

While this model is well accepted in scientific circles and among advocates of the circular economy, there are political difficulties in establishing the data-unifying protocols, as implementation requires the active participation of governments and regulatory institutions. There is also a lack of practical reflection on the economic impact of this type of economy, both on the specific issue of data value and on the income of participants.

Recent surveys of society's expectations of the data economy have concluded that most people prefer the practices of a fair and trustworthy economy that supports autonomy, protects privacy, emphasizes security, provides transparency, and economically benefits individuals, businesses, and society. Therefore, these issues should be considered when designing ethical governance guidelines for the data ecosystem (Rantanen, 2019).

D. Algorithmic data economy

In the algorithmic economy, companies and individuals can buy, sell, or trade data embedded in algorithms or individual applications. It is similar to the non-fungible token (NFT) market and relies on decentralized, blockchain-like technologies to address the issues of exclusivity, security, and risk. This economy is based on a strong notion of data ownership, which can belong to any type of economic player, be it an individual, a company, or a specialized intermediary.

The main characteristic of this economic model is that there is no exchange of raw data. It is always processed, packaged for the market and then encrypted. Access is controlled by an asset tokenization scheme that is verified in a decentralized manner. This decentralization of applications fosters a more dynamic marketplace where, for example, companies and individuals can share packaged data, allowing for greater diversity in utility generation and introducing greater competition into markets.

This economy allows any society to create, distribute and sell data products in a horizontal market. Its interest lies in the high degree of control, security, and decentralization, similar to the decentralized finance that has recently emerged. However, this technological proximity brings with it the well-known problem of high

volatility in the crypto world, as it makes the value and prices of data on the market vary massively. Besides increasing risks, this also facilitates speculative movements and other problems such as high leverage, liquidity mismatch and lack of shock absorption capacity. (Bakas ,Magkonis, Oh, 2022)

The algorithmic economy is generally seen as one of the ways in which future companies will collaborate on high-tech projects related to the development of innovation through the use of data. An example is the common frameworks of "federated learning" and the different AI applications. (Van Der Meulen, 2016)

Other issues raised in this type of economy concern the control of information bias, which can indirectly affect the data subjects involved, and transparency, given the distance that occurs in the packaging process between the original data and the resulting algorithms. These issues obscure the commercial return of these applications, as they may harm the interests of the original owners.

The Parts of a Data Economy

An ideal framework for the new data economy should first be considered from a set of characteristics that allow the construction of a model capable of correcting the known imbalances. The challenge is to ensure that all rights and interests are respected, so that the decision on the value of information is stable and protected from speculative movements, and that the result is a balanced, robust and competitive market, based on information symmetry and the generation of wealth for society, whether through the growth of companies or the increase in citizens' income.

To meet this demand for growth and income, we call attention to a series of steps that focus on concepts that we believe are essential to understanding the problems and developing solutions.

Considering the stages of data generation, enhancement, protection, preparation and monetization, we distinguish a framework whose most relevant aspects to meet the needs of law and value are briefly presented in the form of fundamental principles.

1. *On Generation - Data Results from Relationships*

Economic theories describe relationships as a series of exchanges aimed at balancing benefits and costs. They are like conversations between peers to determine all the terms of the transaction that govern the exchange. Therefore, a perfect negotiation is a perfect dialogue, conducted without any form of hierarchy, because it is this balance that represents symmetry between the parties.

Although this is a secular truth, the digitalized world has made it clear that every relationship we establish - with objects, people or companies - involves us in a conversation, in a continuous exchange of signals that subsidize choices, which in turn feed the process and make the transactional machine turn in cycles that continue until they reach the particular goals that motivated that relationship and conclude with an effective exchange between the parties. Thus, a transaction represents, in its origin and destination, two or more players, from whose encounter the data that it represents emerges.

It is commonly believed that the value of data depends on the outcome of the exchange and the details of the final agreement, which defines the transaction by a clear privileging of this information, given its document status. This bureaucratic notion of data diminishes the importance of the dynamics of the relationship and consequently leads to the invisibility of the players involved.

It is well known that in an economy all the steps of the transaction cycle - from the goals of each party to the object in question, through actions, context and interface - are at the level of socio-economic relations. (Diagram A). On this level, where people and companies move according to their interests, we find the context, the language, the positive or negative reactions, the friction of the interfaces, the personalities, the goals, the desires and the needs of each party.

