

Formation of Different Types Vyuha and Strategic Management: Special Reference to Kurukshetra War

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Abstract:

The Kurukshetra War, as narrated in the Mahabharata, is a repository of strategic and tactical brilliance, where the concept of Vyuha (battle formations) played a pivotal role in determining the course of the conflict. Vyuhas were not merely military arrangements but comprehensive strategic frameworks, integrating planning, resource allocation, leadership, and adaptability principles that resonate with modern strategic management. This study explores the various Vyuhas employed during the Kurukshetra War, such as the Chakravyuha, Makara Vyuh, Suchimukha Vyuh, and Sarvatomukha Vyuh, analyzing their objectives, structure, and execution. It emphasizes the foresight of commanders like Dronacharya, Krishna, and Bhishma in designing flexible and situationally appropriate strategies to out maneuver opponents. The paper draws attention to associate the formation of different vyuhas with different elements and theories of strategic management.

Key words: Kurukshetra, war, vyuha, strategic management, Strategies, Mahabharata

Introduction

The concept of strategic planning, though widely discussed in modern management, has its roots in ancient civilizations where war, governance, and survival depended on meticulous foresight and tactical brilliance. The Mahabharata, one of the greatest epics of India, provides a profound account of the Kurukshetra War, where success was not solely determined by military strength but by strategic frameworks known as Vyuhas (battle formations). These Vyuhas were carefully designed arrangements of warriors and resources, formulated to serve specific offensive or defensive objectives, much like modern organizational strategies that balance competition, innovation, and risk.

Prominent commanders like Dronacharya, Bhishma, and Krishna demonstrated exceptional strategic thinking by deploying formations of Vyuhas to out maneuver opponents and gain tactical advantages. Each Vyuha represented a calculated alignment of strengths, roles, and goals, reflecting principles of resource allocation, leadership coordination, and adaptability, which are central to today's strategic management theories.

Before concentrating on main topic, the military compositions, division and types to be understood. The military was composed of four arms (chaturanga) infantry, cavalry, chariots, and elephants. They were all deployed in the field of battle in formation (vyuha), as decided by the commanders, based on factors such as the nature of the terrain and the composition of one's and one's enemy's forces. Great concern was shown for the training of men and

animals. The kings and princes were well-trained in the arts of war and leadership, personally led armies, and participated in the defence of forts.

Objectives

- To know the different compositions of senabala of ancient India
- To understand different divisions of troops.
- To understand different types of troops
- To analyze the structure and purpose of various types Vyuhas (e.g., Chakravyuha, Makara Vyuh, Sarvatomukha Vyuh, suchimukha Vyuh, Sarpa Vyuha, etc.) used during the Kurukshetra War.
- To develop a conceptual framework linking ancient Vyuhas with modern strategic planning techniques.

Methodology

This study follows a qualitative, exploratory research design to analyze the concept of Vyuhas and association of the deployment with strategic management concept.

Data Collection: as it is qualitative research there is no primary data used. The data is derived from different text, paper, thesis and interpretation of Mahabharata written by different historians and school of thoughts. The data is based on Secondary data.

The study describes historical Vyuhas in detail and interprets their relevance in modern strategic contexts. Insights are drawn by analyzing the structure, goals, and tactical essence of Vyuhas to frame managerial strategies.

The composition of senabala of ancient India is described under:

1 Patti = 1 chariot+1 Elephant+5 Foot-Soldiers+3 Horses.

1 Sena-mukha = 3*Patti=3+3+15+9.

1 Gulma = 3*Sena-mukha= 9+9+45+27.

1 Gana = 3*Gulma=27+27+135+81.

1 Vahini = 3*Gana=81+81+405+243.

1 Pritana = 3*Vahini=243+243+1,215+729.

1 Chamu = 3*Pritana=729+729+3,645+2,187.

1 Anikini = 3* Chamu= 2,187+2,187+10,935+6,561.

1 Akshauhini = 10*Anikini= 21,870+21,870+1,09,350+65,610 = 2,18, 700

The army was a vital component of the state, structured around a traditional four-fold division, known as 'Chaturangabala' or the four-limbed army.

