

JAIPURIA INSTITUTE OF MANAGEMENT, NOIDA

PGDM / PGDM (M) / PGDM (SM)

FIFTH TRIMESTER (Batch 2024-26)

ENDTERM EXAMINATION, Jan-2026

SET-1

Course Name	Logistics Management (LM)	Course Code	20526
Max. Time	2 hours	Max. Marks	40 MM

Instructions:

- This is a closed book exam.
- All the questions are compulsory.
- Using calculators is allowed; however, exchange of calculators is strictly prohibited.

REFER TO THE ARTICLE TITLED “JUST ENOUGH LOGISTICS: SHIFTING THE LOGISTICS PARADIGM” BY ARMY LT. GEN. MARK SIMERLY AND ARMY LT. COL. DANIEL MARVIN. (U.S. ARMY) ATTACHED WITH THIS SHEET.

ANSWER THE FOLLOWING QUESTIONS AFTER GOING THROUGH THAT ARTICLE:

Q1. The article discusses shifting the logistics “paradigm” (a typical way of doing something), and argues that: “*Just-in-Time logistics works well with a healthy, globalized defense industrial base... What it lacks, however, is resiliency.*” In the light of this statement:

- Explain why a Just-in-Time (JIT) logistics system lack resiliency. (3 M)
- Explain what is meant by an “efficiency-focused logistics system” such as JIT (4 M)

Q2. The article argues that: “*Just Enough doesn’t mean equal readiness for everything; it means prioritizing between critical (Tier 1), important (Tier 2), and support (Tier 3) items.*” In the light of this statement:

- Illustrate the merits and demerits of the Just Enough (JE) concept in the context of global disruptions such as COVID-19. (4 M)
- Explain the ways in which the JE approach can influence a firm’s competitive positioning and strategic trade-offs in the market. (4 M)

Q3. The article states that: “*Just-in-case logistics essentially serves as a band-aid to underlying issues within the supply chain.*” Using the above statement as your starting point:

- Analyze how Just-in-Case (JIC) logistics performs with respect to the following dimensions: (8 M)
 - system flexibility
 - cost efficiency
 - responsiveness
 - adaptability to demand shifts
- Give a detailed comparison of JIT, JE, & JIC in logistics strictly in a tabular format. (4 M)

Q4. The article proposes that: “*Digital supply chain visibility and control is powered by real-time tracking, blockchain technology, and AI-powered demand forecasting.*”

- Analyze how real-time visibility, data integration, and predictive analytics improve system-level performance under uncertainty (4 M)
- Examine the role of digital technologies in enhancing coordination across decentralized logistics networks (4 M)
- Critically analyze why technology alone is not sufficient to ensure logistics effectiveness, and why organizational and process redesign is also necessary. (5 M)



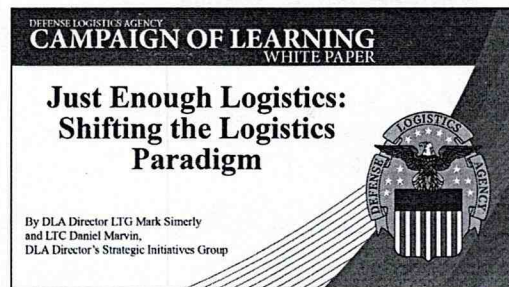
Just Enough Logistics: Shifting the Logistics Paradigm

By Army Lt. Gen. Mark Simerly and
Army Lt. Col. Daniel Marvin /
Published Nov. 1, 2025

Today's battlespace is more complex, unpredictable, and technologically advanced than ever before. The modern Warfighter must operate in environments where logistics is under threat – from cyber vulnerabilities, adversarial supply chain manipulation, and constrained transportation networks.

In such an environment, a logistics model is useful. If done well, it provides structure and puts a system in place that's easy to follow and accomplishes its assigned task in a way that benefits the entire team. Over time, the Defense Logistics Agency has employed varied logistics models to meet the needs of the existing operational environment. Recent models, or paradigms, include "Just-in-Time" logistics and "Just-in-Case" logistics, which are designed to build and maintain readiness in competition, crisis, and conflict. While there are advantages to each paradigm, they also create risk across multiple factors, depending on the environment.

