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Foreign Trade Intelligence Centers in Türkiye: The Impact of Global Trade Dynamics and Advances in Big Data

Türkiye’de Dış Ticaret İstihbarat Merkezleri: Küresel Ticaret Dinamikleri ve Büyük Veri Alanındaki Gelişmelerin Etkisi

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ABSTRACT

Export-oriented growth strategies have been pivotal in shaping critical economic indicators such as national income, growth rates, industrialization, and employment, thereby assuming a determinative role in the global economy. In response to the growing complexity of international trade and the intensification of global competition, governments have introduced a range of both explicit and implicit support mechanisms. These measures are to guide firms toward global markets while concurrently enhancing their ability to strengthen their competitive advantage. This shift has precipitated a substantial increase in the demand for precise, timely, and actionable data, which has become indispensable for entering international markets, evaluating risks, forecasting trends, and adapting to the dynamic nature of global trade. In this landscape, advanced data technologies have emerged as transformative drivers of change in international trade. This study provides a comprehensive analysis of the foreign trade intelligence centers recently established in Türkiye, with particular emphasis on their operational structures and competitive intelligence frameworks in the context of global trade dynamics and big data advancements. In addition, the research identifies key areas where improvements are necessary to enhance the effectiveness of the centers, offering critical insights into how Türkiye can optimize its trade intelligence capabilities.

ÖZ

İhracat odaklı büyüme stratejileri, milli gelir, büyüme oranları, sanayileşme ve istihdam gibi önemli ekonomik göstergelerin şekillenmesinde büyük rol oynamakta ve bu sayede küresel ekonomide belirleyici bir konum kazanmaktadır. Diğer taraftan uluslararası ticaretin giderek daha karmaşık hale gelmesi ve küresel rekabetin artmasıyla birlikte, hükümetler açık ve örtük çeşitli destek mekanizmaları geliştirmiştir. Bu önlemler, firmaları küresel pazarlara yönlendirirken aynı zamanda rekabet avantajlarını güçlendirmeyi ve kapasitelerini artırmayı hedeflemektedir. Bu süreç, uluslararası pazarlara girmek, riskleri değerlendirmek, eğilimleri tahmin etmek ve küresel ticaretin dinamik yapısına uyum sağlamak için doğru, zamanında ve eyleme dönüştürülebilir veriye olan talebin artmasına neden olmuştur. Bu ortamda, ileri veri teknolojileri uluslararası ticaret uygulamalarında önemli bir dönüşüm yaratma potansiyeline sahip itici güçler olarak ön plana çıkmıştır. Bu çalışma, bilhassa küresel ticaret dinamikleri ve büyük verideki gelişmeler bağlamında operasyonel yapıları ile rekabet istihbarat çerçevelerine vurgu yaparak, Türkiye’de son yıllarda kurulan dış ticaret istihbarat merkezlerinin kapsamlı bir analizini sunmaktadır. Ayrıca, araştırma, bu merkezlerin etkinliğini artırmaya yönelik iyileştirilmesi gereken alanları belirleyerek, Türkiye’nin ticaret istihbaratı kapasitesini daha etkili hale getirme konusunda önemli içgörüler sağlamaktadır.

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1. Introduction

International trade plays a crucial role in driving strong economic growth and fostering sustainable development in national economies, and its significance continues to rise. Established in 1995 as the successor to the General Agreement on Tariffs and Trade (GATT), which mainly focused on trade in goods, the World Trade Organization (WTO) now also encompasses the issues related to trade in services and intellectual property. Within the thirty years following the establishment of the WTO, from 1995 to 2023, world trade in goods and commercial services has experienced an average annual growth rate of 5.8%, resulting in a fivefold increase (D'Andrea et al., 2024).

A close examination of the contribution of global goods and services exports to global GDP also reveals that this contribution has been significant. In 1970, the figure stood at 12.8%, and since the 2000s, this percentage has increased notably, reaching a peak of 30.9% in 2008, as illustrated in Table 1. The global crisis of 2008-2009, which broke out with the mortgage crisis in the US and quickly spread to other countries, not only worsened the economic downturn in leading international trade countries but resulted in a decrease in global trade volume. The recent recovery of world trade, driven by economic measures such as monetary expansion in developed countries like the US, the EU, and Japan, had been threatened by the COVID-19 pandemic, which rapidly spread globally in 2020 (Atik, 2021). World trade, which had rebounded thanks to vaccination and improvements in global supply chains, has been disrupted once again by the Russia-Ukraine War that broke out about a year ago. The global inflationary environment resulting from the impacts of the war on energy and food prices led to a decline in the ratio of global trade to GDP to 29.3% as of 2023 (Kim, Rao, and Martin, 2022).

