

War in the Hyper-Connected Era: An Investigation into Global Trade Shocks, Ethical Dilemmas, and the Future of Society

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Abstract

Contemporary warfare no longer unfolds within the bounded geography of a battlefield. In an era defined by dense digital interconnection, integrated financial systems, and globally distributed supply chains, armed conflict now radiates instantaneously across borders, markets, and information ecosystems. This paper investigates the triadic relationship between war, global trade shocks, and ethical dilemmas in the hyper-connected twenty-first century, and considers the implications for the future organization of society. Drawing on a systematic review of recent literature, institutional reports, and empirical trade data, the paper examines three interlocking domains: first, the transmission of armed conflict into global trade and commodity systems, using the Russia-Ukraine war and the Houthi-led Red Sea shipping crisis as principal case studies; second, the ethical dilemmas produced by autonomous weapons systems, cyberwarfare, and algorithmically amplified disinformation; and third, the societal and humanitarian consequences of protracted conflict, including record levels of forced displacement. The paper adopts a multi-perspective analytical lens—realist, liberal-institutionalist, constructivist, and critical technological—to interpret these dynamics and to avoid the reductionism of single-theory explanations. Findings indicate that hyper-connectivity has not, as early globalization theorists hoped, rendered war obsolete; rather, it has transformed war into a distributed phenomenon capable of generating instantaneous global economic shockwaves while simultaneously eroding traditional moral and legal architectures of accountability. The paper concludes that the future of society in this era will depend on the capacity of international institutions, technology governance regimes, and civil societies to develop resilience mechanisms commensurate with the speed and scale of hyper-connected conflict.

Keywords: hyper-connectivity, global trade shocks, war economics, autonomous weapons, cyberwarfare, disinformation, forced displacement, international relations theory

1. Introduction

War has always had consequences beyond the battlefield, but the nature, speed, and reach of those consequences have been fundamentally altered by the technological condition of the twenty-first century. The current international system is characterized by an unprecedented

density of interconnection: global financial markets clear trillions of dollars in transactions daily, container shipping networks move the overwhelming majority of physical trade through a small number of critical chokepoints, and social media platforms carry information—true, false, or manipulated—to billions of users within seconds. This paper refers to this condition as the "hyper-connected era," a term intended to capture the compounding effects of digital, financial, and logistical interdependence that now characterize the global system.

The classical liberal thesis, associated with thinkers from Norman Angell to more recent trade-interdependence theorists, held that as nations became more economically intertwined, the incentive to wage war would diminish because the costs of severing profitable relationships would outweigh any prospective gains from conquest [1]. Yet the years since 2014, and especially since Russia's full-scale invasion of Ukraine in February 2022, the October 2023 outbreak of war in Gaza and its spillover into Red Sea shipping lanes, and the proliferation of cyber and information operations accompanying nearly every contemporary conflict, have complicated this optimistic narrative. Rather than eliminating war, hyper-connectivity appears to have altered its *modality*: conflicts are now fought simultaneously on physical battlefields, in financial markets, across shipping lanes, in server rooms, and on social media timelines. Dale Copeland's trade expectations theory offers a more nuanced account, suggesting that interdependence reduces the probability of war only when political leaders hold positive expectations about the future trajectory of trade relations; when those expectations turn negative, economic interdependence can itself become a source of strategic anxiety and a trigger for conflict [1].

This paper investigates three interrelated questions. First, how does contemporary armed conflict transmit shocks through global trade systems, and what is the empirical magnitude of these shocks? Second, what novel ethical dilemmas does the hyper-connected character of modern war generate, particularly with respect to autonomous weapons systems, cyber operations against civilian infrastructure, and algorithmically amplified disinformation? Third, what do these dynamics suggest about the future trajectory of global society, including the humanitarian, institutional, and governance consequences of a world in which war is simultaneously more distributed and more consequential than at any point in modern history?

The paper is structured as follows. Section 2 reviews the relevant theoretical and empirical literature across international relations theory, trade economics, military ethics, and information studies. Section 3 outlines the methodological approach. Section 4 presents an empirical analysis of global trade shocks associated with recent conflicts, incorporating data tables on trade volume, shipping cost, and commodity price disruption. Section 5 examines the ethical dilemmas of autonomous weapons, cyberwarfare, and information warfare. Section 6 offers a multi-perspective theoretical analysis. Section 7 addresses the human and societal costs of contemporary conflict, with particular attention to forced displacement. Section 8 projects forward to consider the future of society under conditions of hyper-connected conflict. Section 9 discusses the findings holistically, Section 10 notes limitations, and Section 11 concludes.

2. Literature Review and Theoretical Framework

2.1 *Economic Interdependence and the Causes of War*

The relationship between trade interdependence and armed conflict has been a central preoccupation of international relations scholarship for over a century. Copeland's landmark study, *Economic Interdependence and War*, synthesizes and transcends the long-standing liberal-realist debate [1]. Liberal scholars have traditionally argued that trade generates mutual gains that states are reluctant to sacrifice through war, while realist scholars counter that interdependence can generate vulnerability and, under certain conditions, incentivize preemptive conflict to secure access to markets and raw materials [1]. Copeland's trade expectations theory reconciles these positions by introducing the variable of *expectation*: when state leaders are optimistic about the future trajectory of trade and investment relations, interdependence exerts a pacifying effect; when leaders anticipate a decline in access to trade and resources, interdependence can heighten the perceived value of war as a means of securing long-term economic position [1]. This theoretical framework is directly relevant to the contemporary hyper-connected era, in which sanctions regimes, export controls, and supply chain "de-risking" strategies are reshaping great-power expectations about future economic relations in ways that may be destabilizing rather than pacifying.