"Just-in-Time" logistics is a flexible and efficient system based on commercial models that focuses on cost effectiveness and waste reduction. This system requires raw materials to arrive as production is scheduled to begin but no sooner, which cuts warehousing costs and increase efficiency (Vergun, 2023). Inventory is kept low, creating a high-risk tolerance with low cost. "Just-in-time" logistics works well with a healthy, globalized defense industrial base, capable of quickly reacting



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to shifts in demands. What it lacks, however, is resiliency. Recent events such as the global COVID-19 pandemic, Russia's invasion of Ukraine, and rising geopolitical trade tensions with China have exposed the vulnerabilities of relying on offshore production and supply to provide essential Warfighting resources. The rate of inflation has also reduced our buying power, reducing our ability to affect the industrial base's agility monetarily. Today, in the Air Force we see the effects on the F-16, F-15, KC-135, B-52 fleets affected by long lead times on parts which reduce aircraft readiness and delays in our global transportation network.

"Just-in-Case" logistics is the idea of stockpiling supplies 'just in case' we need them. It involves holding large inventories of materials and finished goods at various points in the supply chain to buffer against potential disruptions. This model relies on multiple supplies for the same component, whether necessary or not, to ensure a back-up in case one fails. In this model, suppliers are placed on long-term contracts to guarantee access to materials through demand fluctuation. The primary goal is to avoid stockouts at all costs, regardless of inefficiency. While in theory, this model would produce flexibility for all possible scenarios, it frequently results in the opposite – reduced flexibility due to large inventory commitments, making it harder to adapt to changing customer demands or new product introductions. In other words, you're stuck with what you've already ordered, including the high costs of storing the inventory. These costs include warehouse space (rent, utilities, maintenance), insurance, opportunity costs of capital tied up in inventory, and obsolescence of technology or spoilage of perishable goods.

Just-in-case logistics essentially serves as a band-aid to underlying issues within the supply chain. Relying on safety stock is an expensive way to avoid addressing the root causes of delays or disruptions. Even worse, it creates more issues than it solves, such as the potential for waste if demand does not materialize, difficulty in demand forecasting, and strain on supplier relationships due to the inability to keep up with or anticipate large-quantity orders. Further, this model is less responsive to market changes from sudden shifts in market trends or competitor actions. Its aim to avoid lost sales results in higher overall costs and reduced flexibility, outweighing its benefits. Lastly, battlefield risks are elevated due to limited mobility, degraded ability to disperse, and ties up critical resources that combatant commanders need elsewhere.

In today's operational environment, stockpiling complicates the ability to move mobile command posts weighed down by expensive and potentially sensitive inventory that cannot be left in the hands of our adversaries. The just-in-case paradigm burdens tactical units who must train with, maintain, and move excess equipment across a contested battlefield. It also drains precious resources at the strategic level, where leaders must plan for, resource, and execute the sustainment functions of these tactical units across the globe.

Enter a paradigm shift to “Just Enough” Logistics – a resilient, efficient, and adaptable model that fully enables units in a Contested Logistics environment. The word “enough” makes leaders take pause, as in Ranger School being issued your “just enough” 2,200 calories a day while maintaining a 10,000-calorie-a-day OPTEMPO. However, that’s not what Just Enough logistics means in today’s modern battlefield where we are contested across all domains and the war for resources rages at home and abroad. Just Enough logistics differs from traditional models in a commercial setting, factoring in a much higher and diverse operational risk in a military environment. This approach offers a more resilient, efficient, and adaptable logistics solution, enabling forces to operate effectively in complex and unpredictable environments. It’s about smart preparedness, focusing resources where they are needed most and leveraging technology to enhance visibility and responsiveness. This means utilizing data and AI to improve precision in dynamic demand forecasting. It means decentralized, secure, and interoperable systems that ensure the right supplies are at the right place, at the right time to enable the Warfighter. It also balances risk to the Joint Logistics Enterprise (JLEnt) by investing early, before the time of need, preventing unnecessary lives lost on the battlefield.

Just Enough Logistics involves a Service-tailored approach, mitigating risks using tiered readiness levels and pre-positioned stocks. Just Enough doesn’t mean equal readiness for everything, it means prioritizing between critical (Tier 1), important (Tier 2), and support (Tier 3) items. It involves dynamic risk assessment, contingency planning, and real-time intelligence integration, ensuring diversified and resilient supply networks. Using advanced predictive maintenance and spares management, Just Enough Logistics uses sensors and data analytics to predict equipment failure and proactively orders spare parts. It also deploys 3D printing capabilities at forward sites to manufacture on-demand parts, reducing the need for large stockpiles or reliance on long supply lines. Digital supply chain visibility and control is powered by real-time tracking, blockchain technology, and AI-powered demand forecasting. This allows for the monitoring of location and condition of supplies in transit, enhanced transparency and security of the supply chain, and analysis of historical data, operational plans, and intelligence reports. Finally, Just Enough Logistics utilizes modular and scalable logistics systems such as containerization (standardized containers for easy transport and handling of supplies), and rapid deployment capabilities, for maintaining the ability to quickly establish logistics hubs and distribution networks in new locations.