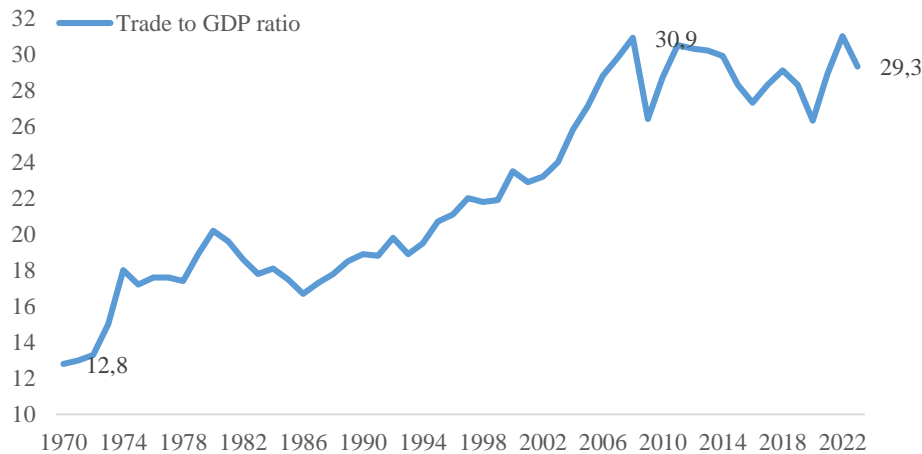


Figure 1. Export of goods and services (% of GDP), 1970-2023 (World Bank Group, 2024).

In the case of Türkiye, the share of goods and services exports in GDP, which was 19.4% in 2000, increased to 32.3% at the end of 2023 due to governmental support and incentive mechanisms.

Consequently, the increasing contribution of global goods and services exports to world GDP, in conjunction with the expanding significance of global trade, has resulted in the emergence of a progressively competitive environment within international markets. As global competition intensifies and the complexity of international trade processes escalates, the capacity to make rapid, informed, and effective decisions has become essential. In this regard, the integration of advanced data technologies, including big data analytics, the Internet of Things (IoT), and artificial intelligence (AI), has emerged as a critical enabler of sustained economic growth and competitive advantage on the global stage. The adoption of these technologies has become increasingly essential for maintaining competitiveness in the rapidly evolving international trade landscape, where digital transformation is continuously redefining the traditional paradigms of trade and commerce.

The subsequent sections of this study will delve into two critical factors that underpin the establishment and development of foreign trade intelligence centers in Türkiye. The first section offers a comprehensive overview of the current state of global trade, highlighting its key dynamics, emerging trends, and the leading countries that play pivotal roles in this vast and interconnected exchange. The second section explores the evolving roles

and emerging opportunities stemming from rapid technological advancements, which are fundamentally reshaping the nature of global trade transactions. Considering all these factors, the study aims to analyse the foreign trade intelligence centers in Türkiye, focusing on the transformative potential of these technologies in improving the efficiency, transparency and competitiveness of international trade operations in the context of global trade dynamics.

2. A Current Outlook in Global Trade Dynamics

According to the data from the WTO, global trade in goods and services reached approximately US\$ 32 trillion in 2022, before experiencing a 2% decline to US\$ 30.5 trillion in 2023 on a balance of payments basis. This decline was primarily driven by a 5% reduction in goods trade, while services trade demonstrated a robust 9% growth. The decrease in goods trade can be attributed to a range of factors, including the lasting effects of the COVID-19 pandemic and the subsequent surge in prices, exacerbated by the war in Ukraine. In addition, shifts in consumer demand and disruptions caused by the Israeli invasion of Palestine, particularly in transportation networks, have amplified economic vulnerabilities. Conversely, the commercial services sector showed significant resilience, with its trade value reaching US\$ 7.54 trillion. This growth came despite an 8% decline in transport services, which fell to US\$ 1.50 trillion (WTO, 2024: 21). One of the key drivers of this positive trend in services trade has been the ongoing digital transformation, accelerated by the pandemic. The rapid expansion of e-commerce and remote work solutions has played a pivotal role in bolstering services trade, highlighting the adaptability and resilience of the services sector amidst global disruptions.

Table 1. Leading traders of world merchandise trade excluding intra-EU trade, 2023 (billion dollars, %)

Rank	Exporters	Value	Share	Annual Change	Importers	Value	Share	Annual Change
1	China	3380	17,5	-5	USA	3173	15,9	-6
2	EU-27	2761	14,3	2	EU-27	2717	13,6	-14
3	USA	2020	10,4	-2	China	2557	12,8	-6
4	Japan	717	3,7	-4	United Kingdom	791	4,0	-4
5	Kore, Republic of	632	3,3	-8	Japan	786	3,9	-12
6	Mexico	593	3,1	3	India	673	3,4	-7
7	Hong Kong, China	574	3,0	-6	Hong Kong, China	654	3,3	-2
8	Canada	569	2,9	-5	Kore, Republic of	643	3,2	-12
9	United Kingdom	521	2,7	-2	Mexico	621	3,1	-1
10	United Arab Emirates ¹	488	2,5	-5	Canada	570	2,9	-2
11	Singapore	476	2,5	-8	United Arab Emirates ¹	449	2,3	7
12	Chinese Taipei	432	2,2	-10	Singapore	423	2,1	-11
13	India	432	2,2	-5	Switzerland	364	1,8	2
14	Russian Federation	424	2,2	-28	Türkiye	362	1,8	-1
15	Switzerland	420	2,2	5	Chinese Taipei	359	1,8	-18
16	Australia	371	1,9	-10	Viet Nam	326	1,6	-9
17	Viet Nam	354	1,8	-5	Russian Federation ²	304	1,5	10
18	Brazil	340	1,8	2	Thailand	290	1,5	-4
19	Saudi Arabia	322	1,7	-22	Australia	288	1,4	-7
20	Malaysia	313	1,6	-11	Malaysia	266	1,3	-10
	Total of above ³	16139	83,4		Total of above ³	16616	83,4	
	World (excl. intra-EU) ³	19350	100	-5,4	World (excl. intra-EU) ³	19912	100	-6,8
23	Türkiye	256	1,3	1				

Source: WTO, Global Trade Outlook and Statistics April 2024. ¹Estimated data. ²Imports are valued f.o.b. ³Includes significant re-exports or imports for re-export.

