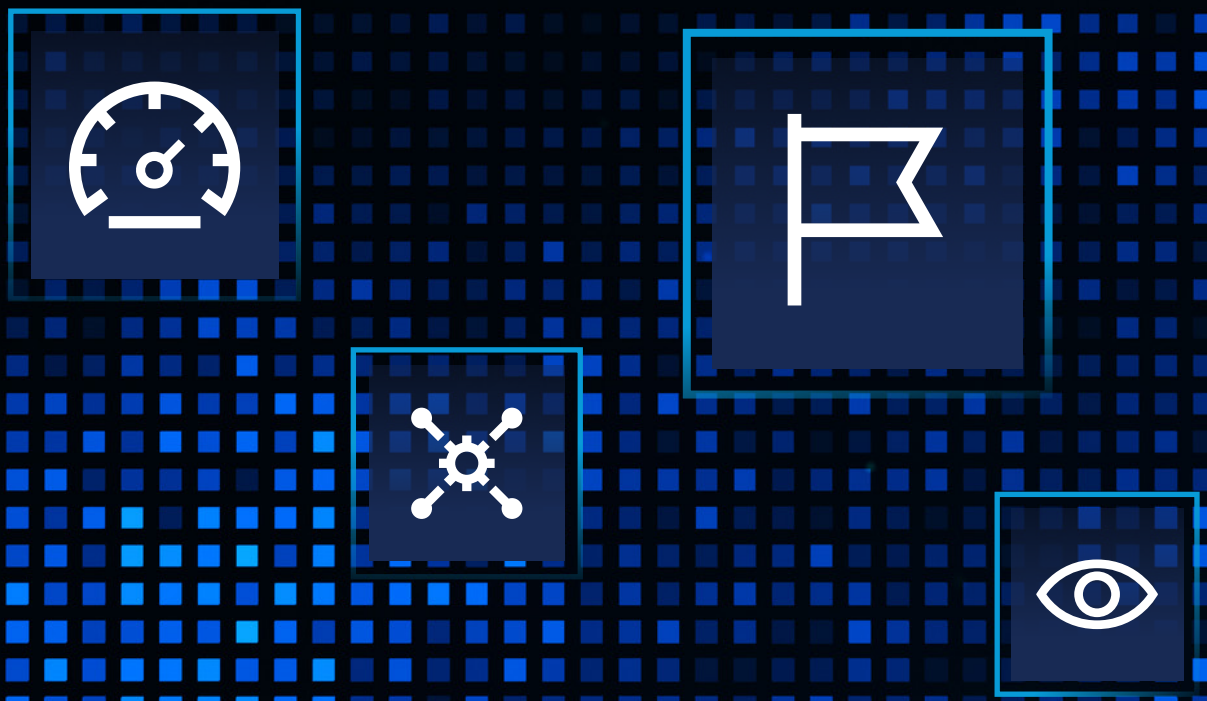
Gartner

Gartner for R&D Leaders

Describe Your R&D Organization With Four Distinct Technology Profiles



Technology intensity, level of control over technology strategy and innovation time horizon shape four distinct R&D technology development profiles. Based on their profile, R&D leaders report different outcomes in areas like portfolio spend allocation and R&D staff turnover rates.

Overview

Key Findings

- Gartner identified three key dimensions differentiating R&D's approach to technology development based on an organization's attitudes and preferences regarding innovation decision making. They are technology and innovation intensity, control of technology strategy and capability development, and innovation time horizon.
- Based on these three dimensions, Gartner identified four R&D technology development profiles: Efficiency Maximizers, Business Enablers, First Movers and Futurists.
- First Movers and Futurists achieve better outcomes than Efficiency Maximizers and Business Enablers in perception-based questions that measure organizational innovativeness and the ability to develop innovative technologies.
- First Movers and Futurists also allocate more resources to innovation projects and have lower staff turnover than Efficiency Maximizers and Business Enablers.

Recommendations

R&D leaders responsible for function strategy and management, and technology development should:

- Validate that your organization's preferences and behaviors match your intended goal state by using the technology intensity, level of control over technology strategy and innovation time horizon dimensions.
- Nudge your organization toward better outcomes by realigning your portfolio allocations to match your desired profile more closely.

Survey Objective

Gartner surveyed R&D leaders from industries such as IT software and hardware, manufacturing, and telecommunications to gather benchmarks and understand how organizations manage and allocate their R&D resources.

