



National Dome: a technical reflection on the risks of a simplified narrative

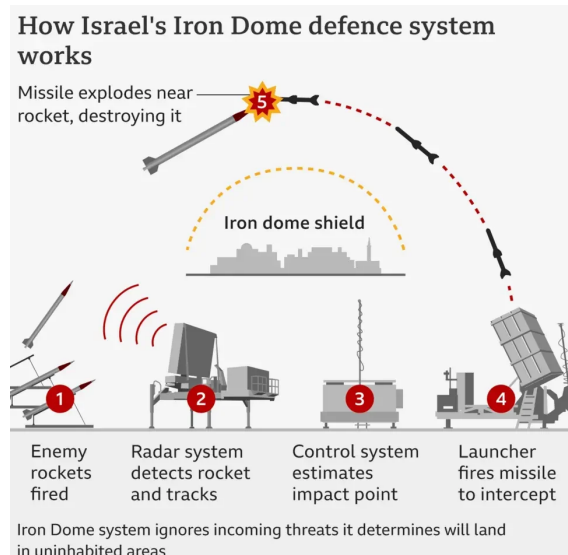
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In common language, the term Dome is often used as a synonym for total territorial protection. In reality, from a technical standpoint, there is no unified shield. What is improperly called Dome is, in a strict sense, **an architecture of Integrated Air and Missile Defense (IAMD)**.

This architecture is based on some essential elements:

- **overlapping layers of defense**, differentiated by altitude and interception distance;
- **distributed sensors** (short, medium, and long-range radars, ground, naval, and aerial sensors);
- **command, control, and communication networks** that fuse data and assign engagement priorities;
- **specialized interception systems**, each optimized for a specific class of threats.

The logic is not one of invulnerability, but of **risk reduction**: if one layer fails, another can intervene. However, this redundancy has extremely high costs and requires extremely advanced levels of technological and operational integration. Talking about Dome without explaining this complexity is equivalent to **simplifying a problem that, by its nature, is not simplifiable**.



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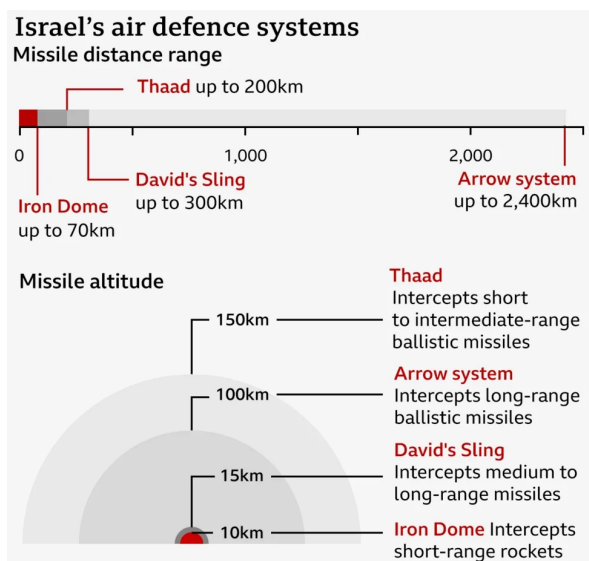
Israel: the most advanced case, but not replicable

Israel probably represents **the most sophisticated air defense system existing today**, based on a unique stratification: **Iron Dome** for short-range, **David's Sling** for medium-range, **Arrow 2 and Arrow 3** for strategic ballistic defense, with **U.S. support from THAAD** in exceptional contexts.

Yet, despite this unparalleled multi-layered architecture, Israel **continues to suffer impacts on its territory**. Combined attacks – ballistic missiles, drones, numerical saturation – have shown that no system can intercept everything. This fact, often marginalized in media narratives, is central from a technical standpoint.

The relative success of the Israeli model depends on **structurally unique conditions**: a small territory, a very high density of sensors, almost total integration between intelligence, armed forces, and civil protection, and a population trained to live with continuous alarms and very short reaction times. These are factors that cannot simply be purchased or replicated.

Extracting the concept of Dome from this context and presenting it as a universal model means **confusing an architecture born from direct experience of decades of conflicts with an abstract and decontextualized solution.**



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Operational pragmatism: Germany, United States and the myth of the total shield

A useful comparison is with the German approach. The acquisition of Arrow 3 by Germany, with an agreement of about 3.9 billion dollars, is sometimes cited as confirmation of the validity of the "Dome" model. In reality, Berlin has adopted an opposite logic: **it has not sought a total shield**, but the coverage of a well-defined gap.

Arrow 3 is a highly specialized system, designed to intercept ballistic missiles in space, over 100 km altitude. It is expensive, not very mobile, and deliberately limited in its role. It does not replace endo-atmospheric systems, does not operate autonomously, and is integrated into a broader network. The implicit message is clear: **no technology, on its own, solves the problem of air defense.**

Even more significant is the case of the United States. Despite unparalleled technological and financial resources, Washington does not have a national Dome. The American system is fragmented into specialized capabilities – THAAD, Aegis, Patriot, Ground-Based Interceptors – designed for different scenarios and not to create a continuous shield over the national territory. The reason is known to insiders: **the cost and systemic vulnerability of a total defense on**

a large scale are unsustainable.

In this context, even the comparison between systems like SAMP/T and Arrow 3 helps clarify the misunderstanding. The former is a tactical, mobile system, designed for the defense of forces and infrastructures; the latter is a strategic tool, designed exclusively for high-altitude ballistic defense. They are not alternatives, but components of different levels. Presenting them as equivalent shields means ignoring the very logic of modern air defense.



Conclusion

The analysis of the most advanced cases shows that the Dome is not a ready solution, but a **complex, costly, and inherently imperfect architectural construction**. Where it works, it does so thanks to exceptional conditions, operational experience accumulated over time, and a clear definition of limits.

In the absence of these elements, the risk is not only technical but structural: **transforming a useful concept into a slogan, and a slogan into a program that absorbs resources without producing a measurable real defensive capability**. In the domain of IAMD, conceptual prudence and operational realism are not signs of weakness, but prerequisites for effectiveness.

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