



Dialectics of Production Relations through the Stages of Industrial Revolution:

An Analysis from Marxist-Leninist and PMD Perspectives

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Summary

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Overview

This is a brief summary of full article already published in the journal *State, Society and Development*.¹ The article traces a journey from the steam engine of Industry 1.0 to the algorithms of Industry 5.0. It examines how each stage of the industrial revolution has transformed the production forces, reshaped production relations, altered the organisation of labour, and generated new contradictions within the economic and social order.

Introduction

The article explores how human society, technology, and politics have evolved together, and how Marxist–Leninist theory and People’s Multiparty Democracy (PMD) provide fundamental analytical tools for critically understanding this historical journey.

For the purpose of this analysis, the major historical periods are categorised according to the successive stages of industrial development: Industry 1.0 and Industry 2.0 (1760–1914), Industry 3.0 (1945–1970s), Industry 4.0 (1970s to the present), and Industry 5.0 (emerging).

The evolution of these stages is further highlighted through key developments associated with each period:

- Industry 1.0 – Steam power and mechanisation
- Industry 2.0 – Electrification and Fordism
- Industry 3.0 – Automation and neoliberalism
- Industry 4.0 – Artificial Intelligence (AI), digital platforms, surveillance capitalism, and
- Industry 5.0 – Human–AI collaboration and bio-capitalism.

The following section provides a brief overview of each chapter of the article.

1. Theoretical Foundations of Production Relations

The first chapter lays the theoretical foundation of the study. It revisits the basic Marxist–Leninist framework of production forces, relations of production, and the superstructure, and examines why these concepts remain indispensable for analysing modern developments such

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as artificial intelligence. The chapter also discusses PMD developed by People's Leader Madan Bhandari, as a creative extension and contextualisation of Marxism in the Nepali context.

2. Industry 1.0: The Age of Mechanisation

This chapter takes the readers to the early stage of the Industrial Revolution. The steam engine, the factory system, and wage labour transformed feudal society and laid the foundation for capitalist economies. Yet, this 'progress' also marked the beginning of mass alienation and exploitation under industrial capitalism. The chapter examines how, for the first time on a global scale, the contradictions between workers and capitalists became increasingly visible and shaped the emerging class structure of industrial society.

3. Industry 2.0: Electrification, Mass Production and Imperialism

The second industrial revolution did not bring only electricity, steel, and the assembly lines, but also an expansion of imperialist exploitation. Lenin described imperialism as the highest stage of capitalism. The chapter discusses how colonialism, monopoly capital, and the expansion of global markets deepened inequality while also giving rise to revolutionary movements across the world. This was a period in which the rapid growth of the productive forces was accompanied by intensifying social and economic contradictions.

4. Industry 3.0: Digital Revolution and Neoliberal Globalisation

The third industrial revolution brought us computers, automation, and digital networks, but it also coincided with the rise of neoliberal globalisation. Jobs became increasingly precarious, global supply chains expanded, and financial crises shook the world economy. In this chapter, it is also examined that technological efficiency under capitalism does not liberate workers, instead, it subjects them to new forms of precarity and alienation.

5. Industry 4.0: Artificial Intelligence, Robotics, and Data Capitalism

This chapter is perhaps the most directly relevant to our current moment. Industry 4.0, driven by artificial intelligence, robotics, and big data, is reshaping every sector of the economy and society. But who owns these technologies and whose interests do they serve? This chapter analyses how data has emerged as a new 'capital', and how digital monopolies are dominating global markets. Without democratic control, Industry 4.0 risks further deepening inequality within and between nations and social classes.

6. Industry 5.0: Collaboration Between Humans and Machines

Industry 5.0 opens a new horizon—in which human creativity and machine intelligence can work together. Yet, this chapter is not only about technology but also about politics: will Industry 5.0 reduce alienation, or will it entrench it further? This section argues that only under democratic socialism, and within a framework of PMD can Industry 5.0 become an era that advances social justice, human dignity, and ecological balance.

7. Nepal's Strategic Direction and the Perspective of PMD

After tracing the global shifts, the article has brought the discussion back to the context of Nepal. Nepal's history of delayed industrialisation, the persistence of semi-feudal structures, and its struggles for democracy have created a unique context. Thus, this chapter discusses how PMD provides a distinctively Nepali perspective for confronting these challenges by harmonising multiparty competition with a socialist orientation.

In summary, Nepal's unique strategic direction across the different stages can be mentioned as follows:

- Industry 1.0–2.0: A caste-based feudal social order and the autocratic Rana oligarchy
- Industry 3.0: State capitalism under the absolute monarchy
- Industry 4.0: Neoliberal reforms, remittance dependence, and the rise of the gig economy, and
- Industry 5.0: The potential for cooperative and state-led digital transformation

8. Praxis for the Future

In the concluding chapter, the article brings together the threads of history, theory, and politics. The central argument is that technology alone will not liberate humanity. Whether Industry 5.0 becomes a means of emancipation or domination will depend on class struggle, democratic participation, and conscious political direction. The future is not predetermined—it depends on how we collectively shape and transform it through praxis.

Finally

The journey of this article runs from the steam engine of Industry 1.0 to the algorithms of Industry 5.0. At every stage, the dialectics of production relations have defined the path of history. The author's considered view is that it is through the creative development and

innovation of Marxist–Leninist theory and the PMD, we can chart a progressive and humane course into the future.

The future of Nepal lies not in blindly imitating the western industrialisation, but in aligning technology with equality, justice, and human dignity through the guiding light of People’s Multiparty Democracy.



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