Figure - Economic Plane / Relations / Information Plane / Metadata / Physical Plane / Data

This original relational dynamic, when represented on the Information Plane by metadata, gains dimension, semantic structure, attribution to a knowledge domain, in short, a purpose of use that manifests itself in a schema.

From this structuring layer, data emerges on the Physical Plane, which, which carries the truth value that interests the purpose of those who capture and preserve it.

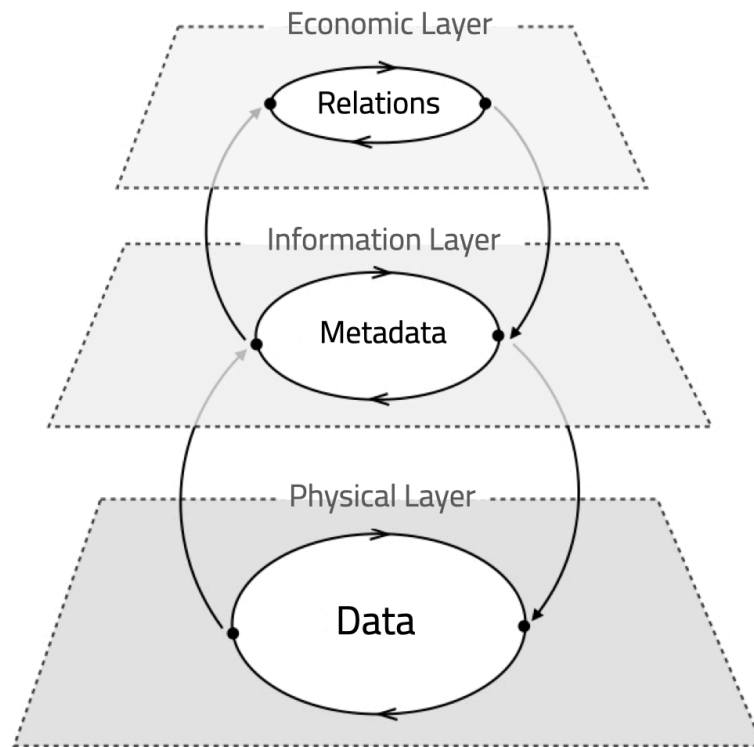


Diagram A - The 3 Orders of Data Generation

In the reverse direction, the data interacting with each other generates new metadata as intelligence, which in turn is used to inform and enhance higher-order relationships. Thus, the origin and destination of the value generated in a data economy is always the relationship between the players in a transaction.

This three-level scheme illustrates how the value of information derives from a circular movement between the planes and at the same time within them, suggesting the complexity and diversity involved in its generation.

Moreover, the participation of each party in the relationship and its contribution to the outcome become calculable, allowing, on the one hand, the fair distribution of rights and, on the other, the transparency of the shared dynamics in the relationship and the consolidation of the mutual recognition of the custody of the data.

A first principle for the new data economy can be derived from this:

Every piece of data results from a relationship between two players, from which all its attributes are derived. Neglecting or underestimating these relationships leads to the invisibility of players, which negatively affects their identity, rights, purpose, and value.

2. The stable value of data

Value is an emergent property of the internal structures of a data set and its application context. Structured information generates value, which is not just capital, but the potential to generate information wealth. Updated at the information plane, when a schema is configured to meet any information need, this potential becomes measurable by its dimensions, information attributes, applications, meanings, and is directly linked to its transactional and technical origins.

Data is used by organizations to optimize their business processes, such as predicting outcomes or innovation. The more data, the more productive the business and the higher the number of transactions that generate more data, increasing productivity and data generation itself. Too little data, on the other hand, generates too little output, leaving the organization data-poor or information-deficient. The need to fill this "knowledge gap" is the driving force behind a data economy. Buying, selling, or exchanging data is a productivity driver for organizations. (Farboodi, Veldkamp, 2022)

Suppose a company needs to fill its knowledge gap and searches the market for the data set that provides the necessary information. They will be evaluated first for their suitability to the need, and only then for their monetary value. Therefore, the true measure of value is the contribution to solving the problem. The anchor that drives purchase decisions is the value of the information, the concept that is most relevant to the buyer.

Thus, a data economy needs a unit of value that calculates the current contribution of the data set to the growth of known information wealth, i.e., its adequacy to compensate for an information deficit. This unit must be assigned to a data set as the unit that determines its exchange value. It should vary only when the data set changes its dimensions, attributes, or meaning.

From the seller's point of view, its usefulness is also obvious, since it allows a better understanding of the value by aspects of the data itself, thus building a more integrated perception of the wealth accumulated in the data.