Data Insights

R&D organizations take different approaches to technology adoption. Gartner conducted a research survey to understand how organizations leverage technology to drive innovation outcomes. Technology-driven innovation is more critical to some organizations, leading to key differences in the role that an R&D function plays within their company (see Note 1).

Key Differences on How Organizations Approach Technology

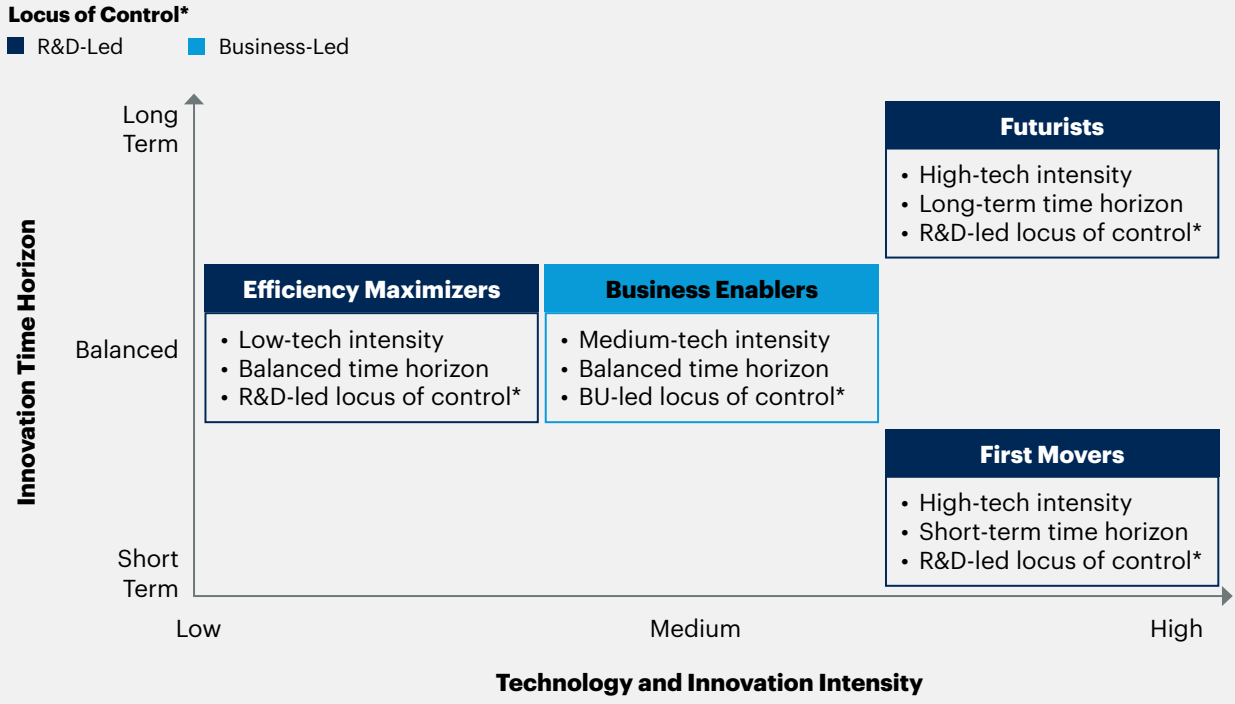
Based on a subset of questions in the survey, we found key differences in how organizations undertake technology across these defining dimensions:

- **Technology and innovation intensity** refers to the criticality of technology to the business's success and growth, the organization's risk tolerance for investing in innovation projects, and the speed of response to external disruptions. This dimension reflects how R&D can leverage technology within its product development processes and its products. It also highlights the extent to which R&D can invest in new-to-world, transformational innovation projects that will drive growth for the organization. Finally, it reflects how resilient and responsive the R&D function must be to disruptions like economic shocks, new market entrants or game-changing innovations from competitors.
- **Locus of control** refers to controlling the organization's technology strategy and capability development. This dimension focuses on R&D's degree of ownership over the organization's technology strategy concerning other business units or functional leaders. It also captures R&D's philosophy and approach to developing technology capabilities internally versus acquiring them externally. R&D's role in defining the organization's technology ambitions is fundamental to how it operates within the organization.
- **Innovation time horizon** refers to how the organization balances short-term business opportunities against its longer-term business objectives. This dimension highlights how agile R&D must be to capitalize on short-term opportunities versus investing and delivering on long-term business goals and objectives.