Table 1 presents a comprehensive analysis of the twenty leading countries, which together account for 83.4% of global trade in goods. In 2023, the total value of global trade in goods was US\$ 19.4 trillion, reflecting a

5.4% decline compared to the previous year (with the European Union considered as a single bloc in this context). According to the most recent data, China remains the dominant global exporter, contributing 17.5% of worldwide goods exports, followed by the European Union with a share of 14.3%. Within the EU, Germany, the Netherlands, Italy, France, and Belgium are the primary contributors to this total. The United States accounts for 10.4% of global exports, while Japan's share stands at 3.7%. Notably, certain countries have witnessed a considerable decline in exports beyond the general global contraction in 2023. For example, Norway experienced a dramatic 30% reduction in exports, followed by Russia with a 28% decline, Saudi Arabia at 22%, Iraq at 16%, and Malaysia and Indonesia at 11%. In the case of Türkiye, the country contributed 1.3% to total global exports of goods, amounting to US\$ 256 billion.

In 2023, global imports of goods experienced a notable contraction, decreasing by 6.8% year-on-year to a total value of US\$ 19.9 trillion. The United States reaffirmed its position as the world's leading importer, accounting for 15.9% of global imports, surpassing the European Union, which held a 13.6% share, and China, with a 12.8% share. Among the countries experiencing the most significant declines in goods imports were Chinese Taipei (-18%), the European Union (-14%), Brazil (-14%), Japan (-12%), and the Republic of Korea (-12%). Türkiye, ranked as the fourteenth largest importer in the world, accounted for 1.8% of world imports, which amounted to USD 362 billion, as shown in Table 1.

Table 2. Leading traders of commercial services excluding intra-EU trade, 2023 (billion dollars, %)

Rank	Exporters	Value	Share	Annual Change	Importers	Value	Share	Annual Change
1	EU-27	1438	22,4	4	EU-27	1246	21,1	7
2	USA	966	15,1	7	USA	694	11,7	3
3	United Kingdom	581	9,1	16	China	549	9,3	19
4	China	380	5,9	-10	United Kingdom	389	6,6	23
5	India	344	5,4	11	Singapore	295	5,0	0
6	Singapore	328	5,1	-3	India	247	4,2	0
7	Japan	201	3,1	21	Japan	225	3,8	8
8	Switzerland	168	2,6	12	Switzerland	191	3,2	19
9	United Arab Emirates ¹	165	2,6	8	Canada	154	2,6	7
10	Canada	147	2,3	12	Kore, Republic of	149	2,5	8
11	Kore, Republic of	124	1,9	-6	United Arab Emirates ¹	108	1,8	13
12	Türkiye	101	1,6	12	Saudi Arabia	87	1,5	24
13	Hong Kong, China	99	1,5	19	Brazil	81	1,4	3
14	Israel	84	1,3	-3	Hong Kong, China	79	1,3	25
15	Australia	75	1,2	45	Russian Federation	75	1,3	7
16	Thailand	62	1,0	62	Australia	73	1,2	13
17	Chinese Taipei	54	0,8	-5	Mexico	69	1,2	10
18	Mexico	52	0,8	9	Thailand	65	1,1	4
19	Norway	52	0,8	0	China Taipei	64	1,1	45
20	Saudi Arabia	50	0,8	49	Norway	61	1,0	7
	Total of above	5471	85,3		Total of above	4901	82,9	
	World (excl. intra-EU)	6416	100	8,9	World (excl. intra-EU)	5915	100	9,1
23					Türkiye	48	0,8	21

Source: WTO, Global Trade Outlook and Statistics April 2024. ¹Estimated data.

Table 2 presents the top twenty countries with the highest volume of trade in services in 2023. The EU stood as the leading global exporter of services, accounting for 22.4% of total services exports, followed closely by the United States at 15.1%. Notably, the United Kingdom, which ceased to be a member of the EU in 2020, demonstrated a substantial 16% increase in its services exports, thereby capturing 9.1% of the global market share. It is noteworthy that global services exports experienced an 8.9% increase in 2023 compared to the previous year. However, several countries, including Russia (-16%), which is no longer part of this list as of 2023, China (-10%), the Republic of Korea (-6%), Chinese Taipei (-5%), Singapore (-3%), and Israel (-3%),

experienced a decline in their services exports. In contrast, Türkiye saw a notable improvement, rising to twelfth place among the leading service exporters globally. Türkiye's share of global services exports increased to 1.6%, reflecting a 12% growth compared to the previous year.

When examining the top twenty service importers, which collectively account for 82.9% of the global services import market in 2023, the EU again held the highest share with 21.1%, followed by the USA (11.7%), China (9.3%), and the United Kingdom (6.6%). Excluding intra-EU trade, global imports of services grew by 9.1% in 2023 compared to the previous year. Türkiye's import value of US\$ 48 billion represented 0.8% of global services imports in the same year, making it the twenty-third largest importer of commercial services in the world.