Four divisions (Chaturangabala)

- **Infantry (Patti or Padati):** Foot soldiers formed the largest segment and were equipped with bows and arrows, spears, and swords.
- **Cavalry (Asva):** Horse-mounted warriors were crucial for reconnaissance, scouting, and flanking maneuvers.
- **Chariots (Ratha):** Primarily used for offensive actions like breaking enemy formations and defending against attacks, although their effectiveness against well-trained cavalry was limited.
- **Elephants (Hasti):** Elephants provided shock value in battle, marching ahead to clear paths, disrupting enemy formations, and causing terror, according to UKDiss.com.

Types of troops:

In addition to the four divisions, Kautilya identified six types of troops that might be part of an army, based on their origin and loyalty:

- **Maula (Hereditary troops):** These were the standing army, considered the best due to their training, loyalty, and equipment.
- **Bhrita (Locally recruited):** These were volunteers hired for specific campaigns, often farmers or traders, suitable for easier campaigns.
- **Sreni (Organized militias/guild levies):** Trained and equipped mercenaries under their own leaders, hired for specific periods.
- **Mitra (Allied troops):** Forces provided by friendly states for a campaign.
- **Amrita (Enemy deserters/prisoners of war):** These were not to be fully trusted and were deployed when the battle's outcome held less significance.
- **Atavi (Tribal levies):** These were forest tribes, also viewed with suspicion and primarily employed for tasks like attacking enemy cities or as guides.

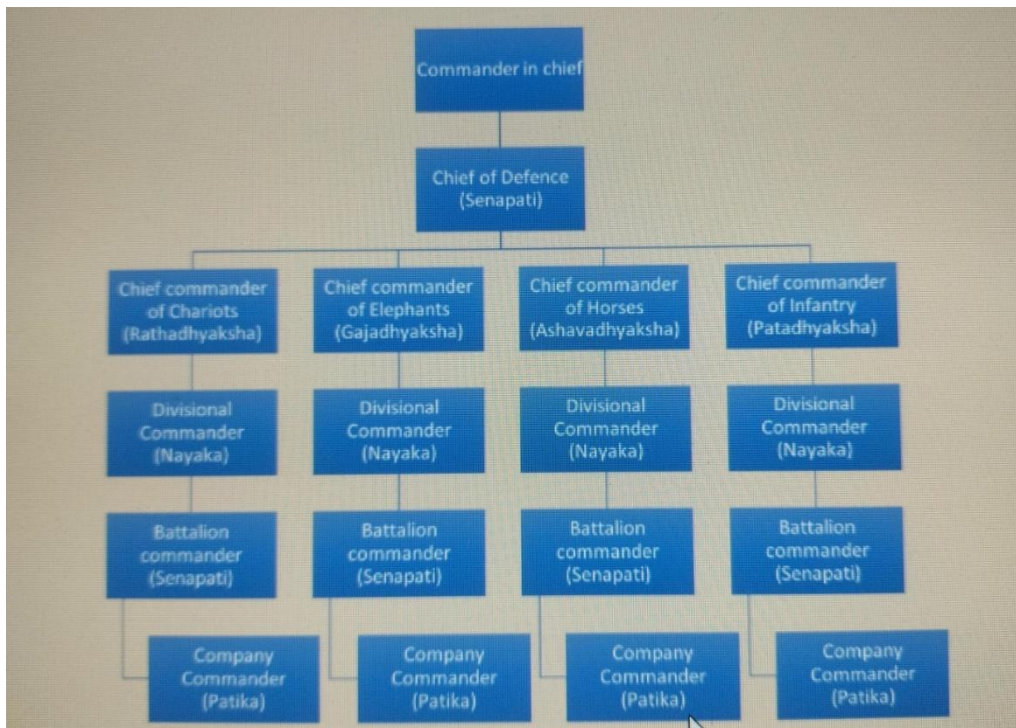
Hierarchy and administration:

The army was organized with a hierarchical structure:

- **Senapati (Chief of Defence):** The highest military authority, expert in weapons, formations, and strategy.
- **Chief Commanders:** Heading each of the four wings (infantry, cavalry, chariots, elephants), responsible for their respective corps.
- **Divisional Commanders:** Subordinate to the Chief Commanders, leading divisions in battle.