In practice, the stability of this standard unit can reduce the impact of monetary value volatility on the data business and underpin a value-based pricing strategy.

Thus, a second principle of data economy will be:

A data set carries its own value, which is its potential to generate information wealth. This value is calculable, and from this it is possible to establish a standard unit, which makes it possible to determine its contribution to the growth of the wealth of the data economy and to define its exchange value.

3. Protection of Rights

The development of a data economy requires, as a precondition for its operation, the creation of verification standards and a system of data ownership rights.

This system must establish the proportionality of its division between the parties, as well as define with precision its custody and any possible restrictions or conditions on its use. This position emphasizes that a data economy requires clearly defined rules of rights and privileges over data in a business ecosystem. The stability of the data economy is largely determined by this system. In 2017, an OECD report on issues related to the growth of the data economy emphasized the importance of better governance systems and legal rules. To this end, it was recommended that standards be created for data ownership, including rights of access, processing, deletion and, in particular, for data values. (Ritter, Mayer, 2017)

Defining such a system is a task for legislators. Several initiatives are already underway to create the rules that will guide the operators of the law. However, it is possible to anticipate the beneficial effects of such legislation through a contractual model that certifies and consolidates ownership and control of economic exploitation in a single shared custody instrument.

In this type of custody, the parties grant each other mutual legal permission to exploit the value of an asset, which includes the sharing of risks and responsibilities and the establishment of proportionality between the parties.

A shared ownership certificate that recognizes the ownership rights and value of a data set leads to near-optimal allocations for the balance between rights protection and economic exploitation.

A centralized certificate registry provides a consistent and up-to-date reference to the diversity of existing data sets: the information values, the volume, the attributes,

the domains, and their owners. This is the key information that enables value to be unlocked by monetizing the data. It is therefore essential for the sustainable development of the data economy.

This importance can be substantiated with a third principle:

Each set of data belongs to its owners, and this right cannot be modified except by their decision. This property right must be established in the form of a contract that certifies the shared custody and establishes its proportionality and the limits of its economic exploitation. This certificate allows the data set to participate in the data economy.

So far, we have followed the steps of consolidating the rights to a data set and establishing its value. We now move on to the steps of economic exploitation in an information market through data monetization.

4. Preparation of Data Products

The first stage of the economic exploitation of data value is defined by the emergence of a new, more specialized and decentralized transaction. This is the negotiation of rights by multiple operators to enable the use of the data set in value-added information products to meet market demands.

Since the data is subject to property rights represented in the shared custody certificate, these rights require a formal release so that their use does not create reputational and operational risks.

This requires modeling that resolves the licensing of the rights to the assets for a reward, which can be an exchange, a fixed negotiated value, a share of the financial results of the information product, or any other standardized delivery model.

This modeling has analogies to financial product offerings, as they are private contracts that govern the temporary transfer of the right to use an asset between two parties for specific purposes, duration, conditions, and limits. Such conditions include rules for security, sovereignty, protection, and provide for possible restrictions on use, among others.

Such a contract provides comprehensive risk control in the monetization of information products because it brings transparency to the rights involved in the process. It contains all the information needed for decision-making, either by the owners or by the buyers of the data product in the market.

In a second step, after the release of the rights involved is achieved, the offer contract must be registered for the purposes of governance, audit and control, starting the preparation of the data product that will finally be sold on the market.

A data product is an application that satisfies the demand for information in the most appropriate technical form and has all the capabilities to ensure the secure execution of the contractual terms negotiated with the holders and buyers.

The preparation step can then be expressed as follows:

The participation of a data set in the economy should be facilitated by a rights licensing agreement. This contract must provide full transparency about the purpose of the offering to ensure that the interests of rights owners are protected. This contract informs the creation of the data product and how it will be offered to the market.

5. Monetization - The market for data applications

The creation of a robust and secure market for information products is the goal of all forms of data storage, in their various manifestations.

Markets serve three main functions: to connect buyers and sellers; to facilitate the exchange of information, products, and related payments; and to provide an institutional, legal, and regulatory infrastructure that enables efficient transactions.

In the information economy, the construction of a market for information products acquires an additional complexity related to risk control for the sustainability of the business, on the one hand, and to its pricing dynamics, on the other.

Risk control must be essentially concerned with the security of rights, data and the value of information. Thus, market, technological, operational, sovereign, moral

hazard, and reputational risks must be considered when modeling information products.