2.1. Additional Competitive Skills for Current Global Trade

Numerous studies showing the positive correlation between economic growth and international trade - subject to a range of conditions such as macroeconomic stability and effective anti-corruption measures - explain the rationale behind policymakers' strong focus on external trade policies to stimulate growth (Tamberi, 2023: 6). Empirical studies, such as those highlighted by the World Bank (2020), show that a 1 percentage point increase in a country's trade openness is associated with a 0.2 percentage point increase in per capita income. This phenomenon underscores the growing interdependence of nations and the increasing complexity of global trade networks, further emphasizing the role of international trade in improving economic performance.

However, classical theories, which have traditionally served as the foundation for international production and trade models, originating from scholars such as Adam Smith and David Ricardo, may no longer suffice to explain the evolving dynamics and future trajectory of global competition (Schumacher, 2013). The expansion of global trade, now encompassing a broader range of activities including services, e-commerce, and intellectual and industrial property rights, along with the direct and indirect effects of geopolitical risks and global uncertainties, is recognized as a critical factor shaping the current global economic landscape. Within the context of the contemporary global order, the Organisation of American States affirms that companies must actively participate in international competition to safeguard their survival and long-term viability. Furthermore, to thrive within this interconnected and increasingly globalized environment, key global trade players must not only leverage their comparative advantages but also convert these advantages into sustainable competitive advantages (Flores, 2020).

In this context, Michael E. Porter's Theory of Competitive Advantage offers valuable insights into the dynamics of national prosperity, asserting that such prosperity is not a mere inheritance but rather a creation stemming from innovation and strategic development. In *The Competitive Advantage of Nations*, Porter draws upon the results of a comprehensive four-year study involving ten countries to explore patterns of competitive success in leading trading nations. His findings indicate that a nation's competitiveness is largely determined by its industries' ability to innovate and continuously upgrade their capabilities (Gupta, 2015).

Porter (1990) further elaborates that innovation in this context encompasses not only technological advancements but also novel business practices. This comprehensive definition of innovation encompasses a wide range of elements, including the introduction of new product designs, the development of innovative production techniques, the adoption of unique marketing strategies, and the implementation of original approaches to employee training.

In accordance with Porter's perspective, a comprehensive array of diverse information sources, encompassing direct observations, in-depth analytical studies, extensive research reports, and advocacy papers published by professional associations, can be regarded as instrumental in identifying potential areas for innovation. These sources are considered to be invaluable repositories of knowledge, offering crucial insights into the key challenges and dynamics of international trade.

For instance, according to the Executive Opinion Survey for the World Economic Forum's Global Enabling Trade Report (2016), respondents were asked to identify the five most critical factors from a list of twelve that were hindering their ability to export more efficiently and effectively.

The most frequently cited factor was the challenge of identifying potential markets and buyers for their goods (Calof and Viviers, 2020).

- a. Inappropriate production technology and skills.
- b. Access to trade finance.
- c. Access to imported inputs at competitive prices.
- d. Identifying potential markets and buyers.
- e. Difficulties in meeting quality/quantity requirements of buyers.
- f. High cost or delays caused by domestic transportation.
- g. Technical requirements and standards abroad.
- h. Tariff barriers abroad.
- ı. High cost or delays caused by international transportation.
- i. Burdensome procedures at foreign borders.
- j. Rules of origin requirements abroad.
- k. Corruption at foreign borders (World Economic Forum, 2016).

This finding is corroborated by the results of a more recent survey, as shown in Figure 2, which highlights that the most significant challenge faced by companies entering global markets remains the identification of prospective customers. Subsequent challenges include logistics and distribution costs, delayed collections, and complications encountered during customs procedures.

When examining reports from other relevant professional organizations, it becomes evident that the challenges encountered in international trade processes are similar in nature.

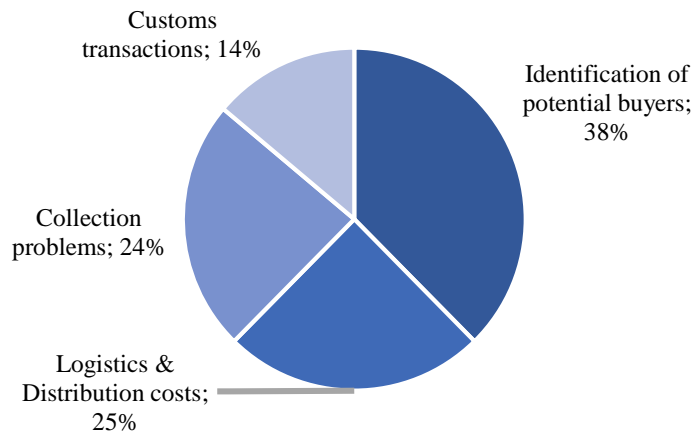


Figure 2. Challenges faced by exporters in international trade (Türkiye Executive Expectation Survey by CRIF, 2021).

At this point, it is reasonable to assert that the challenges outlined previously, along with any additional issues that may arise, are likely to be effectively mitigated through the application of innovative and contemporary approaches that align with Michael E. Porter's theoretical framework. In this regard, for both governmental bodies and business entities seeking to optimize resources, it is crucial to base decision-making processes on accurate and reliable data, while simultaneously streamlining and enhancing international trade operations. This underscores the importance of integrating advanced technologies, such as the Internet of Things, big data analytics, and artificial intelligence, into business practices.

When compared to conventional approaches, the implementation of advanced technological tools enables the formulation of more logical, systematic, and effective business models, which not only expand market reach but also lead to higher revenues and optimized resource management (Yan, 2021; Wang, 2024).