2.2 *Empirical Studies of War-Induced Trade Shocks*

A substantial and rapidly growing body of empirical literature has documented the trade consequences of the Russia-Ukraine war specifically. A systematic literature review by Paryan and Al Hashfi, employing bibliometric analysis of Scopus-indexed studies published between 2022 and 2023, found that the war disrupted food and energy supply chains globally, generating cascading price and availability effects far beyond the immediate combatants [5]. Complementary research led by Rose at the University of Southern California's Center for Risk and Economic Analysis of Terrorism Events used the Global Trade Analysis Project modeling system to simulate disruption to grain and metal exports across 17 countries and regions, estimating a global economic loss in the order of several billion dollars over a projected one-year period [6]. A separate study analyzing the effects on Ukraine's principal trading partners found significant and differentiated macroeconomic impacts depending on each partner's degree of import and export dependence on the conflict zone [7]. Broader analyses drawing on OECD, WTO, World Bank, IMF, and UNCTAD data have characterized the conflict's transmission channels as operating through commodity markets, financial sanctions, fractured supply chains, and migration flows simultaneously [8,9]. Complementing these firm- and country-level studies, real-time trade-monitoring research from the Kiel Institute for the World Economy documented an abrupt contraction in global trade within weeks of the invasion, with Russian export volumes falling by approximately five percent and import volumes by nearly ten percent as container shipping companies suspended service to Russian ports [4].

2.3 *Maritime Chokepoints and the Red Sea Crisis*

A second major body of literature has emerged around the disruption of the Red Sea and Suez Canal shipping corridor by Houthi forces following the outbreak of war in Gaza in October

2023. The Council on Foreign Relations has documented the scale of the campaign, noting that an exodus of shipping companies from the region threatened to disrupt supply chains and elevate consumer prices [38]. The United States Defense Intelligence Agency assessed that the attacks affected the interests of sixty-five countries and twenty-nine major energy and shipping firms, with alternate routes around the Cape of Good Hope adding roughly eleven thousand nautical miles, one to two weeks of transit time, and approximately one million dollars in additional fuel costs per voyage [43]. Analysis by the Centre for Economic Policy Research and JP Morgan Research projected measurable inflationary effects on global core goods prices attributable specifically to the rerouting of Red Sea traffic [40,42].

2.4 Ethics of Autonomous Weapons Systems

The ethical literature on lethal autonomous weapons systems (LAWS) has expanded considerably as military AI capabilities have matured. Guo's recent analysis in *Ethics & Global Politics* critically examines the principal arguments advanced in favor of autonomous weapons—enhanced military efficiency, reduced soldier casualties, and improved compliance with international humanitarian law through algorithmic precision—and concludes that these justifications fail to establish ethical legitimacy because autonomous systems undermine moral accountability, exacerbate civilian risk, and erode human agency in lethal decision-making [10]. Complementary work grounded in just war theory and normative ethics has similarly concluded that AI-assisted weapons are prone to bias and data dependence, generating legal and ethical uncertainty regarding responsibility for wrongful harm [11]. As early as 2015, an open letter from technology researchers, including prominent entrepreneurs and robotics founders, warned the United Nations that autonomous weapons could constitute a "third revolution in warfare" comparable in magnitude to gunpowder and nuclear arms [19].

2.5 Cyberwarfare and the Erosion of Legal Frameworks

Cyberwarfare presents a parallel set of ethical and legal dilemmas. Scholarship funded by the National Science Foundation on "ethical rules for cyberwarfare" has emphasized that existing international humanitarian law assumes armed conflict requires kinetic, physical attacks—an assumption that cyber operations directly challenge, given their capacity to disable civilian infrastructure such as power grids and financial systems without any conventional military engagement [20,21]. Research on civilian infrastructure protection under international law has similarly identified significant gaps in the current governance architecture for cyber operations, notwithstanding efforts such as the Tallinn Manual process to extend the laws of armed conflict into cyberspace [22,26]. Early ethicists warned that cyberattacks remain "almost entirely unaddressed by traditional morality and laws of war," citing incidents such as the Stuxnet operation against Iranian nuclear infrastructure as evidence of the destructive potential of purely digital weapons [25]. Philosophical treatments grounded in just war ethics have further argued that the expanding "Internet of Things" magnifies the humanitarian risk of cyberwarfare, since attacks on networked civilian systems may increasingly translate into direct physical harm [24].

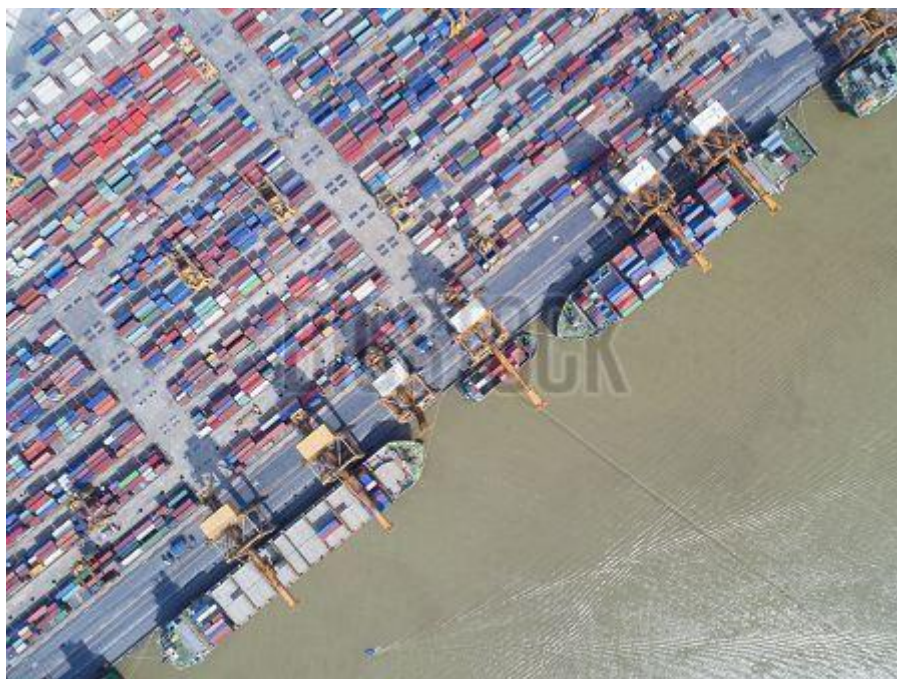
2.6 Information Warfare and Disinformation