There Are Four R&D Technology Development Profiles

Four distinct profiles emerged among R&D organizations, which we have labeled Efficiency Maximizers, Business Enablers, First Movers and Futurists (see Figure 1). The subsections below detail defining dimensions for each profile and a more detailed description of the profiles.

Figure 1: Comparison of R&D Technology Development Profiles by Dimensions
Illustrative



Source: Gartner Technology-Intensive R&D Benchmark Survey
*Locus of control refers to the profile's degree of control over the organization's technology strategy and capability development.

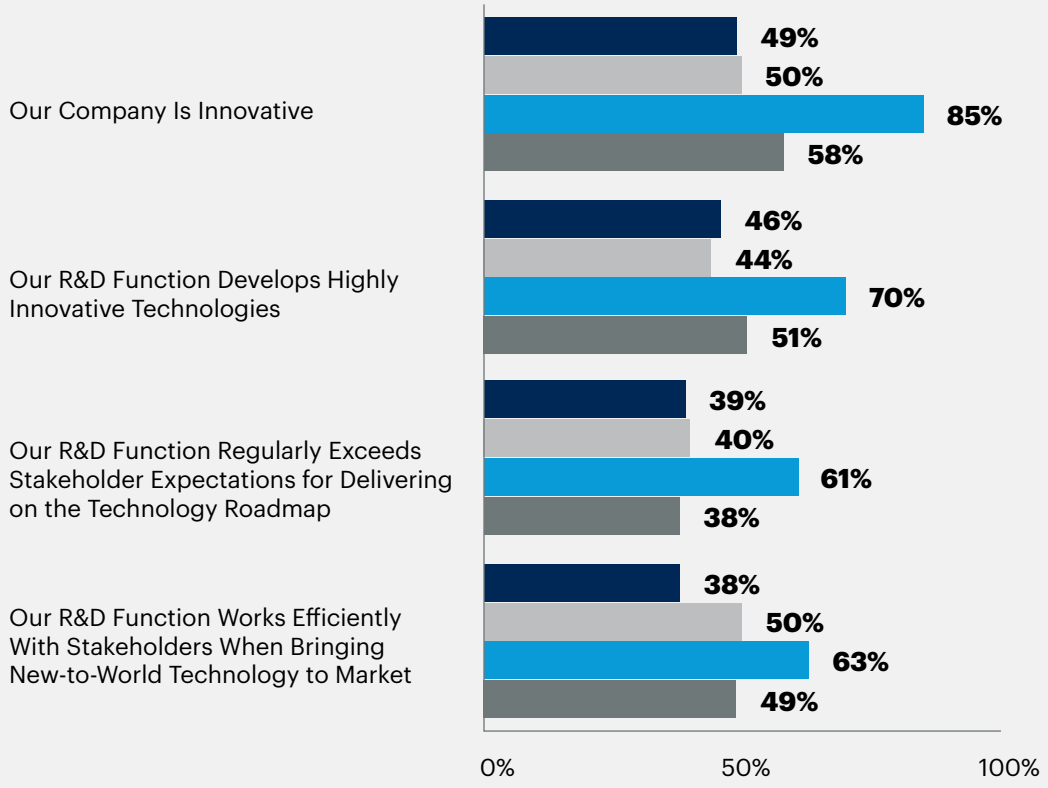
Gartner®

	Defining characteristic	Description
Efficiency Maximizers 	Low technology and innovation intensity	Efficiency Maximizers comprise 20% of survey respondents and appear to have a balanced approach to R&D investment and innovation. They allocate approximately 75% of their R&D portfolio spending on sustaining engineering and incremental projects. As such, Efficiency Maximizers focus more strongly on their "core" capabilities and offerings than the other profiles. While technology is an enabler for their business, it is not a business differentiator at their organization. They also make rare or ad hoc investments in transformational, new-to-world innovation. Efficiency Maximizers take a wait-and-see approach to external disruption and prioritize short-term business opportunities over long-term business objectives.
Business Enablers 	Business-led R&D technology strategy and capability development	Business Enablers comprise 25% of survey respondents. Their role within their organization revolves around executing and implementing the technology strategy that other business units or functional leaders define. They are more likely to acquire a higher percentage of their technology capabilities than develop them internally. Finally, they are more likely to respond to external disruption while reworking their plans for the future, which might be described as "building the plane as they fly it."