- **Adhyakshas (Superintendents):** Responsible for the administrative aspects of each wing, including training, maintenance, and supplies, according to Prepp.
- **Pattika:** Commander of the smallest combat unit (Patti), consisting of a chariot or elephant supported by five horse groups and numerous foot soldiers.

The Arthashastra also detailed the roles of other officers, such as the Commander of the King's Guard (Antarvamsika), the Commander of the Marches (Antapala) responsible for border defense, and Fort Commanders (Durgapala) who garrisoned fortifications.



Source: <https://en.wikipedia.org/wiki>

Military Formations in the Mahabharat: A strategic warfare

The Mahabharat, the grandest of epics, is not merely a compendium of philosophy and righteousness, but also a tactical masterpiece that reveals the depths of military strategy and warfare in ancient India. One aspect that stands tall amidst the multifaceted narrative of war is the ingenious use of vyuhas complex military formations that transformed the Kurukshetra battlefield into a dynamic chessboard of tactics. Each day, as the Kaurava and Pandava armies clashed, a new formation was unfurled, showcasing the brilliance of strategy and the inexorable flux of war.

But these vyuhas were not merely physical arrangements of soldiers, chariots, and elephants; they were profound manifestations of intellect, born of deep military wisdom. Through their precise design and execution, the vyuhas sought to encapsulate key principles of offense, defence, deception, and entrapment principles that remain relevant in modern military strategy. The Mahabharata war involved various military formations, known as "vyuhas," used by both the Kauravas and the Pandavas on different days of the battle. Here's a day-by-

day breakdown of some prominent vyuhas, though not all days had specific formations mentioned:

- **Day 1:** Kauravas used Sarvatomukhi Vyuha (All-Sided formation), while Pandavas used Vajra Vyuha (Thunderbolt formation).
- **Day 2:** Kauravas used Garuda Vyuha (Eagle formation), and Pandavas used Krauncha Vyuha (Heron formation).
- **Day 3:** Kauravas used Garuda Vyuha (Eagle formation), and Pandavas used Ardha Chandra Vyuha (Half Moon formation).
- **Day 4:** Kauravas used Mandala Vyuha (Galaxy formation), and Pandavas used Sringataka Vyuha (Horn formation).
- **Day 5:** Kauravas used Makara Vyuha (Crocodile formation), and Pandavas used Shyena Vyuha (Hawk formation).
- **Day 6:** Kauravas used Krauncha Vyuha, and Pandavas used Makara Vyuha.
- **Day 7:** Kauravas used Mandala Vyuha, and Pandavas used Vajra Vyuha.
- **Day 8:** Kauravas used Kurma Vyuha (Tortoise formation), and Pandavas used Trishula Vyuha (Trident formation).
- **Day 9:** Kauravas used Sarvatobhadra Vyuha (Grand formation), and Pandavas used Nakshatra Mandala Vyuha.
- **Day 10:** Kauravas used Asura Vyuha (Demon formation), and Pandavas used Deva Vyuha (Divine formation).
- **Day 11:** Kauravas used Shakata Vyuha (Cart formation), and Pandavas used Krauncha Vyuha.
- **Day 12:** Kauravas used Garuda Vyuha, and Pandavas used Ardha Chandra Vyuha.
- **Day 13:** Kauravas used Chakra Vyuha (Wheel formation), and Pandavas did not form a specific vyuha as Abhimanyu entered the formation alone.
- **Day 14:** Kauravas used Chakrashatak Vyuha, and Pandavas used Khaddag Sarp Vyuha (Sword Serpent formation).
- **Day 15:** Kauravas used Padma Vyuha (Lotus formation), and Pandavas used Vajra Vyuha.
- **Day 16:** Kauravas used Makara Vyuha, and Pandavas used Ardha Chandra Vyuha.
- **Day 17:** Kauravas used Surya Vyuha (Sun formation), and Pandavas used Mahish Vyuha (Buffalo formation).

- **Day 18:** Kauravas used Sarvatobhadra Vyuha, and Pandavas used Krauncha Vyuha.

The formation of Vyuhas (military formations) in ancient Indian warfare, particularly in the context of epics like the Mahabharata, can be deeply linked with strategic management principles. These formations weren't just tactical battlefield arrangements but sophisticated strategic tools representing planning, coordination, leadership, risk management, and adaptability all core to modern strategic management.