A final and rapidly growing strand of literature addresses the weaponization of information itself. Doroshenko and Lukito's study of the Russian Internet Research Agency's activity during the Donbas conflict documents how coordinated disinformation campaigns exploit interlinked digital platforms to blur the distinction between fact and fiction [35]. Subsequent research on the war following Russia's 2022 invasion has similarly characterized disinformation as a core pillar of hybrid conflict that targets cognition and perception rather than solely battlefield outcomes, employing fabricated news, manipulated audiovisual content, and coordinated bot and troll networks [37]. Comparable dynamics have been documented in other conflicts, including a thematic analysis of Telegram-based information warfare during the Nagorno-Karabakh war [34] and a case study of Russian disinformation narratives circulated across the Western Balkans during the Ukraine conflict, which found that systematic disinformation campaigns can materially undermine public trust in government institutions [33]. Academic commentary on the Gaza war has likewise emphasized that "times of conflict not only escalate physical warfare but also intensify information warfare," underscoring the necessity of source verification as a defensive practice for the public [31].

2.7 Synthesis of the Literature

Taken together, this literature reveals a common pattern: hyper-connectivity multiplies the channels through which conflict generates consequences—economic, ethical, and social—while simultaneously outpacing the institutional and legal frameworks designed to govern them. The literature on trade shocks demonstrates the speed and breadth of economic transmission; the literature on autonomous weapons and cyberwarfare demonstrates the erosion of moral accountability structures; and the literature on disinformation demonstrates the vulnerability of public epistemic environments to conflict-driven manipulation. This paper builds on and integrates these three strands, which have thus far largely been treated as separate research domains.





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Figure 1: Global container shipping infrastructure represents the physical backbone of hyper-connected trade, and is among the most conflict-sensitive nodes in the world economy.

3. Methodology

This paper adopts a qualitative, integrative research design combining a structured literature review with secondary data analysis. Sources were identified through systematic searches of academic databases, institutional publications (including UNHCR, the US Defense Intelligence Agency, the Kiel Institute for the World Economy, the Council on Foreign Relations, and the OECD/WTO/World Bank/IMF/UNCTAD reporting ecosystem), and peer-reviewed journals in international relations, economics, military ethics, and communication studies, published predominantly between 2021 and 2025. Selection prioritized sources offering empirical data (trade volumes, displacement figures, shipping costs) or theoretically grounded ethical analysis (just war theory, international humanitarian law, normative ethics of technology). Quantitative figures cited in this paper are drawn directly from the original reporting institutions and are presented descriptively rather than through independent econometric modelling; the paper's contribution is therefore interpretive and synthetic rather than the generation of new primary data. A thematic analysis approach was used to organize findings into three domains—trade shocks, ethical dilemmas, and societal consequences—which are then examined through four competing theoretical lenses (realist, liberal-institutionalist, constructivist, and critical-technological) in Section 6. This triangulated approach is intended to produce an authentic, multi-perspective account of a phenomenon that resists explanation by any single disciplinary framework.

4. War and Global Trade Shocks: Empirical Analysis

4.1 *The Russia-Ukraine War as a Global Trade Shock*

The Russian invasion of Ukraine in February 2022 constitutes one of the most extensively documented cases of war-induced global trade disruption in recent economic history. Within weeks of the invasion, the Kiel Trade Indicator recorded a near three percent decline in world trade, attributing the shock primarily to the suspension of container shipping to and from Russian ports and the isolating effect of Western sanctions [4]. Russian exports contracted by approximately five percent and imports by nearly ten percent in the immediate aftermath [4]. Beyond the direct bilateral effects on Russia and Ukraine, research modelling disruption to grain and metal exports—commodities in which Ukraine and Russia jointly represent a substantial share of global supply—estimated global economic losses in the billions of dollars over a projected one-year horizon, with the impacts distributed unevenly across seventeen countries and regions depending on their reliance on affected commodities [6]. Oxford Economics' contemporaneous baseline forecast estimated that the war would lower overall world GDP by roughly 0.2 percent, with disproportionately severe effects concentrated in Europe owing to stronger trade and energy linkages with the combatant states [3].

The following table synthesizes key empirical findings from the literature reviewed regarding the trade and economic dimensions of the conflict.