Given this, the concept of "competitive intelligence" emerges as a critical element in enhancing organizational competitiveness. Initially proposed in the 1970s, competitive intelligence focuses on the systematic collection, analysis, and utilization of information to inform decision-making and strategic actions. In the 1980s, several U.S. enterprises formalized the practice of business intelligence, drawing from military strategy traditions, particularly the ability to gather and analyze information in the context of military decision-making. This approach to intelligence gathering proved valuable in corporate environments, where competitive advantage was increasingly dependent on accurate and timely information.

In 1986, professionals in the field of competitive intelligence established the International Society of Competitive Intelligence Professionals (SCIP) in the United States, marking a significant milestone in the

formalization and institutionalization of competitive intelligence practices (Colakoglu, 2011: 2). Notably, during the 1990s, the practice gained considerable significance in East Asia, particularly in China and Japan, where it was integrated into corporate strategies to enhance competitiveness and strategic positioning (Koç, 2014: 12). This shift indicates the global recognition of competitive intelligence as an essential component of modern business strategy. The SCIP defines competitive intelligence as a systematic and ethical process for the collection and management of external information that impacts an organization's strategic planning, decision-making processes, and operational activities (Mojarada, Zangeneha, and Azada, 2014). Such systems enable the timely detection of shifts in global markets, fostering proactive decision-making and strategies that lead to more advantageous positioning within the international marketplace (Bulley, Baku, and Allan, 2014). As a consequence of globalization and technological advancements continue to reshape the modern business landscape, the need for effective competitive intelligence has grown significantly, making it an essential tool for sustaining a competitive edge in the global economy. Building on this framework, the next section of the study will explore the role of big data and big data analytics in international trade.

3. Conceptual Perspectives on Big Data and Its Role for International Trade

Big data, which has recently emerged as a focal point for both the business world and public administration, is generated through a variety of channels, including online transactions, emails, videos, audio recordings, images, clickstream data, log files, search queries, health and customs records, consignment information, social network interactions, scientific data, sensors, mobile phones, and their applications (Saeed and Husamaldin, 2021: 2). This concept of big data is characterized not only by its high volume but also by defining features such as velocity, variety, and validity in terms of content, enabling the conversion of vast amounts of raw data into meaningful and actionable insights by collecting it from various systems around the globe (Mo and Li, 2015).

The utilization of big data has become widely recognized as a powerful means of generating new economic value and fostering innovation in the coming years (Mayer-Schönberger and Cukier, 2013). Extensive research on the subject provides compelling evidence that big data will contribute significantly to enhancing productivity, boosting competitiveness in both the public and private sectors, and strengthening national economies. For instance, in the US healthcare sector, the effective use of big data could generate over \$300 billion annually in data-driven gains while reducing national healthcare expenditures by 8%. Similarly, in developed European economies, the application of big data in public administration is expected to result in over €100 billion in savings through improved operational efficiency. These predictions, supported by current empirical findings, suggest that the world is on the brink of a new era driven by digital data, ushering in unprecedented levels of productivity and innovation (Manyika et al., 2011).

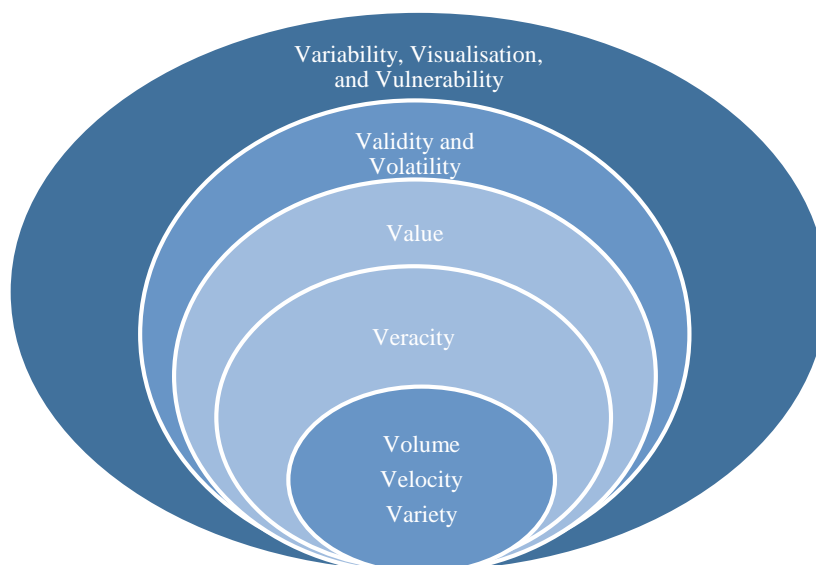


Figure 3. Growth of characteristics in big data (Saeed and Husamaldin, 2021).

A review of the literature indicates that the characteristics associated with the term "big data" have evolved considerably over time, with the number of identified features growing from the original three Vs to as many as 42 Vs in contemporary discussions. Initially, the primary focus of big data was on three key characteristics: the volume of data, the velocity at which it is produced, processed, and updated, and the variety of data sources utilized. However, as conditions evolved and new demands emerged, additional criteria were introduced to better capture the complexity and value of big data. These new criteria encompass the reliability and accuracy of data sources (Veracity), the value derived from the data (Value), and the necessity for validating and ensuring the data is accurate and up-to-date (Validity and Volatility). Furthermore, considerations related to the consistency, visualizability, and security of the final dataset were incorporated, with a focus on the variability, visualization, and vulnerability of the data (Akçayol, n.d.).