A Vyuha was a specific geometric military formation, designed based on terrain, strength, and goals.

- Common Vyuhas include:
 - **Chakravyuha** (circular)
 - **Padmavyuha** (lotus-shaped)
 - **Makara Vyuha** (crocodile-shaped)
 - **Garuda Vyuha** (eagle-shaped)
 - **Shakata Vyuha** (cart-shaped)
 - **Vajra Vyuha** (diamond-shaped)

Each formation required strategic planning, hierarchical leadership, role clarity, and deep coordination hallmarks of modern strategic management.

Vyuhas and strategic Management:

The strategic formations of ancient Indian warfare, particularly those described in the Mahabharata, offer a unique and culturally rich lens for interpreting modern management concepts, including organizational strategy, competitive dynamics, and leadership decision-making.

1. Chakravyuha (Circular Formation)

The Chakravyuha, is a multi-folding defensive formation that looks like a disc (chakra) when viewed from above. The warriors at each interleaving position would be in an increasingly tough position to fight.

As per this military strategy, a specific stationary object or a moving object or person can be captured and surrounded and rendered fully secured during times of military conflict. The pattern is of two soldiers on both sides with other soldiers following them at a distance of three hands, drawing up seven circles and culminating at the end which is the place where the captured person or object is to be kept. In order to make Chakravyuha, the Commander has to identify soldiers who will form this formation. The number of soldiers to be deployed and the size of the Chakravyuha is calculated as per the resistance estimated. Once drawn, the foremost soldiers come on either side of the component to be captured, engage briefly and then move ahead. Their place is taken up by the next soldiers on either side, who again engage the component briefly and then move ahead. In this fashion, a number of soldiers keep on passing the component and keep on moving in a circular pattern. By the time the last

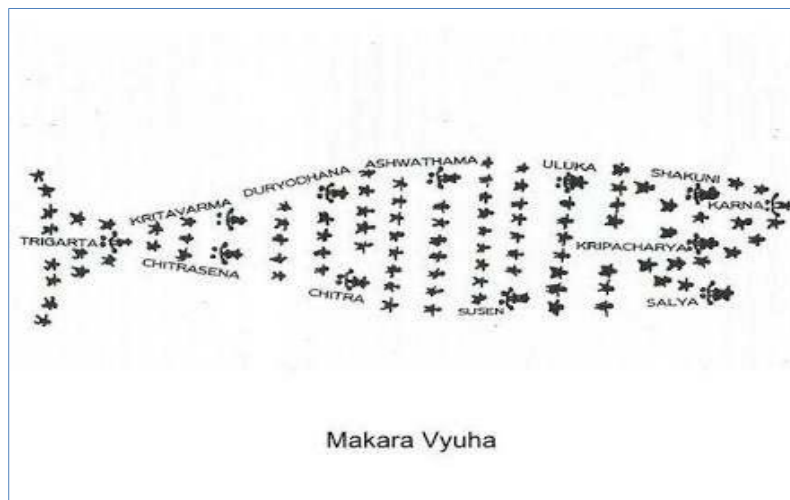
The formation was used in the battle of Kurukshetra by Dronacharya, who became commander-in-chief of the Kaurava army after the fall of Bhishma. It is the most renowned among the different formations used in the Mahabharata war, simply because this was part of the turning point in the war. Drona made the Chakravyuha with 6 layers under the guard of 6 Maharathis – Karna, Drona, Ashwatthama, Dushasana, Shalya, and Kripacharya. Duryodhana was positioned at the center with different warriors at the various layers. Jayadratha and his army were at the gate of this vyuha.



Strategic Insight: A complex, layered structure; difficult to penetrate and escape from without mastery. Chakravyuha resembles an industry with high entry barriers and intense rivalry entrance is difficult unless a firm has strategic capabilities (Abhimanyu's partial knowledge symbolizes limited strategic capability). A tightly knit and structured organization like a machine bureaucracy efficient but rigid.

On the fifth day of battle, the Kauravas employed the Makara Vyuha, shaped like a mythical sea creature, perhaps symbolizing the crocodile or a large aquatic beast. This formation emphasized strength and resilience, with Bhishma leading from the head of the Makara,

while the flanks were reinforced with cavalry and elephants, meant to crush any opposing force that dared approach.