Table 1. Documented Economic and Trade Impacts of the Russia-Ukraine War (2022–2024)

Impact Domain	Documented Effect	Source
Global trade volume	Approximately 3% decline in world trade within one month of invasion	Kiel Institute Trade Indicator [4]
Russian export volume	Approximately 5% contraction	Kiel Institute Trade Indicator [4]
Russian import volume	Approximately 10% contraction	Kiel Institute Trade Indicator [4]
Global GDP (baseline forecast)	Approximately –0.2% in year one	Oxford Economics [3]
Grain and metal export disruption	Multi-billion-dollar global economic loss (17 countries/regions modelled)	USC CREATE / Rose et al. [6]
Transmission channels	Commodity markets, financial sanctions, supply chains, migration flows	Khan [8,9]
Regional disparity	Europe more exposed than US, China, or emerging markets due to trade/energy linkages	Oxford Economics [3]

The data in Table 1 illustrate a critical feature of hyper-connected conflict: the economic shockwaves of a regional war are neither confined to combatant states nor proportionate to the war's geographic footprint. Instead, they propagate along the pre-existing architecture of global trade dependency—energy pipelines, grain export corridors, and container shipping routes—reaching countries with no direct stake in the conflict. Systematic reviews of the literature confirm that food and energy supply chains were disrupted globally, generating price volatility that disproportionately affected import-dependent developing economies in North Africa and the Middle East, regions historically reliant on Black Sea grain exports [5].

4.2 The Red Sea Crisis: A Second Major Chokepoint Shock

A second, more recent case illustrates how hyper-connected trade infrastructure can transmit the effects of a geographically distant conflict—the Gaza war—into a globally significant maritime disruption. Since November 2023, Yemen's Houthi movement has conducted a sustained campaign of missile and drone attacks against commercial shipping in the Red Sea and Gulf of Aden, framed by the group as an act of solidarity linked to the war in Gaza [38,39]. The Suez Canal, through which the Red Sea route passes, ordinarily handles approximately twelve percent of global trade [44]. The US Defense Intelligence Agency reported that by mid-February 2024, container shipping through the Red Sea had declined by approximately ninety percent compared to December 2023 levels [43].

Table 2. Quantified Disruption Effects of the Red Sea/Houthi Shipping Crisis (2023–2024)

Metric	Value	Source
Countries with affected commercial interests	65	US Defense Intelligence Agency [43]
Major energy/shipping firms affected	29	US Defense Intelligence Agency [43]
Container shipping volume decline (Red Sea, by Feb. 2024)	~90% vs. Dec. 2023	US Defense Intelligence Agency [43]
Suez Canal share of global trade (pre-crisis)	~12%	Mariana Academy of Maritime Studies [44]
Added transit distance via Cape of Good Hope	~11,000 nautical miles	US Defense Intelligence Agency [43]
Added transit time	10–14 days (1–2 weeks)	CFR / DIA [40,43]
Additional fuel cost per voyage	~US\$1 million	Al Jazeera / DIA [40,43]
Freight rate increase on affected routes	Up to 3x; some routes up to 350%	Mariana Academy of Maritime Studies [44]
Estimated added global core-goods inflation (H1 2024)	+0.7 percentage points	JP Morgan Research, cited in Al Jazeera [40]
Estimated added global inflation (2024/2025)	+0.18 pp (2024); +0.23 pp (2025)	Centre for Economic Policy Research, cited in Al Jazeera [42]
Documented Houthi attacks (Oct. 2023–Oct. 2024)	~130	Al Jazeera [40]

The Red Sea case demonstrates a distinct but related mechanism of hyper-connected trade shock: rather than sanctions and severed bilateral relationships (as in the Russia-Ukraine case), the disruption here arises from the vulnerability of a small number of maritime chokepoints upon which an outsized proportion of global logistics depends. Reflecting on this dynamic, commentary from George's shipping industry analysis notes that beyond direct financial costs, the extended routing around the Cape of Good Hope has produced substantial increases in greenhouse gas emissions from additional fuel consumption, layering an environmental dimension onto the economic one [40].

4.3 Comparative Analysis of the Two Cases

Comparing the Russia-Ukraine and Red Sea cases reveals a broader principle regarding hyper-connected war economics: the magnitude of global trade disruption is determined less by the scale or duration of the conflict itself than by the *structural position* of the affected geography within global logistics and commodity networks. Ukraine and Russia together supplied a disproportionate share of global wheat, maize, sunflower oil, and certain industrial metals prior to 2022, meaning that even a geographically contained war generated disproportionate global effects [5,7]. Similarly, the Red Sea/Suez corridor's structural centrality to Asia-Europe trade

meant that a campaign conducted by a non-state actor with comparatively limited military capacity was nonetheless able to impose costs on sixty-five countries [43]. This suggests that global economic vulnerability to war in the hyper-connected era is increasingly a function of *network topology*—which nodes are load-bearing for the global system—rather than simply the military or economic weight of the belligerents themselves.

4.4 Broader Sanctions and Realignment Effects

Beyond the two principal case studies, the literature documents a broader pattern of trade realignment driven by geopolitical risk. Firms responding to the Russia-Ukraine war have diversified supplier bases, increased investment in supply chain technology, and reinforced regional trade agreements as risk-mitigation strategies [1st source, Åbo Akademi study]. This pattern—often termed "friend-shoring" or "de-risking" in policy discourse—illustrates how hyper-connected firms respond to war-induced uncertainty not by disengaging from globalization altogether but by reconfiguring its architecture toward geopolitically aligned partners, a trend with significant long-term implications for the shape of the global economy.

5. Ethical Dilemmas in Hyper-Connected Warfare

Hyper-connectivity has not only transformed the economic consequences of war; it has also generated a distinct set of ethical dilemmas concerning who fights, how targets are selected, what counts as an act of war, and how truth itself is contested. This section examines three interrelated domains: autonomous weapons systems, cyberwarfare, and information/disinformation warfare.

