

There is a quiet but decisive distinction in today's world between countries that make technology and those that own it.

One builds under licence, negotiates access, and depends on external approvals. The other defines how the technology is used, who can access it, and on what terms. Increasingly, global power is shifting toward those who own the intellectual foundations of technology, not just its manufacturing.

India's Make in India initiative has played a critical role in strengthening domestic manufacturing and attracting global supply chains. But in the present geopolitical and technological climate, manufacturing alone does not secure long-term strength. Without ownership of core intellectual property, a nation remains dependent especially in sectors like defence, semiconductors, and advanced digital systems.

The next step is not just to make, but to own.

Understanding Patent Layering

Ownership in technology does not come from a single patent or invention. It comes from building a structured and deliberate portfolio what can be described as patent layering.

This approach looks at a technology not as a single product, but as a system made up of multiple interdependent layers. Each layer represents a different kind of value and a different opportunity for control.

When these layers are protected together, they create a strong position. Not just protection from copying but influence over how the technology evolves and is used by others.

The Six Layers of Technological Control

1. Component Layer – Basic physical parts

This includes physical inventions machines, devices, and core components. While essential, this is the most basic layer and often the only one protected in developing economies. On its own, it offers limited strategic advantage.

2. Integration Layer – Parts start talking to each other

This layer governs how components communicate data flows, protocols, and coordination mechanisms. In modern systems, value lies not just in parts but in how they interact. Control at this level creates barriers to replication.

3. System Architecture – Complete working system

Here, the entire system is protected as a unified structure. Ownership of architecture means that even alternative implementations can infringe if they replicate the same functional design. This is where control begins to scale.

4. Control & Decision Layer – System starts thinking

Modern technologies from defence systems to industrial automation depend on decision-making logic. This includes algorithms that determine actions, priorities, and responses. Ownership here means controlling how systems behave, not just how they are built.

5. Learning & Data Layer – System improves over time

With AI and machine learning becoming central, systems are no longer static. They evolve through data. Protecting models, training processes, and predictive systems ensures that improvements remain proprietary, creating compounding advantages.

6. Platform & Ecosystem Layer – System becomes part of a larger network

At the highest level, technologies become platforms integrated into larger ecosystems. Control here defines standards, interoperability, and network access. This is where technology translates into geopolitical influence.

Iron Dome: A Classic Example of Ownership

Israel's Iron Dome offers a clear illustration of how layered ownership works in practice. It is often praised for its interception capability. But its real strength lies in how comprehensively it is protected.

Why This Matters Now

The shift from making to owning technology is driven by real global changes.

Supply chains have become uncertain, and dependence on external technology can quickly turn into a risk. At the same time, the real value of technology is moving beyond hardware to software, data, and interconnected systems. Countries that do not control these layers may struggle to stay competitive.

IRON DOME

6-Layer Patent Architecture – Technology Sovereignty in Action
Detect · Track · Decide · Intercept · Learn · Dominate

Make → Design → Patent → OWN

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Basic physical parts	Parts start talking to each other	Complete working system	System starts thinking	System improves over time	System becomes part of a larger network
L1 Component Protection	L2 Subsystem Integration	L3 System Architecture	L4 Control & Automation	L5 Software & Model Layer	L6 Platform & Ecosystem
US11236970	US10677565	US9995559	US9897445	US20230334363	WO2015140795
US9929472	US8054451	US7791006	EP4162234	US20240221180	US8805763
IL-81814 A0	IL-232360 A	US7652234	IL-219854 B	US7821442	IL-223332

In critical sectors like defence, the stakes are even higher. Systems are complex and constantly evolving. Without ownership, even locally built systems may still depend on external support for upgrades and integration.

India's Position: Strong but Not Fully Independent

India has strong capabilities in defence, space, and engineering. It has built complex systems and a solid technological base.

Yet, India often negotiates access to technology instead of defining its terms. The gap lies in intellectual property strategy. Focus remains on components, while higher levels system design, decision-making, and integration are less developed.

Technology transfer often enables manufacturing, but not full control. This limits the ability to upgrade, adapt, and evolve systems independently.

What Needs to Change

A shift in approach is essential..

Slogan	Real Meaning
Make in India	Assemble
Design in India	Develop
Patent in India	Protect
Own in India	Control

Intellectual property must be treated as a strategic tool, not just legal protection. Efforts should move beyond individual components to complete systems covering integration, architecture, and decision-making.

Stronger alignment between public institutions, industry, and policy is needed to build layered IP before technologies are shared or commercialized.

The Way Forward

The path is simple:
 Making builds capacity.
 Designing builds capability.
 Patenting builds protection.
 Owning builds control.

India has progressed in the first two. The next step is ownership.

Examples like Iron Dome show that true strength comes from layered control, not isolated innovation. In a world where technology defines power, ownership is essential.

Make in India started the journey. Own in India must complete it.



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