Source: <https://indiafacts.org/snippets-kurukshetra-war-mahabharata-iii-micro-details-war/>

The Makara Vyuha was a reminder that a well-constructed defence could break an offensive, just as a massive creature lying in wait can surprise and annihilate its attacker. The Pandavas had to muster their strategic acumen to penetrate this formidable defensive structure.

Strategic Insight: Strong at the front, used to trap the enemy and pull them in. Basic strategic management involved in formation of Makara vyuha is to understand the own Strength, weaknesses and threats and opportunities coming out from the weaknesses of enemies.

As this vyuha is very aggressive, visionary approaches focused on pulling ahead of the competition by trapping them in a strategy they don't expect. It follows Mintzberg's Entrepreneurial theories.

3. Garuda Vyuha or Krauncha Vyuha (Eagle Formation):

The Heron Formation (Krauncha Vyuha) was usually met with Garuda or eagle Formation. Eagle is a Natural Enemy of Heron. The Swoop of the Garuda, nullifies and swamps the posture of the Heron. In its form, the Garuda Vyuha resembles the Krauncha vyuha, with a subtle difference in that it resembles an eagle. On the second day Bhishma arranged his army in Garuda vyuha to counter the Krauncha vyuha of the Pandavas. Bhishma himself got positioned at its beak. Drona and Kritavarna were the eyes. Kripa and Ashvatthama were at the head. The Trigartas and the Jayadratha with their armies made the neck. Duryodhana, and his brothers, Vinda and Anuvinda made the body of the formation whereas the King of Kashala, Brihadbala formed the tail of the formation.

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Numbers of “Maharathis” (great warriors) have been allocated in head region of this vyuha which depicts leadership and aggression. This in turn used to offensive strategies. Wings depict mobility and these two sides were used for communication with other part of this army structure. It signifies Mintzberg’s Managerial roles. The tail side was used to give support the head and wings i.e. to provide support and backup.

Mintzberg’s Design School followed by This vyuhas where roles and responsibilities are clearly defined. It has also followed Balanced Scorecard (Kaplan & Norton) where a vision-led formation aligning internal processes (tail), customer focus (wings), and leadership vision (head).

4. Sarpa Vyuha (Snake Formation)

Key aspects of the Sarpa Vyuha:

It resembled a coiled snake, with the head, body, and tail represented by different sections of the army. The objective of this formation is to trap and overwhelm the enemy, encircling them with its coils.

As it looks like snake, - it is Flexible, deceptive, can strike unpredictably. It also follows Blue Ocean Strategy i.e., Instead of confronting directly, Sarpa Vyuha creates surprise and value innovation similar to finding uncontested market space. Continuous adaptation and emergent strategy, just like the shifting and unpredictable moves of a snake.

5. Padma Vyuha (Lotus Formation):

The Padma Vyuha is often confused with the Chakravyuha. There is a considerable difference between these formations though there are many similarities as well. Similar to Chakra-Vyuha, this is also a multi-folding defensive formation in the form of a blooming lotus when viewed from above. Again only a handful of warriors knew the technique of breaching this formation.



Source: <https://www.alamy.com/462-padmavyuhaimage214105354.html?imageid=ED3873DE-B9EA-4340-B39B->

Strategic Insight: Petal-like structure, often used for defence and protection, difficult to breach. It is mainly formed as a defensive Strategy like Porter's Generic Strategies. It focuses on cost leadership or differentiation to defend market position. It also Integrates multiple elements (Strategy, Structure, Systems, etc.) harmoniously like the petals of a lotus protecting the core which can be seen in McKinsey 7S Framework.

6. Suchimukha or Suchi Vyuha (Needlepoint Formation)

Strategic Insight: As it is straight like needle, it is Sharp, focused, penetrates deep into enemy lines. It targets a specific market niche with precision and deep insight and pierces through crowded markets (battle field) by innovating and offering something completely unique.

7. Mandala Vyuha (Circular but Dynamic Formation):

On the seventh day of the war Bhishma made Mandala Vyuha. It was circular formation very difficult to penetrate. The Pandavas countered it by Vajra Vyuha. On the dawn of the eighth day of the war, it was Oormi Vyuha for Kauravas, meaning ocean. It was the formation in which their army was arranged. It spread on the either side like waves of the sea.