First Movers 	High technology and innovation intensity, short-term innovation time horizon	First Movers comprise 29% of survey respondents. They are more likely to develop most or all of their technology capabilities in-house. First Movers see technology as critical to their business's success and growth and make regular or major investments in transformational, new-to-world innovation. They also see external disruption as an opportunity and react quickly to capitalize on it. First Movers prioritize taking risks and being first to market to achieve a competitive advantage rather than focus on longer-term business objectives.
Futurists 	High technology and innovation intensity, long-term innovation time horizon	Futurists comprise 27% of survey respondents. They are more likely to develop most or all of their technology capabilities in-house, a key feature of their strong focus on internal innovation maturity. Futurists see technology as critical to their business's success and growth and make regular or major investments in transformational, new-to-world innovation. Futurists differ from First Movers in their more measured approach when responding to external disruption, but are still biased toward action. Futurists also differ from First Movers in prioritizing long-term business objectives over short-term business opportunities.

First Movers and Futurists Outperform on Perceptions of Innovativeness and Stakeholder Measures

The investments that First Movers make in technology capabilities and innovation projects lead to better outcomes on perception-based measures at companywide and functionwide levels. Figure 2 shows respondents from each profile agree or strongly agree with statements related to their organization or function.

Figure 2: Perception-Based Outcome Measures by R&D Tech Development Profile
Percentage of Respondents



n = 199
Source: Gartner Technology-Intensive R&D Benchmark Survey

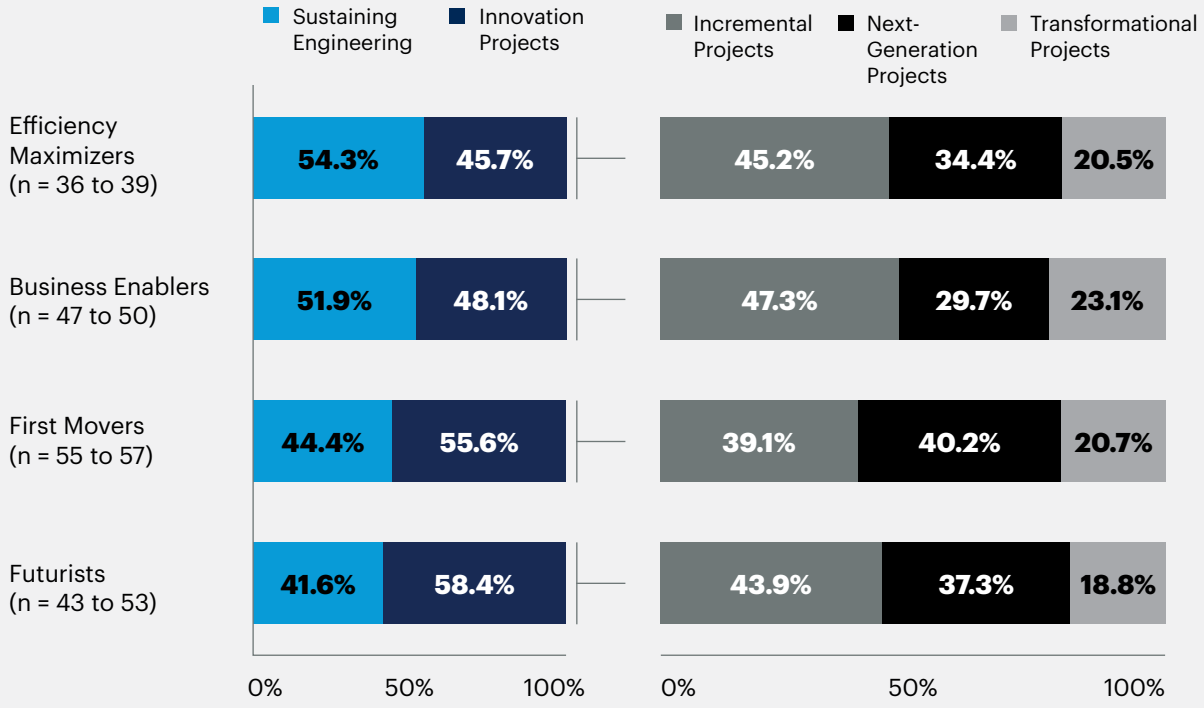
The near-term focus of First Movers likely makes gains and performance against goals much more concrete compared to Futurists' long-term focus. Combined with high technology intensity and R&D-led technology strategy and capability development, this focus on innovation likely leads to stronger perception-based outcomes.