In turn, pricing must consider two distinct moments. The first is pricing in a primary market, i.e. the value of the rewards for licensing the rights to use the data sets. These values are influenced by the unit of information value and the willingness of the owner to license the data. The equation of these factors indicates the elasticity of the value of the rewards and is therefore a crucial parameter for the analysis of the viability of supply and pricing.

Second are the values related to the secondary market, defined by the demand generated by the knowledge gap, the impact caused by the data product, and the cost of developing and maintaining the data application. An important external factor to consider is the digital maturity of the buyer, as this determines their willingness to pay and influences the final price elasticity.

From this modeling of risks and pricing, a final license agreement for the use of the data application is generated, and a variety of commercial strategies can be applied, such as quota sales, time of use, number of users, and exclusivity, among others.

Finally, once a data application is commercialized, its performance must be monitored periodically to allow risk control and analysis of the impact and efficiency of meeting demand, for feedback to the value chain.

Thus, our last principle is:

The monetization of a data set in the economy of data, must be mediated by a data application. The pricing of this application should consider both the primary and secondary markets. The application must enable the monitoring of its performance in fulfilling contracts for risk control and value chain feedback.

6. Governance and Security

In a data economy, building a market for information products takes on the complexity of protecting the rights of owners throughout the business flow, including after the final use of the information product.

Since it is not simply a matter of matching supply and demand or protecting fundamental rights in a commercial relationship, it follows that the institutional function gains in importance and expands into a set of legal, control, auditing, and accounting rules that form the backbone of the governance of a data economy.

Therefore, the systematization and standardization of this framework of rules is crucial and must be carried out in close relationship with public bodies and institutions of standardization, regulation and control.

Obviously, standardization involves information technology, which cannot be underestimated, especially for its security aspects and its importance. But one cannot help but notice that in the data economy, the role of technology is subsidiary to the necessary prominence of the governance of law and value.

Conclusion — The chain of interests of the data economy

A Data Economy is a trusted economy. This leads us to conclude that its expected outcome is the elevation of the data economy to the status of a foundation of trust, based on the value of data as an asset. This value derives from legal certainty, transparency of information, and the use value derived from participation in an economy organized around the interests of the participating economic players - governments, businesses, and individuals.

The participation of institutions and governmental bodies will be guided by the interest in regulating economic operations as a guarantee of sustainable growth and distribution of the wealth produced. Specific laws for the treatment of property rights over data will be instrumental in the development of the operations described in this paper. Financial and accounting standards will also play an important role in controlling and auditing processes and in defining new value streams and their tax implications.

Companies will be interested in filling knowledge gaps to promote efficiency and innovation as a way to combat the systemic inadequacy of companies in a changing economic environment. As a side effect, the reduction of information asymmetries by reducing the risks associated with data sharing will also be an important attraction for participating in this economy.

Finally, consumer interest will revolve around the issue of identity and its role in one's economic life. From this perspective, a data economy must be built around the management of identity. Identity is, if not the greatest, one of the greatest motivators in the decisions a person makes during their economic life.

Economists define a "utility function" as a mathematical expression of monetary motivations and interests. For example, a person may worry about future consumption and then make decisions to maximize their utility function by deciding how much to save. In general, however, economic thought treats this function by assuming that decisions arise from individual rationality and random characteristics.

Today, however, it is known that the real factor that mobilizes this function is a framework of personal preferences, ideals, relationships, and choices that can be represented as an identity. And this identity can influence not only individual decisions, but also those of an entire social group or population. (Akerlof, Kranton, 2010)

In a data economy, identity is the structured collection of information generated by people in their socio-economic interactions, and it is this collection that is the object of property rights and from which all value is derived. This implies that many contemporary social issues such as gender, race, nationalisms, ideologies, and more have a direct bearing on fundamental aspects of the evolution of economies.

