

Abstract

Building Resilience and Overcoming Challenges in War Times: The Role of Lean 4.0 in Agri-Food Supply Chains [†]

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The ongoing conflict and the impact of Russia–Ukraine war pose significant challenges to various sectors, including the agri-food industry. The agricultural industry serves as a backbone for many world economies, contributing significantly to their gross domestic product. The continuing war and shifting economic environment have greatly affected grain production, encompassing crops like wheat, maize, and barley. Farmlands have been destroyed, output has been reduced, and transportation and export lines have been disrupted, resulting in a substantial impact on the grain business. Conflict-affected areas are witnessing the negative consequences of disrupted supply chains, the emergence of animal diseases, and reduced access to feed and veterinary services, thereby harming livestock and dairy farms. The horticulture sector, specializing in fruit and vegetables, has also faced setbacks due to reduced investments, damaged infrastructure, and limited access to export markets. Furthermore, the war has affected the production, processing, and export activities of wheat and major oilseed crops such as sunflower, soybean, and rapeseed.

While the war has undeniably influenced agri-food sectors, it is crucial to emphasize the potential combination of Industry 4.0 technologies and Lean strategies (Lean 4.0) in building resilience and overcoming various challenges. By adopting Lean 4.0, these sectors can achieve superior productivity, increased overall efficiency, reduced waste, and enhanced transparency. This research investigates the potential of Lean 4.0 in revitalizing the agri-food sector, specifically addressing the challenges and strategies for its current implementation in the post-war context.

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