Implementation of Just Enough Logistics is not without its challenges. It involves rewiring the current culture to shift from the traditional “stockpile everything” mindset to sharing data across joint services and allies to deliver high-quality, real-time data in a Contested Logistics environment. Cybersecurity remains crucial, as the need to protect the digital supply chain from cyberattacks is paramount. When implemented, Just Enough logistics will deliver resilience, cost optimization, and customer satisfaction, in contrast to the previous models which were prone to

disruption vulnerabilities, excessively high costs, and lack of responsiveness to demands.

In the air domain, specifically in the INDOPACOM theater, speed will be the determining factor on who will win. The USAF will need the requisite parts and support equipment in theater prior to hostilities to be effective against a competitive adversary. This requires DLA and USAF to collaborate and integrate by sharing data and increase demand planning accuracy to better understand the needs to support the Agile Combat Employment (ACE) scheme of maneuver or depot repair outside the Air Logistics Complexes within a combatant command's theater. Just Enough Logistics allows for precision in our prioritization of resources and forward positioning at the point of need.

The Navy, operating across vast and contested maritime domains, understands the critical need for adaptable logistics solutions beyond simplistic stockpiling or just-in-time delivery. Just Enough Logistics aligns with the Navy's dispersed operational posture, enabling forward-deployed units to maintain readiness without being tethered to vulnerable supply chains. This approach supports maritime dominance by prioritizing essential resources, leveraging predictive maintenance, and fostering distributed manufacturing capabilities at sea. By balancing risk and responsiveness, Just Enough Logistics ensures the Navy can project power and maintain sea control in an increasingly complex and uncertain world. This paradigm shift is essential for sustaining naval operations in the era of great power competition. (Stewart, Ali, 2024)

The eight principles of logistics are an important set of core tenets that guide sustainment operations. (JP 4-0, 2025) They remain relatively unchanged from the tactical level, through the operational and strategic levels, including how we mobilize our Defense Industrial Base for global conflict. You can apply the concepts of integration, responsiveness, economy, and resilience to a commercial entity, just as a logistics element commander can use these principles to maintain Class III resupply to the Division's main effort. Just Enough Logistics uses these principles to their full effect by integrating with defense partners in the industrial base and partnering with the Service's force-provided units to create responsiveness to and anticipation of needs.

Rapid advances in technology and operational reach necessitate that the sustainment community get leaner and meaner at the forward edge. The current and future battlefield requires a greater need to move and protect ourselves at smaller echelons, dislocated from long traditional supply lines, with compromised lines of communication. The current and future fight may have a traditional Forward Line of Troops (FLOT) but will certainly have a multi-dimensional, asymmetric battlefield component from the FLOT all the way back to the homeland. This battlefield will be dense and packed with civilians on the battlefield, insurgent groups, and espionage and disruptive activity affecting every

aspect of our operations. Precision, sustainment posture, and a resilient, agile base with coinciding distribution network will be critical to success in any theater.

Preparing for the future fight with a competitive adversary requires that our Warfighters learn and transform in ways that are known and unknown at this point. As sustainers, we must unburden our Warfighters of excess equipment, while supporting the Service's transformation efforts with adaptable solutions to complex sustainment challenges at a speed that has not been seen since World War II. We will partner with industry to improve supply chain health, strategically execute acquisitions that focus on priorities, and build in resiliency that can respond and a distribution network that will deliver at the point of need, because Just Enough Logistics will be just that – Just Enough...to win.

<https://www.defense.gov/News/News-Stories/Article/Article/3331657/official-says-just-in-time-deliveriesfail-in-high-end-competition/>

<https://www.reuters.com/world/china/logistics-warhow-washington-is-preparing-chinese-invasiontaiwan-2024-01-31/>

https://jdeis.js.mil/jdeis/new_pubs/jp4_0ch1.pdf (A common access card is required)