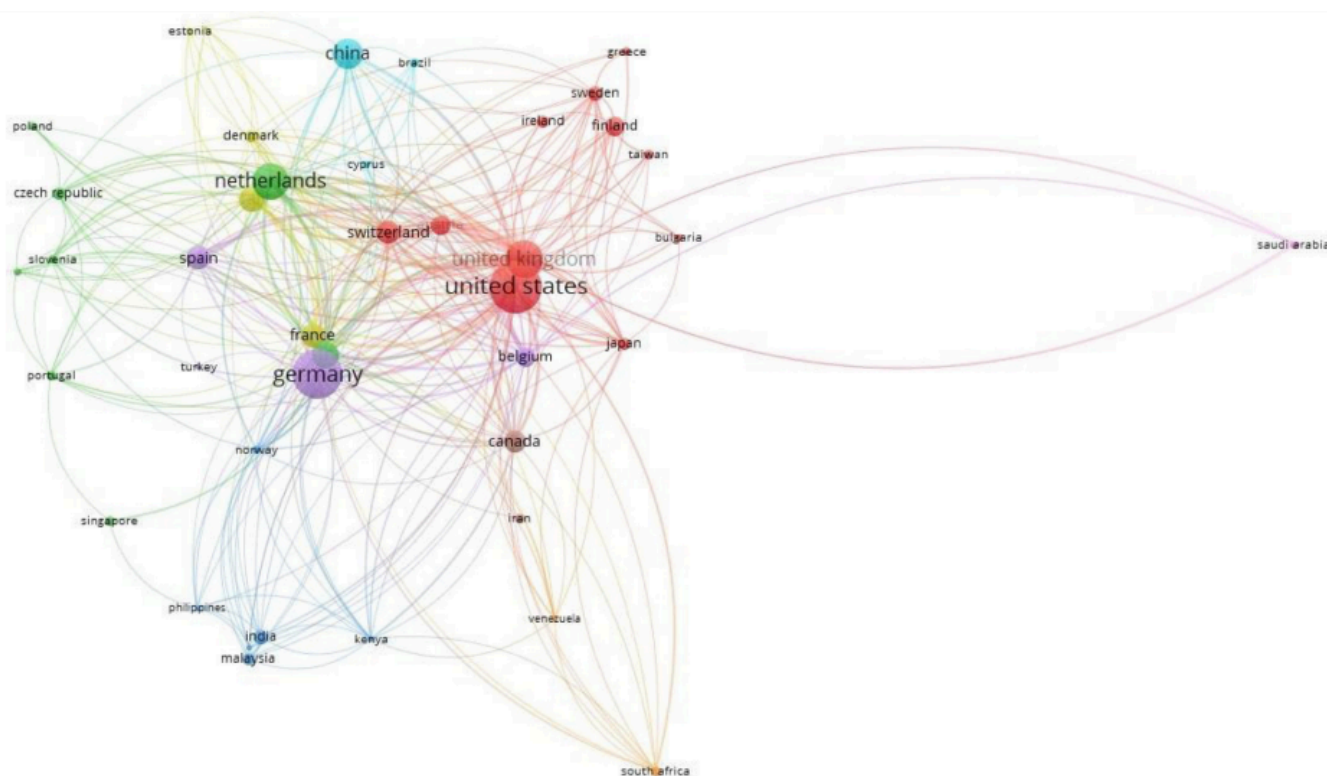
A data economy, then, is more than an opportunity or an innovation in the business environment; it is a tool for unraveling the future unfolding of human growth and prosperity from the perspective of a digital life.

São Paulo, February 2023

1. Appendix — Toward a theory of data economy

The increasing use of data means that it has become an essential asset for the development of today's knowledge economies. Proactive participation of academia is essential to set the technical and philosophical parameters for this development. (Olaleye, Mogaji, Agbo, Ukpabi, Gyamerah, 2022)

The chart below shows the current state of the global network of academic exchange on the topic of the data economy, and the prominence of some countries in producing relevant research and papers.



(Olaleye, Mogaji, Agbo, Ukpabi, Gyamerah, 2022)

International collaboration on data economy research spans all continents and highlights the prominence of the US, UK, Germany, and the Netherlands in work on data economy and related topics. It is also possible to observe the emergence of other countries, such as China, Switzerland and Spain, in the network of collaborations. Brazil's participation is modest, as it only collaborates directly with Argentina, Greece, New Zealand, Norway, Poland and South Africa.

In order to stimulate the interest of Brazilian researchers in the subject, we suggest the following reading ***'The composition of data economy: a bibliometric approach and TCCM framework of conceptual, intellectual and social structure'***, from which this chart

was extracted and which is the result of a work carried out by Sunday Adewale Olaleye (Finland), Emmanuel Mogaji (UK), Friday Joseph Agbo (USA), Dandison Ukpabi (Finland) and Akwasi Gyamerah (Finland), accessible at <https://www.emerald.com/insight/content/doi/10.1108/IDD-02-2022-0014/full/pdf>].

It provides an extensive literature review on some of the issues related to the emergence of the new data economy and can serve as a starting point for those interested.

The general principles we present are also suggestions for applied research in the fields of philosophy, sociology, law, and economics. We hope that they can, in some way, inspire actions for the study of the data economy in Brazil and in the world.

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