5.1 Autonomous Weapons Systems and the Erosion of Moral Accountability

Lethal autonomous weapons systems (LAWS)—platforms capable of identifying, selecting, and engaging targets with reduced or no direct human intervention—represent perhaps the most consequential ethical frontier in contemporary military technology. Proponents advance three principal justifications: enhanced military efficiency and reduced friendly casualties, improved compliance with international humanitarian law through algorithmic precision in targeting, and operational necessity in environments too fast-moving or hazardous for human decision-making [10]. Guo's critical analysis systematically challenges each justification, arguing that autonomous systems do not merely change *how* lethal decisions are made but fundamentally destabilize the chain of moral and legal accountability that underlies the laws of armed conflict [10]. If an algorithm misidentifies a civilian as a combatant, responsibility becomes diffused among software developers, military commanders, procurement officials, and the state itself, none of whom exercised the immediate judgment that traditionally grounds culpability in the laws of war [10,11].

A parallel line of ethical reasoning, grounded in just war theory and normative ethics, emphasizes that AI-assisted lethal systems are vulnerable to algorithmic bias and are dependent on the quality and representativeness of their training data, introducing a novel source of systematic targeting error that is distinct from human misjudgment but potentially harder to detect, audit, or correct [11]. This body of work also highlights the risk of an accelerating arms

race: as more states develop autonomous capabilities, competitive pressure to deploy systems before adequate ethical and technical safeguards are established increases correspondingly. The 2015 open letter to the United Nations, signed by more than one hundred technology researchers and entrepreneurs, explicitly framed unregulated autonomous weapons development as risking a "third revolution in warfare" on a par with the introduction of gunpowder and nuclear weapons in terms of its transformative and destabilizing potential [19].

The hyper-connected dimension of this dilemma lies in the fact that autonomous weapons do not operate in isolation; they are frequently networked, sharing targeting data across platforms and, increasingly, coordinating in "swarms" whose emergent behavior may not be fully predictable even to their designers. This raises what might be termed a *distributed accountability problem*: as decision-making authority is dispersed across interconnected autonomous systems, the traditional individualized model of moral and legal responsibility in the laws of armed conflict becomes progressively harder to apply.

5.2 Cyberwarfare and the Collapse of the Combatant/Civilian Distinction

The second major ethical dilemma concerns cyberwarfare's challenge to the foundational distinctions upon which international humanitarian law is built—principally the distinction between combatants and civilians, and between military and civilian infrastructure. As research funded through Cal Poly's National Science Foundation-backed cyberwarfare ethics project has emphasized, existing legal frameworks implicitly assume that acts of war require kinetic, physical force; cyberwarfare directly undermines this assumption, since digital operations can produce severe, even lethal, consequences without any conventional military engagement [20,21]. Because military networks are typically the most hardened targets in any given state, there is a structural incentive for cyber operations to instead target more vulnerable civilian infrastructure—power grids, water treatment systems, financial institutions, and hospital networks—which are simultaneously essential to civilian welfare and comparatively under-defended [20].

Legal scholarship examining the protection of civilian institutions under international law, including work associated with the Tallinn Manual process, has sought to extend existing laws of armed conflict into cyberspace, but significant gaps remain regarding attribution, proportionality, and the threshold at which a cyber operation constitutes an "armed attack" triggering the laws of war [22,26]. Early ethical commentary, prompted by incidents such as the Stuxnet operation against Iranian nuclear infrastructure, observed that cyberattacks remain "almost entirely unaddressed by traditional morality and laws of war," warning of the potential for cyber operations to "darken cities" and "knock manufacturing and health-care infrastructure offline" with consequences comparable to conventional attacks but without corresponding legal accountability [25]. Philosophical treatments grounded explicitly in just war ethics have further argued that the expanding Internet of Things—the proliferation of networked physical devices—magnifies this risk, since a growing share of civilian infrastructure now possesses a digital attack surface capable of producing kinetic, real-world harm [24].

The hyper-connected character of the contemporary global economy compounds this dilemma considerably. Financial systems, shipping logistics platforms, and energy grids are now deeply

interlinked across borders, meaning that a cyber operation targeting critical infrastructure in one state may generate cascading effects in interconnected systems abroad, producing what international law scholars increasingly describe as an attribution and proportionality crisis: it becomes difficult both to identify the responsible actor with confidence and to assess whether a given cyber response is proportionate to a harm whose full extent may not be immediately knowable [22,26].

5.3 Information Warfare, Disinformation, and Epistemic Harm

The third ethical dilemma concerns the weaponization of information itself. Contemporary conflicts are now waged simultaneously on physical and informational terrain, with state and non-state actors deploying coordinated disinformation campaigns to shape both domestic and international opinion. Doroshenko and Lukito's analysis of the Russian Internet Research Agency's activity during the Donbas conflict documented how the agency combined news platforms and social media to promote propaganda, exploiting interlinks among digital platforms to blur the line between fact and fiction and to grow follower networks strategically over time [35]. Building on this foundation, more recent research characterizes disinformation surrounding the full-scale invasion of Ukraine as a core pillar of hybrid warfare, employing fabricated news, manipulated audiovisual content (including deepfakes), and coordinated bot and troll operations to shape emotional and cognitive responses among target populations [37].