Building upon the previous framework, the various key benefits of big data analytics for both government and business entities can be outlined as follows. First and foremost, big data analytics enables organizations to make prompt decisions, swiftly respond to market fluctuations, and identify emerging opportunities, thereby facilitating timely actions. Secondly, the utilization of big data analytics allows for the identification of previously hidden trends, patterns, and correlations, which is crucial for the development of effective strategies and the enhancement of decision-making processes. This is particularly relevant in areas such as supply chain management, e-commerce, operations, marketing, and overall business strategy. A further advantage of big data analytics lies in its ability to optimize resource allocation, reducing the likelihood of costly mistakes and inefficiencies. Additionally, big data analytics enhances an organization's capacity to manage risk effectively. Through the use of predictive analytics, businesses can anticipate potential risks before they arise, enabling the formulation of proactive strategies to mitigate such risks (Mucci and Stryker, 2024; Trabucchi and Buganza, 2019; Abubakar, Bozkurt, and Kalkan, 2022).

Furthermore, the big data analytics market, which is experiencing substantial growth, is projected to expand at a remarkable growth rate in the near future, according to projections from nearly all major market reports. Consequently, leaders whose primary objective is to promote the sustainable development of international trade are tasked with a series of crucial responsibilities. Government administrations can play an instrumental role in facilitating international trade or the adoption of new trade models by providing invaluable assistance with market entry activities. This may entail directing companies towards the most promising and alternative new markets, establishing efficient logistical operations and management systems based on innovative technological solutions, developing new financial assistance instruments designed to support international trade, and offering training opportunities for highly qualified professionals in big data analytics.

In light of all these factors, foreign trade intelligence centers have been recently established in Türkiye with the objective of enhancing the country's trade capacity and improving its overall trade performance. The final section of this study will provide a comprehensive analysis of the operational foreign trade intelligence centers in Türkiye, examining their organizational structure, functions, and identifying areas requiring improvement to optimize their operations.

4. Foreign Trade Intelligence Centers in Türkiye

In the contemporary global trade environment, which is characterized by increasing intensity, competition, and complexity, innovative technologies have emerged as crucial tools for gaining insights into the risks, uncertainties, and trends driven by external dynamics. The ability to harness advanced technologies is no longer a mere competitive advantage; it has become essential for countries and businesses aiming to thrive in the global marketplace.

The strategic implementation of these technologies in the context of international trade confers numerous substantial benefits. Specifically, these technologies facilitate faster, data-driven decision-making, enabling firms to respond more quickly to market fluctuations and global events. This ability to swiftly process vast amounts of data and predict trends not only reduces the risks associated with international transactions but also provides valuable insights into emerging market opportunities. Furthermore, these technologies contribute to regulatory compliance by ensuring that trade practices align with evolving global standards, while also minimizing costs and optimizing supply chain management (Yan, 2021; Cadden, Weerawardena, Cao, Duan, and McIvor, 2023). The notion that "data is the new oil" (Keyes, 2015/2016: 3) is a pertinent one in this context, as it underscores the transformative and indispensable role of big data in international trade transactions.

Within the broader context of Türkiye's export-oriented growth strategy, the establishment of foreign trade intelligence centers that incorporate competitive intelligence systems represents a forward-thinking development. The strategic rationale underpinning the establishment of these centers is to consolidate Türkiye's position in international markets and ensure that its firms are equipped with the requisite tools and knowledge to overcome the challenges inherent in foreign trade.

A considerable number of these centers have been the recipients of financial assistance from regional development agencies operating under the auspices of the Ministry of Industry and Technology in the Republic of Türkiye. The allocation of this financial assistance was determined by project applications that were submitted to and subsequently approved by agencies participating in the support programmes. Moreover, it is noteworthy that the majority of the centers continue to operate under the institutional governance of professional organizations, including chambers of commerce, industry associations, exporters' unions, and organized industrial zones. In addition to the support from regional development agencies, it is important to note that some of these centers have also been established with the financial backing of professional organizations, which play a significant role in both the establishment and ongoing operation of the centers.

This initiative, led by governmental bodies and professional organizations, is of particular importance in the context of keeping pace with evolving trends in global trade and adapting to emerging global dynamics. By aligning with these shifts, it contributes to ensuring Türkiye's long-term competitiveness and its ability to maintain sustainability within the international trade landscape, thereby reinforcing the country's global economic standing. The following list enumerates the aforementioned centers:

- Trakya Foreign Trade Intelligence Center (FTIC) -within the structures of chambers of commerce and industry within Trakya region-
- Konya Chamber of Commerce FTIC
- Antalya Organized Industrial Zone FTIC
- Kayseri Organized Industrial Zone FTIC
- Gaziantep Chamber of Commerce FTIC
- Istanbul Chamber of Industry FTIC
- Istanbul Anatolian Side Organized Industrial Zone FTIC
- Eskişehir Chamber of Industry FTIC
- Yalova Machinery Organized Industrial Zone FTIC
- Cement, Glass, Ceramics and Soil Products Exporters' Association FTIC
- Turkish HVAC&R Exporters Association FTIC (OSBÜK, 2021).