The Mandala Vyuha is a circular arrangement, designed to be difficult to penetrate. The commander-in-chief, is positioned at the center, with other warriors, including Maharathis (elite warriors capable of defeating many), forming smaller units around him. This formation is primarily defensive, aiming to protect the central figure and create a strong, circular barrier against enemy attacks.



Source: <https://indiafacts.org/snippets-kurukshetra-war-mahabharata-iii-micro-details-war/>

Strategic Insight: Adaptive and revolving around a central objective. It has the ability of an organization to integrate, build, and reconfigure internal competencies to address rapidly changing environments and focused on reacting to external changes and adapting the internal structure accordingly.

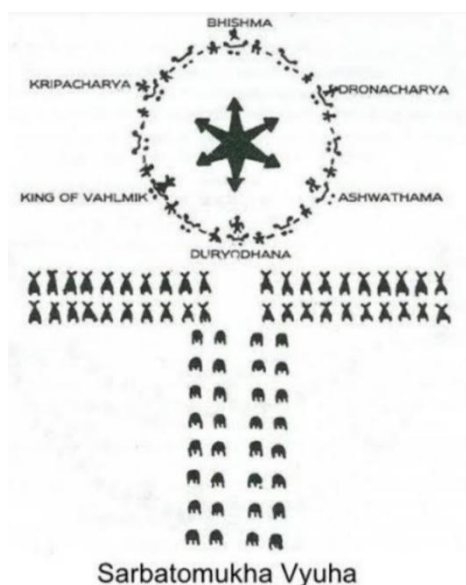
8. SARVATOMUKHI DAND VYUHA

This was the formation used by Bhishma on the 1st day of the Kurukshetra war. The head of the formation had 6 Maharathis arranged in a circular form and the rear end is shaped like a rod (Dand) to keep resourcing the head.

The formation's head is arranged in a circular shape, with six Maharathis (elite warriors) positioned to lead the charge and engage the enemy. The rear end of the formation is shaped like a rod (Dand), providing a continuous flow of resources and reinforcements to the head. The circular head allows for aggressive attacks, while the rod-shaped rear provides a defensive barrier and a means to replenish troops.

Strategic Insight: The formation's core, likely housing the commander, allows for efficient communication and coordinated action. The "Dand" or rod can be adjusted to respond to changing battlefield conditions, offering a dynamic defense. The circular core and the reinforcing rod create multiple lines of defense, making it difficult for the enemy to penetrate.

The formation's structure can be designed to create a sense of intimidation and overwhelm the enemy. The "Dand" provides a continuous supply of resources and reinforcements to the core, ensuring sustained combat effectiveness. While primarily defensive, the formation can be adapted for offensive maneuvers, with the "Dand" facilitating a powerful push. This formation can be applied to modern warfare scenarios, such as securing a base or a critical supply line.



Source: <https://indiafacts.org/snippets-kurukshetra-war-mahabharata-iii-micro-details-war/>

9. VAJRA VYUHA

The Vajra vyuha, also known as the Thunderbolt or Diamond formation, was a military strategy employed in the Mahabharata war. It was a defensive formation, characterized by a central core of powerful warriors surrounded by layers of infantry, forming a diamond or wedge shape. The Pandavas used it on the first day of the war and also to counter the Mandala vyuha on the seventh day.

The Vajra vyuha was designed with a strong, central core of elite warriors (maha-rathis) at its center, representing the "thunderbolt" or "diamond" point of the formation. This core was then surrounded by layers of infantry, providing a strong defensive barrier. The Vajra vyuha was known for its ability to maneuver quickly and its strong defensive capabilities, making it a suitable choice when facing a numerically superior or strategically challenging enemy.



Source: <https://indiafacts.org/snippets-kurukshetra-war-mahabharata-iii-micro-details-war/>

Strategic Insight:

The Vajra vyuha's structure can be adapted to corporate strategy, where a company might focus on building a strong core business (the center of the diamond) while expanding into related markets (the converging sides). This allows for both defensive stability and offensive expansion.