Gartner®

First Movers and Futurists Allocate More Portfolio Spend to Innovation Projects

Efficiency Maximizers and Business Enablers allocate more resources toward sustaining engineering instead of innovation projects and fewer resources to next-generation innovation projects compared to First Movers and Futurists (see Figure 3).

Figure 3: R&D Portfolio Allocations by Profile
Percentage of Respondents



n varies
Q: What was the percentage (%) breakdown across the following categories? (Innovation Projects vs. Sustaining Engineering)
Q: How were resources allocated to innovation projects distributed across project types? (Incremental vs. Next Generation vs. Transformational)
Source: Gartner Technology-Intensive R&D Benchmark Survey
Note: The percentages may not sum to 100 due to rounding.

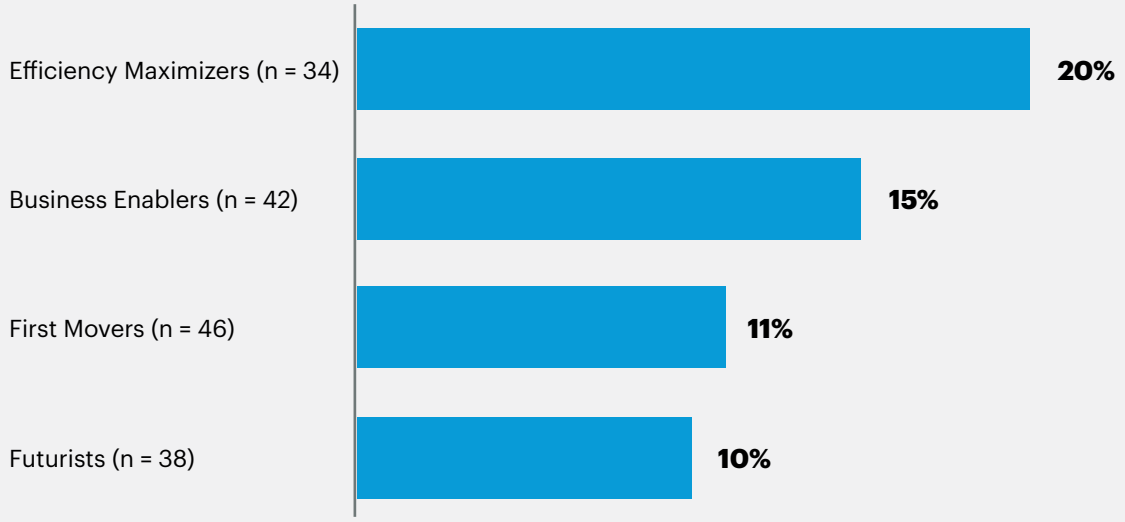
Futurists and First Movers Have Lower Staff Turnover Rates Than Other Profiles

R&D technology development profiles affect more than just technology investments and portfolio allocations. They also impact the organization's ability to retain R&D staff.

Figure 4 shows the key differences in turnover rates for the different R&D technology development profiles. Notably, Futurists and First Movers report lower R&D staff turnover rates than Efficiency Maximizers and Business Enablers. This is likely due to their deep investments in innovation capabilities and transformational, new-to-world innovation.

Conversely, Efficiency Maximizers report much higher R&D staff turnover rates, likely due to their lower levels of technology intensity and investment and their more balanced approach to innovation time horizon focus (i.e., neither particularly short- or long-term oriented).

Figure 4: R&D Staff Turnover Rates by Profile
Percentage of Respondents



n varies
Q. What has been the overall turnover rate of R&D employees at your organization in the past 12 months? (median)
Source: Gartner Technology-Intensive R&D Benchmark Survey

Evidence

Survey respondents were 199 R&D leaders in leadership/executive positions (manager, director, VP and above) from companies with an enterprisewide annual revenue of at least $500 million representing a range of technology-intensive industries and geographies.

Respondents are decision makers or influencers in R&D product and/or portfolio decisions regarding technology innovation. Percentages may not total 100% due to rounding.