In addition to the aforementioned centers, it would be advantageous to encompass the TR83 Region Competitiveness and Foreign Trade Support Center, which operates under the auspices of the Central Black Sea Development Agency, and the Regional Trade Acceleration Center, which falls under the purview of the Elazığ Chamber of Commerce and Industry for TRB1 provinces. The system under discussion operates under a number of designations, providing a range of services as follows:

- Competitor analysis: In-depth evaluation of the competitive landscape, including both direct and indirect competitors, to identify strengths, weaknesses, opportunities, and threats in the international market.
- Market entry research: Comprehensive analysis of the regulatory and economic conditions in foreign markets, including taxes, tariffs, import/export restrictions, required documentation and certifications, testing and quality standards, new regulations, and other relevant factors affecting international trade.
- Identification of target markets: Detailed identification and assessment of high-potential markets based on factors such as demand, growth potential, market entry barriers, and trade opportunities.
- Identification of clients: Identification and evaluation of prospective clients, including their needs, previous purchasing behavior, and contact details, to foster long-term partnerships.

- Advisory services on incentives and financial instruments: Providing businesses with essential information and expert advice on available government support programs, incentives, and other financial instruments aimed at promoting international trade and investment.
- Advisory services on global tenders and projects: Offering consultancy on accessing and participating in global tenders, contracts, and projects.
- Training programs: Developing and delivering training programs designed to equip businesses and entrepreneurs with the knowledge and skills required for successful international trade and global entrepreneurship.
- B2B and similar activities: Organizing business-to-business (B2B) meetings, networking events, and other collaborative activities to foster international partnerships and market expansion among global trade stakeholders.

Companies interested in utilizing the services offered by these centers are encouraged to submit their applications via the relevant online platforms provided by the centers. Following the submission of the application, a company visit or an in-person meeting at the center is scheduled, during which the entire application process is thoroughly explained. Upon completion of the requisite formalities, the subsequent phases of research and reporting are initiated.

In the execution of their activities, the centers have access to a diverse array of electronic information sources, which include both paid and freely available resources. For instance, when conducting product-based research, the Harmonized System (HS) Code or the Customs Tariff Statistics Position (GTIP) of the product in question is identified. Based on this, a target market matrix is constructed using global trade data sourced from ITC Trademap, a publicly accessible platform for Türkiye. In contrast, the identification of potential buyers or customers is frequently reliant on databases that offer comprehensive company profiles, which typically require a paid subscription to access.

One notable example is D&B Hoovers, a US-based database that systematically organizes company records according to the Standard Industrial Classification (SIC) codes, thereby enabling users to access comprehensive information on various industries and their respective entities. In addition, Tendata, a Chinese database, stands out as a key resource offering in-depth data on bills of lading, which are crucial for tracking the foreign trade operations of companies. These databases collectively encompass a wide range of data categories that are critical for conducting thorough market research and analysis. The key data categories covered by these resources can be classified into the following distinct groups:

- Company information: The company name, the authorized contact person (including their address and email address), the DUNS number¹, revenue, the business description, and the number of employees.
- Transaction metadata: Trade date, bill number, type and associated bill number, HS code, description of goods with accurate description.
- Supplier information: Supplier, old supplier, and their contact information.
- Quantitative data: Weight, quantity, USD/kg.
- Financial and customs information: Customs cost value, place of origin.
- Shipping information: The country of the shipping company, the vessel name, the port of shipment, and the landing port.

In foreign trade intelligence centers operating in Türkiye, the utilisation of two primary technical information systems is widespread practice. However, alternative databases, such as the US-based Panjiva and the Russian national database K-Agent, also play a crucial role in gathering relevant trade intelligence. Moreover, access to comprehensive industry reports and market data is facilitated through platforms such as ReportLinker, which requires a paid subscription. The global tender portal DG Market is frequently utilised for acquiring information related to international tenders and projects.

¹ The Data Universal Numbering System is a proprietary numbering system developed by D&B that identifies a business.

In addition to the big data analytics databases previously referenced, several international resources play a significant role in enhancing the market entry research process. Of these, the World Bank's annual Doing Business Index, which has been produced since 2004, offers a comprehensive assessment of the regulatory environment across various countries, providing valuable insights into the ease or difficulty of conducting business. Similarly, the World Economic Forum's annual Global Competitiveness Report provides an in-depth evaluation of the competitive landscape of countries, offering an essential framework for analysing global market dynamics. Furthermore, credit scores published by global rating agencies are another crucial resource that helps to assess the financial stability and creditworthiness of potential trade partners, offering critical information during the decision-making phase of market entry.

In terms of fee policy, many foreign trade intelligence centers provide companies with the opportunity to contact potential buyers and arrange advanced meetings upon request, immediately following the completion of the research and reporting processes, without imposing any charges. Conversely, some centers apply a nominal fee for their services, which is considerably lower than the fees typically charged by private sector firms. This fee structure presents a more cost-effective alternative for businesses seeking trade intelligence support, facilitating access to crucial market information while minimizing financial barriers.

