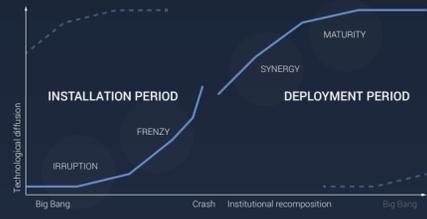


# NAVIGATING EMERGING TECHNOLOGIES

The atom. The byte. The gene. The scientific revolution of the last century unfolded the most fundamental building blocks of our today's lives. As we are moving from understanding to manipulation, unprecedented opportunities but also vulnerabilities arise.

The map at hand shall help you to navigate emerging technologies towards a clear-sighted and value-driven application. Each technology is complemented with a brief description and indication of its break-in point. Clustering technologies and linking them to each other will help you to do associative thinking. Notable (known) technological, societal and economic risks as identified by the World Economic Forum are highlighted next to hypothetical inflection points. Barely visible are firms that are currently leading research or commercialisation in their fields.

**THE ROLE OF FINANCIAL BUBBLES AND CRISES**  
 What is the interaction between the emergence of new technologies and the larger economic and social patterns of behavior? Carlota Perez draws upon Schumpeter's theories of the clustering of innovations to explain why each technological revolution gives rise to a paradigm shift and a "New Economy" and how these "opportunity explosions", focused on specific industries, also lead to the recurrence of financial bubbles and crises.



## THE ROLE OF TECHNOLOGICAL SYSTEMS AND REVERSE SALIENCE

What holds up progress? An interesting thing about technological systems is that they are not just a bunch of technologies in the same place at the same time, they are systems: their further development is linked together. When some of the technologies in a linked system progress faster than others, the laggards become the limiting factor in the system. Thomas Hughes called these the "reverse salient" with all that implies. The system can not progress until the reverse salient is cured, so economic resources are directed to its improvement. The invisible hand detects what is holding progress back and redirects resources to cure it, so the system evolves faster than its individual technologies would.



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