Respondent industry: Information technology — IT hardware, semiconductors and communications equipment: 15%; Information technology — IT software and services: 25%; Manufacturing — Healthcare equipment and supplies, medical devices and pharmaceuticals, and biotechnology and life sciences: 22%; Manufacturing — Nonhealthcare equipment, natural resources and energy: 21%; Telecommunications — Telecom carriers: 18%.

Respondent country: Australia: 8%, Canada: 12%, France: 4%, Germany: 8%, India: 10%, New Zealand: 1%, United Kingdom: 13%, United States: 45%, Enterprisewide annual revenue in U.S. dollar equivalents: $500 million to $750 million: 6%; $750 million to less than $1 billion: 6%; $1 billion to less than $3 billion: 32%; $3 billion to less than $5 billion: 10%; $5 billion to less than $10 billion: 13%; $10 billion to less than $20 billion: 12%; $20 billion or more: 21%.

Disclaimer: The results of this study do not represent global findings or the market as a whole, but do reflect the sentiment of the respondents and companies surveyed. Use caution with small sample sizes. This data is intended for directional insight only.

Acronym Key and Glossary Terms

Sustaining Engineering (Technical/Product Support)	Activities designed to provide technical support and maintenance to products in the latter stages of their life cycle.
Incremental Projects	Projects designed to support and/or moderately increase the performance of existing products or services, or designed to satisfy individual issues or requests (does not include nondiscretionary projects, such as compliance with regulation).
Next-Generation Projects	Projects focused primarily on developing new-to-company products and services or creating next-generation replacements for existing products and services.
Transformational Projects	New-to-market innovation proposals with a high likelihood of achieving significant growth for the company by opening up new opportunity spaces.

Gartner®

Note 1: Research Methodology

Technology and innovation intensity refers to the criticality of technology to the business's success and growth, the organization's risk tolerance for investing in innovation projects, and the speed of response to external disruptions. Technology and innovation intensity ranges from low to high:

- **Low —** Sees technology as a business enabler but not a differentiator, makes rare or ad hoc investments in new-to-world innovation, and responds slowly to major external events like economic shocks or new market entrants.
- **Medium —** Sees technology's role as important to the business's success or growth, makes regular investments in new-to-world innovation, and takes a balanced approach to quickly responding while reworking long-term plans.
- **High —** Sees technology as adding significant value or critical to the business's success or growth, makes major and ongoing investments in new-to-world innovation, and responds quickly to disruption to avoid falling behind the market or missing opportunities.

Locus of control refers to R&D's degree of control over the organization's technology strategy and capability development. This locus of control ranges from R&D-led to business-led:

- **R&D-led —** R&D is more likely to play a leading role in collaboration with business stakeholders to establish the technology strategy and tends to develop half or more of its technology capabilities internally.
- **Business-led —** Business stakeholders are more likely to lead in developing the technology strategy. At the same time, R&D executes its vision and tends to acquire half or more of its technology capabilities externally.

Innovation time horizon refers to how the organization balances short-term business opportunities against its longer-term business objectives. Innovation time horizon ranges from short term to long term:

- **Short term —** Take commercial risks or be first to market with new opportunities.
- **Balanced —** Make changes when the time is right.
- **Long term —** Avoid being distracted by passing fads or are prepared to sacrifice near-term profits to reach their goals.

Gartner®

Actionable, objective insight

Position your R&D organization for success. Explore these additional complimentary resources and tools for R&D leaders:

Research

3 Steps to Boost R&D Innovation

Create an environment that nurtures R&D innovation and increases innovation performance.

Download Now

Research

Prevent Dangerous Tradeoffs in Your R&D Portfolio

Improve R&D portfolio decision quality to meet long-term growth goals.

Download Now

Tool

R&D Score

Benchmark your R&D function against peers and diagnose improvement areas to allocate and prioritize resources.

Learn More

How We Help

Gartner for Research and Development

Gain access to insights, guidance and tools to enable you to drive growth through product innovation.

Learn More

Already a client?
Get access to even more resources in your client portal. Log In

Connect With Us

Get actionable, objective insight that drives smarter decisions and stronger performance on your mission-critical priorities. Contact us to become a client:

U.S.: 1 855 811 7593

International: +44 (0) 3330 607 044

Become a Client

Learn more about Gartner for R&D Leaders
gartner.com/en/innovation-strategy/products/gartner-for-rd

Stay connected to the latest insights

Gartner®