At this critical juncture, it is of utmost importance to ensure the sustained effectiveness and long-term impact of these newly established foreign trade intelligence centers on the evolving dynamics of global trade. To achieve this, it is essential to carefully consider and develop well-structured and comprehensive action plans, focusing on the following areas:

1. Establish unified standards: The creation and enforcement of uniform service standards across all centers is essential to maintain high-quality, reliable, and efficient services. This would not only enhance operational consistency but also build trust among users—both domestically and internationally.
2. Monitoring and evaluation mechanisms: Robust and adaptive evaluation frameworks must be designed to monitor and assess the centers' performance. These frameworks should include both quantitative and qualitative indicators of success, such as user satisfaction, business growth, and impact on global market expansion. Regular feedback loops and impact assessments will enable continuous refinement and ensure that the centers evolve alongside the changing needs of the global trade environment.
3. Encouragement and guidance: It is vital to improve the support systems for businesses and entrepreneurs, fostering their active engagement in international trade. This includes creating personalized resources and advisory services tailored to specific industry needs, as well as facilitating networking opportunities that connect local businesses to global markets.
4. Human Resource Development: Investment in training programs focused on technical knowledge about different resources, industry trends, and emerging technologies is essential to ensure that staff remain proficient and adaptable.
5. Legislation Arrangement: Given the dynamic nature of the founding organizations, it is crucial to implement legislative measures that ensure the continuity and resilience of the centers, irrespective of administrative changes such as periodic elections.

It is imperative to emphasize that the insights and recommendations articulated in this section are heavily informed by the author's experiential knowledge. By focusing on these key areas, as well as other pertinent factors such as adequate resource allocation for paid databases, fostering collaboration with similar organizations, and maintaining decisive and stability in incorporating emerging technologies, the overall effectiveness and long-term sustainability of the foreign trade intelligence centers can be significantly enhanced.

5. Conclusion

As global uncertainty intensifies and the volume and complexity of international trade relationships expand, the demand for sophisticated systems capable of efficiently monitoring and managing global trade processes has grown substantially. The rapid progression of data technologies, in conjunction with the increasing

accessibility of alternative data sources beyond conventional official statistics, has engendered the emergence of innovative methodologies in trade surveillance. Empirical research and emerging trends indicate that the widespread adoption of these technologies will usher in a new era characterised by unparalleled innovation, efficiency and productivity across global trade systems.

Technological advancements, particularly in big data analytics and artificial intelligence, present significant opportunities for both businesses and public administrations to enhance their strategic decision-making processes. By leveraging these advanced technologies, organizations can more effectively predict shifts in trade flows, adapt to evolving market demands, and navigate the intricate landscape of global trade regulations. These capabilities enable more informed and agile decision-making, help mitigate the risks and costs commonly associated with international trade, and provide a competitive edge in a global marketplace that is increasingly interconnected and subject to volatility. Given these circumstances, it has become essential for both private enterprises and public authorities to integrate these competencies into their governance structures, particularly to enhance their operational efficiency and competitiveness within a complex and constantly changing international environment.

While the advantages of big data are indisputable and its growing role in shaping the future of global competition and international trade is becoming increasingly evident, it is critical to acknowledge the challenges that accompany its use. One of the foremost concerns is data protection and privacy, as the widespread adoption of big data technology raises the risk of personal information being misused or exploited. Furthermore, the unequal distribution of technological growth across nations presents another significant challenge. Developing countries, particularly those in regions such as Africa and the Middle East, may find it difficult to fully leverage the opportunities provided by advancements in big data, which could exacerbate existing disparities in global trade. As emphasized by the International Monetary Fund, without significant efforts to reduce foreign trade tariffs, the full potential of big data may remain out of reach for these countries, further impeding their economic progress (Flores, 2020). These challenges warrant careful attention, as they have far-reaching implications for the future dynamics of global trade and the equitable distribution of the benefits of technological advancements.

In view of the aforementioned developments, the establishment of foreign trade intelligence centers in Türkiye signifies a proactive and strategic response to the evolving global trade landscape. These centers are designed not only to facilitate the expansion of Türkiye's export capacity but also to bridge existing regional disparities in trade performance through the use of cutting-edge tools.

The integration of these centers within professional organizations, in particular chambers of commerce, industry associations, exporters' unions, and organized industrial zones, has facilitated more streamlined access to essential services, leading to a reduction in operational costs for businesses and entrepreneurs. However, it is also crucial to acknowledge the significance of specific distinguishing factors, such as the presence of highly qualified experts and the implementation of state-of-the-art competitive systems, in optimizing the effectiveness and long-term impact of these centers. These elements are critical in ensuring that the centers deliver optimal value, not only by improving businesses' capacity to navigate global markets but also by fostering a more competitive and sustainable trade ecosystem in Türkiye.

In conclusion, the long-term effectiveness of these centers in influencing the trajectory of global trade will be predominantly contingent upon Türkiye's capacity to implement strategies that are both sustainable and forward-looking. To achieve consistency and reliability, it is imperative to establish standardized service protocols and robust monitoring and evaluation mechanisms that ensure the centers operate efficiently and deliver tangible results. Furthermore, legislative adjustments are crucial to safeguarding the sustainability of these centers and protecting them from potential shifts in governance that could disrupt their functionality. Equally important is the strategic focus on human resource development, which involves offering advanced training programs and skill-building initiatives to enhance the expertise of those involved. When paired with the integration of innovative and alternative trade intelligence systems, this human capital investment will ensure that these centers remain at the cutting edge of technological advancements and evolving industry trends, reinforcing their role as key players in global trade.

Through the integration of these perspectives, the foreign trade intelligence centers have the potential not only to enhance Türkiye's understanding of its export notion but also to play a critical role in strengthening its overall trade capacity and volume. Ultimately, if successful, these initiatives will help consolidate Türkiye's position

within the complex and interconnected international trade landscape. Furthermore, it is anticipated that these initiatives will lay the groundwork for Türkiye's ability to make significant contributions to global trade in services, particularly in the areas of information, knowledge, and consultancy.

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