In modern warfare, the Vajra vyuha could be adapted to create a mobile defensive formation that can both absorb and deliver concentrated firepower which is seen in recent Indo-Pak war. The formation's ability to trap and surround an enemy force could be utilized in certain tactical situations.

The formation's success relies on its adaptability to the battlefield. Modern military doctrines emphasize the need for flexible formations that can respond to changing battlefield conditions. The Vajra vyuha, when properly understood and adapted, can be a useful tool. The Vajra vyuha is not just a static formation, but a dynamic one that requires constant adjustments to maintain its strength. It is crucial to understand both the strengths and weaknesses of the formation in order to effectively utilize it in a strategic context.

The principles of the Vajra vyuha, such as defense, offense, and adaptability, are relevant to both military and non-military strategic thinking.

Anticipated attack	Array used
In the front	Makara (Crocodile), Pipilika (Ant)
In the rear	Sakata (Carriage)
On the two flanks	Vajra (Thunderbolt)
On all sides	Sarvato badra/ Sarvatomukhi (Uniformly circular), Danda (Staff)
If the path is narrow	Suchi (Needle)
Both sides from left and right	Varaha (Boar) or Garuda (Bird)

VYUHA	STRATEGY CONCEPT	MANAGEMENT THEORY
Chakravyuha	High barriers, complexity (Defensive + devastating offensive)	Porter's Five Forces, Mintzberg's Configuration School
Makara Vyuha	Entrapment, offensive lead	SWOT, Entrepreneurial

	(highly offensive)	School
Garuda Vyuha	Visionary leadership (offensive, partly defensive)	Balanced Scorecard, Design School
Sarpa Vyuha	Flexibility, surprise	Blue Ocean Strategy, Learning School
Padma Vyuha	Defense, systemic harmony (defensive)	Defensive Strategy, McKinsey 7S
Suchimukha Vyuha	Precision, sharp entry (highly defensive)	Focused Differentiation, Blue Ocean Strategy
Mandala Vyuha	Adaptive, responsive (defensive, offense based on counter attack)	Dynamic Capabilities, Environmental School

Lessons for Modern Strategic Management

Ancient Insight from Vyuhas	Strategic Management Application
Geometric structure and logic	Organizational structuring and process design
Role of each warrior is defined	Clear roles and responsibilities in teams
Contingency roles & chain of command	Succession planning & crisis management
Daily revision of formations	Dynamic strategy updates in volatile markets
Psychological warfare and deception	Competitive positioning & branding tactics
Strategic advisors (like Krishna)	Need for mentorship and strategic consulting

FINDINGS:

Vyuhas, as exemplified in the Kurukshetra War, were not merely battlefield formations but dynamic strategic models that effectively aligned resources, mitigated risks, and pursued well-defined objectives principles that hold timeless relevance in modern management. In ancient times, leaders like Dronacharya and Bhishma strategically positioned warriors based on their strengths and roles, ensuring optimal resource utilization, a concept mirrored in today's organizations where human, financial, and technological assets are allocated according to core competencies.

Vyuhas such as the Chakravyuha also emphasized risk management by creating layered defenses and adapting strategies mid-battle, much like businesses today employ diversification, contingency planning, and proactive risk assessment to counter uncertainties.

Furthermore, the unity of purpose in Vyuhas, where every soldier understood their role in achieving the larger objective, resonates with modern frameworks like the Balanced Scorecard that ensure organizational alignment. Ultimately, just as a well-crafted Vyuh could out maneuver adversaries, organizations that strategically combine resource allocation, risk management, and goal alignment gain a decisive competitive advantage.

Conclusion

The concept of modern strategic management and the ancient formation of Vyuhas (battle formations used in Indian epics like the Mahabharata) have a deep conceptual alignment. While modern management is applied to organizations and business challenges, ancient war strategies were applied to military and leadership challenges. Both share principles of planning, resource allocation, leadership, flexibility, and foresight.

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Esteemed for balancing fidelity and literary quality combining accuracy with engaging prose, praised widely by Bengali literary circles.
 29. Mahabharater Katha by Amalesh Bhattacharya
A thematic retelling that simplifies and presents epic narratives and key episodes in engaging Bengali storytelling style.
 30. Prasanga Mahabharat by Swami Suparnananda
A reflective presentation analyzing contexts and moral lessons drawn from the text.