Comparable dynamics have been documented well beyond the Russia-Ukraine context. A thematic analysis of Telegram-based communication during the Nagorno-Karabakh war found that instant-messaging platforms have become a significant vector for information warfare, requiring new analytical frameworks distinct from those developed for earlier social media platforms such as Twitter [34]. A case study of Russian disinformation narratives circulated across Croatia, Bosnia and Herzegovina, Kosovo, North Macedonia, and Montenegro concluded that systematic, continuous disinformation campaigns can materially erode public trust in government institutions and complicate strategic decision-making at the national level [33]. Scholars examining the Israel-Hamas war have similarly emphasized that periods of armed conflict intensify information warfare in parallel with physical warfare, underscoring the necessity of source verification and cross-checking as a civic and professional imperative [31].

The ethical stakes of this dynamic extend beyond the immediate battlefield. Disinformation campaigns exploit the same hyper-connected infrastructure that enables legitimate global communication, meaning that populations far removed from a conflict zone can nonetheless become targets of psychological operations designed to shape geopolitical alignment, erode institutional trust, or delegitimize opposing narratives. This produces what may be termed *epistemic harm*: a degradation of the shared informational environment upon which democratic deliberation and evidence-based policymaking depend, imposing costs that are diffuse, cumulative, and difficult to remediate through conventional legal or military responses.



Figure 2: Autonomous and AI-enabled drone platforms exemplify the "distributed accountability problem" discussed in Section 5.1, as networked systems increasingly share targeting functions once reserved for individual human operators.

6. Multi-Perspective Theoretical Analysis

To avoid the reductionism inherent in any single disciplinary account, this section interprets the empirical and ethical findings above through four complementary theoretical lenses.

6.1 Realist Perspective

From a realist standpoint, hyper-connectivity does not alter the fundamental logic of interstate competition for security and relative power; it merely changes the instruments through which that competition is conducted. Realists would interpret the Red Sea crisis, cyber operations against civilian infrastructure, and disinformation campaigns as extensions of coercive statecraft—tools for imposing costs on adversaries and their partners without engaging in direct, costly military confrontation. Trade interdependence, in this view, is not inherently pacifying; as Copeland's trade expectations theory suggests, it can become a source of vulnerability that state leaders seek to weaponize or protect against depending on their expectations of future access [1]. The realist lens is particularly useful for explaining why great powers have pursued "de-risking" and supply chain diversification strategies since 2022: these are best understood not merely as economic risk management but as a recognition that economic interdependence itself has become a battlefield.

6.2 Liberal-Institutionalist Perspective

Liberal-institutionalist theory, by contrast, emphasizes the potential for international institutions, legal frameworks, and economic interdependence to constrain conflict and mitigate its consequences. This perspective draws attention to the role of bodies such as the WTO, IMF, World Bank, UNCTAD, and UNHCR in documenting, forecasting, and coordinating responses to war-induced trade and humanitarian shocks [8,9,60]. The formation of a twenty-country naval coalition to protect Red Sea shipping illustrates liberal-institutionalist logic in practice: multilateral cooperation as a mechanism for preserving the shared infrastructure of global trade even amid unresolved underlying conflicts [38]. However, the persistence and scale of the disruptions documented in Section 4 suggest that existing institutions remain reactive rather than preventive, capable of documenting and partially mitigating trade shocks but not of preventing the conflicts that generate them.

6.3 Constructivist Perspective

A constructivist lens directs attention to the role of norms, identity, and discourse in shaping how hyper-connected conflict unfolds and is perceived. The extensive literature on disinformation and information warfare is most naturally interpreted through this lens: disinformation campaigns succeed not simply by transmitting false information but by exploiting and reshaping collective identities, historical narratives, and in-group/out-group distinctions [33,35,37]. Constructivists would also emphasize that the normative status of autonomous weapons and cyberwarfare remains contested and unsettled; unlike chemical or nuclear weapons, which are governed by well-established international taboos codified in binding treaties, autonomous weapons and offensive cyber operations exist in a normative gray zone where state practice, rather than settled law, is actively constructing (or failing to construct) new international norms [10,20,26].

6.4 Critical-Technological Perspective

Finally, a critical-technological perspective—drawing on science and technology studies and the ethics of emerging technology—emphasizes that hyper-connected warfare is not merely a new *context* for old strategic logics but actively reshapes the *character* of agency, responsibility, and harm in war. This lens is essential for understanding the "distributed accountability problem" identified in Section 5.1: as autonomous systems, algorithmic targeting, and networked cyber operations proliferate, moral and legal responsibility becomes structurally diffused across designers, commanders, states, and the systems themselves in ways that existing ethical and legal categories struggle to capture [10,11,24]. This perspective also foregrounds the disproportionate exposure of low- and middle-income states to the consequences of hyper-connected conflict: while the technological capacity to wage cyber and information warfare is concentrated among a small number of technologically advanced states, the economic and humanitarian consequences of trade shocks and displacement fall disproportionately on states with the least capacity to absorb them, a pattern evident in the UNHCR finding that seventy-three percent of the world's refugees are hosted in low- and middle-income countries [60].

6.5 Synthesis

No single perspective fully accounts for the dynamics documented in this paper. The realist lens best explains the strategic logic underlying trade weaponization and chokepoint disruption; the liberal-institutionalist lens best explains the (limited) mitigating role of multilateral cooperation; the constructivist lens best explains the normative contestation surrounding new military technologies and the mechanics of disinformation; and the critical-technological lens best explains the structural erosion of accountability produced by autonomous and networked systems. Table 3 summarizes this multi-perspective mapping.

Table 3. Theoretical Perspectives Applied to Hyper-Connected War

Perspective	Core Claim	Best Explains
Realist	Interdependence is an instrument of coercive statecraft, not inherently pacifying	Trade/chokepoint weaponization; sanctions; supply chain "de-risking" [1]
Liberal-Institutionalist	Institutions and cooperation can constrain and mitigate conflict spillover	Multilateral naval coalitions; WTO/IMF/UNCTAD coordination [8,9,38]
Constructivist	Norms, identity, and discourse shape conflict perception and conduct	Disinformation efficacy; contested normative status of AI weapons [10,33,35]
Critical-Technological	Networked/autonomous systems restructure agency and accountability	Distributed accountability problem; asymmetric exposure of vulnerable states [10,11,24,60]

7. The Human and Societal Cost of Hyper-Connected Conflict

Beyond trade disruption and ethical dilemmas, the most consequential outcome of contemporary war is human displacement and suffering. According to UNHCR's 2024 Global Trends Report, 123.2 million people were forcibly displaced by the end of 2024—an increase of seven million people, or six percent, compared to the end of 2023, and the twelfth consecutive year of increase [60,61]. UNHCR data show that internally displaced persons grew sharply by 6.3 million to reach 73.5 million by the end of 2024, while refugees fleeing across international borders totalled 42.7 million [57]. Sudan has replaced Syria as the site of the world's largest forced displacement situation, with 14.3 million refugees and internally displaced persons, followed by Afghanistan (10.3 million) and Ukraine (8.8 million) [57].

Table 4. Global Forced Displacement, End of 2024

Category	Figure	Source
Total forcibly displaced (end of 2024)	123.2 million	UNHCR Global Trends 2024 [61]
Internally displaced persons (IDPs)	73.5 million	UNHCR [57,61]
Refugees	31–42.7 million (varying by mandate scope)	UNHCR [57,61]
Asylum seekers	8.4 million	UNHCR [61]
Share hosted in low/middle-income countries	73%	UNHCR [57]
Share hosted in neighbouring countries	67%	UNHCR [57]
Share of displaced who are children	~40%	UNHCR [61]
Largest displacement situation	Sudan (14.3 million)	UNHCR [57]
Proportion of world population displaced	1 in 67	UNHCR [60]

The data reveal a profound asymmetry that reinforces the critical-technological perspective outlined in Section 6.4: the states with the least capacity to absorb humanitarian shocks bear the overwhelming majority of their burden, while the technological and economic capacity to shape the conflicts producing displacement is concentrated elsewhere. UNHCR's High Commissioner has characterized this as a period of "intense volatility in international relations, with modern warfare creating a fragile, harrowing landscape marked by acute human suffering" [57]. Importantly, UNHCR's most recent estimates suggest the first modest decline in the displacement total in over a decade by April 2025, attributed primarily to a substantial rise in voluntary returns, particularly to Syria—though officials caution that this trend remains highly contingent on the resolution of ongoing conflicts in Sudan, the Democratic Republic of the Congo, and Ukraine [57,60].

The humanitarian dimension of hyper-connected war also interacts directly with the trade and information dynamics discussed earlier. Displacement is simultaneously a consequence of war and a disruptor of labor markets, remittance flows, and regional trade in host countries; meanwhile, disinformation campaigns frequently target displaced and refugee populations directly, seeking to shape host-country attitudes toward migration in ways that can materially

affect humanitarian access and funding [33,37]. This interlinkage illustrates why the three domains examined in this paper—trade, ethics, and society—cannot be adequately understood in isolation from one another.

8. The Future of Society in the Hyper-Connected Era

8.1 The Trajectory of Military Technology

The empirical and ethical evidence reviewed in this paper points toward an accelerating trajectory of technological transformation in warfare. Industry analysis identifies artificial intelligence integration, autonomous weapons systems, counter-drone technology, electronic warfare, and biotechnology-enabled human augmentation among the leading military technology trends of the current period [67]. Commentary from senior technologists has framed this shift in stark terms: reflecting on the trajectory of the Russia-Ukraine war, one prominent technology executive has argued that "no human can plan a battle to either attack or defend against your attack without AI, and in particular, reinforcement learning," envisioning future conflicts involving millions of coordinated autonomous drones on each side [68]. Military officials have similarly indicated that artificial intelligence is expected to "transform future warfighting" by improving battlefield awareness and decision-making speed [71], while armed forces have already conducted what are described as history's first drone-on-drone engagements [71]. Analysts monitoring these trends caution that the pace of change is such that established assumptions about the character of ground combat—reliance on human-crewed vehicles and aircraft—may become obsolete within a relatively short time horizon [68,70].

8.2 Societal Resilience and Governance Implications

The future of society under these conditions will depend substantially on whether governance mechanisms can evolve at a pace commensurate with technological and economic change. Three implications follow directly from the analysis in this paper. First, in the economic domain, the pattern of trade realignment observed following the Russia-Ukraine war—diversification of supplier bases, investment in supply chain technology, and reinforcement of regional trade agreements—suggests that the global economy is likely to continue evolving toward a more fragmented, geopolitically aligned structure rather than reverting to the more universalist globalization model of the pre-2014 period. This has implications for economic efficiency, as diversification and redundancy typically come at some cost to the comparative-advantage gains that drove earlier globalization, but may also enhance resilience against future war-induced shocks.

Second, in the domain of military ethics and technology governance, the absence of binding international agreements comparable to those governing chemical, biological, or nuclear weapons leaves autonomous weapons systems and offensive cyber capabilities in a regulatory vacuum that is likely to persist absent significant diplomatic effort. The scholarly consensus reviewed in Section 5 suggests that voluntary industry self-regulation and non-binding ethical guidelines are unlikely to be sufficient given the competitive military incentives driving rapid technology adoption; meaningful governance will likely require binding multilateral

frameworks analogous to, though adapted for, the unique verification and attribution challenges posed by digital and autonomous weapons [10,20,26].

Third, in the domain of information governance, the epistemic harms documented in Section 5.3 suggest that societal resilience to disinformation will become an increasingly central determinant of political stability, comparable in importance to more traditional forms of national security. This implies growing demand for media literacy education, platform accountability mechanisms, and cross-border cooperation on detecting and countering coordinated inauthentic behavior—alongside the recognition that purely technical or legal responses are unlikely to be sufficient without corresponding investment in public trust and institutional legitimacy [31,33,37].

8.3 Humanitarian System Under Strain

Finally, the humanitarian consequences documented in Section 7 point toward a future in which the global displacement and refugee response system faces mounting strain, particularly given the concurrent trend of declining humanitarian funding noted by UNHCR even as displacement figures remain at historic highs [57]. The concentration of hosting responsibility in low- and middle-income countries raises significant questions of international burden-sharing that existing institutional frameworks have thus far addressed only partially. The future of society in the hyper-connected era will likely be characterized by an increasingly visible tension between the technological capacity of a small number of advanced states to project power with reduced human cost to themselves, and the disproportionate human, economic, and humanitarian costs borne by more vulnerable populations and states—a tension that runs through each of the three domains examined in this paper.

9. Discussion

The findings of this paper collectively challenge two opposing simplifications that have historically dominated public discourse about war and connectivity. The first, rooted in early liberal internationalism, held that growing economic and technological interdependence would render major war increasingly costly and therefore increasingly rare. The evidence reviewed here does not support this expectation in its strong form: wars have continued to occur, and when they occur, hyper-connectivity ensures that their consequences propagate farther, faster, and more unpredictably than in earlier eras. The second simplification, a more technologically deterministic narrative, holds that new military technologies—autonomous weapons, cyber capabilities, information operations—will simply replace older forms of conflict and, by reducing the human cost of fighting for technologically advanced states, will fundamentally alter the calculus of war. The evidence reviewed here suggests a more complicated picture: new technologies have not eliminated conventional conflict (as the continuing scale of the Russia-Ukraine ground war demonstrates) but have instead added additional layers—economic, ethical, and informational—atop existing forms of warfare, compounding rather than replacing them.

A central theme emerging from this analysis is the *decoupling of the locus of conflict from the locus of consequence*. Physical fighting in Ukraine generates commodity shortages in North

Africa; missile attacks in the Red Sea raise consumer prices in Europe; disinformation seeded during a conflict in Eastern Europe or the Middle East can reshape political discourse in societies with no direct connection to the belligerents; and autonomous weapons deployed by a small number of technologically advanced militaries generate normative and legal precedents that will govern the conduct of far more numerous future conflicts globally. This decoupling has significant implications for how responsibility, remedy, and governance should be conceived: traditional frameworks of international law and economic policy, built around the assumption of geographically bounded conflict, are increasingly mismatched with the diffuse, networked reality of hyper-connected war.

10. Limitations

This paper is subject to several limitations. First, as a synthetic literature review rather than an original empirical study, its conclusions are dependent on the quality, scope, and potential biases of the secondary sources reviewed, several of which derive from institutions or media outlets whose reporting may itself be subject to the informational dynamics discussed in Section 5.3. Second, the rapidly evolving nature of ongoing conflicts—particularly regarding autonomous weapons deployment and Red Sea shipping disruptions—means that quantitative figures cited reflect conditions at the time of the cited studies and may not capture subsequent developments. Third, the paper's multi-perspective theoretical framework, while intended to avoid reductionism, inevitably involves some interpretive selection regarding which theoretical traditions to foreground; alternative frameworks, including feminist international relations theory and postcolonial approaches, could offer additional insight, particularly regarding the gendered and historically rooted dimensions of displacement and humanitarian burden-sharing, but were beyond the scope of the present analysis. Future research employing primary quantitative modelling, longitudinal tracking of the specific case studies discussed here, and comparative analysis across a broader set of conflicts would strengthen the generalizability of the conclusions offered.

11. Conclusion

This paper has investigated the relationship between war, global trade shocks, ethical dilemmas, and the future of society in the hyper-connected twenty-first century. The evidence reviewed demonstrates that hyper-connectivity has fundamentally altered the *modality* of war without eliminating its incidence: conflicts now generate simultaneous shockwaves across global commodity markets, critical maritime infrastructure, digital networks, and information ecosystems, with consequences that extend far beyond the immediate combatants and that fall disproportionately on populations and states least equipped to absorb them. The Russia-Ukraine war and the Red Sea shipping crisis both illustrate how the structural position of a conflict zone within global trade networks—rather than the scale of the conflict alone—determines the breadth of its economic consequences. The proliferation of autonomous weapons systems, offensive cyber operations, and coordinated disinformation campaigns has simultaneously generated a set of ethical dilemmas that existing international legal and normative frameworks have not yet adequately resolved, producing what this paper has termed a distributed accountability problem. And the record levels of global forced displacement documented by UNHCR underscore that, whatever else has changed about the character of

war, its most fundamental human cost—the uprooting of civilian populations—remains as severe as at any point in recorded history. The future of society in this era will be shaped decisively by whether international institutions, technology governance regimes, and civil societies can develop mechanisms of resilience and accountability capable of matching the speed, scale, and interconnection of twenty-first-century conflict. Achieving this will require moving beyond single-theory explanations toward the kind of integrated, multi-perspective understanding this paper has sought to develop.

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