CONCEPT

R&D Management and Technology Roadmapping Course: R&D Portfolio, Readiness Levels and Scale-Up

3 – 7 May 2027
London - Central London four-star



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Introduction:

R&D management and technology roadmapping is the focus of this one-week course for leaders who run corporate research and development functions, ending with a technology roadmap and R&D portfolio review for a case company. Many industrial and technology firms fund laboratories whose projects drift from business priorities, stall between prototype and production, and compete for engineers without a clear ranking. Nominees already direct R&D teams, engineering groups or technology plans, and the course is taught through case study work on roadmaps, readiness data and project portfolios. CoreConcept Training Center offers this course in R&D management and technology roadmapping.

Course Objectives:

- Align an R&D strategy with business strategy using the research and development spend mix and R&D intensity benchmarks
- Build a layered technology roadmap that links market drivers, products and technologies through the T-Plan process
- Grade project maturity with Technology and Manufacturing Readiness Levels and set technical gate criteria for R&D
- Select, balance and fund an R&D project portfolio while allocating laboratory budgets and engineering capacity
- Direct R&D teams, the laboratory-business interface, university partnerships, technology scouting and protection choices for R&D results
- Plan the scale-up of a technology from pilot line to full-rate production and track R&D performance indicators

Target Audience:

- Heads of corporate R&D responsible for laboratory strategy, budgets and project selection
- Technology and engineering managers responsible for product platforms and technical development teams
- Innovation directors responsible for turning R&D output into new products and processes
- Process development managers responsible for moving technologies from pilot plant to production
- Technology planning managers responsible for long-range technology roadmaps
- Partnership managers responsible for university, supplier and startup research collaboration

Course Outline:

Day 1: R&D Function, Strategy Alignment and Current-State Diagnosis

- Basic Research, Applied Research and Experimental Development Spend Classification
- R&D Intensity Benchmarking Against Revenue and Sector Peers
- R&D Organisation Models From Central Laboratory to Hub-and-Spoke
- Business Strategy to R&D Strategy Alignment Matrix
- R&D Function Health Check Using Pipeline and Spend Data

Day 2: Technology Roadmapping and Readiness Frameworks

- T-Plan Fast-Start Process for Technology Roadmap Workshops
- Layered Roadmap Architecture Linking Market, Product and Technology
- Technology Readiness Levels 1 to 9 for R&D Maturity
- Manufacturing Readiness Levels for Production Maturity Assessment
- Technical Stage-Gate Design With Readiness-Based Gate Criteria

Day 3: R&D Portfolio, Budgets, Teams and Partnerships

- R&D Project Scoring Model and Portfolio Balance Chart
- R&D Budget Build and Engineering Capacity Allocation Sheet
- Laboratory-Business Interface Charter and Technology Handover Protocol
- Open Innovation Inbound, Outbound and Coupled Partnership Models
- University Research Agreement Selection and Joint Laboratory Governance

Day 4: Scouting, Protection Choices, Metrics and Scale-Up Risk

- Technology Scouting Funnel and Make, Partner or Acquire Decision
- Patent, Trade Secret or Publication Decision Tree for R&D Results
- R&D Performance Indicator Set From Input to Commercial Impact
- Valley of Death Analysis Between Readiness Levels 5 and 7
- Pilot Line to Full-Rate Production Scale-Up Risk Register

Day 5: Case Study Work on the Technology Roadmap and R&D Portfolio Review

- Case Company File With Product Lines and Laboratory Projects
- Case Technology Roadmap Drafting Across Three Planning Horizons
- Case Readiness Grading and Gate Decisions for Ten Projects
- Case R&D Portfolio Rebalancing Within a Fixed Budget
- Technology Roadmap and R&D Portfolio Review Completion and Defence

Skills You Will Gain:

- Technology Roadmap Construction
- Readiness Level Assessment
- R&D Portfolio Prioritisation
- R&D Resource Planning
- Technology Scouting
- Research Partnership Governance
- Scale-Up Risk Control
- R&D Performance Reporting

Why Attend This Course:

- Deliver a technology roadmap and R&D portfolio review that the executive committee and business unit heads can use to approve the R&D plan
- Decide which R&D projects to accelerate, pause or stop on readiness evidence and portfolio balance rather than advocacy
- Avoid costly late failures when a technology reaches the pilot line without manufacturing readiness, supply or cost data
- Coach laboratory and engineering staff in roadmap layers, readiness grading and gate criteria so the method continues inside the unit

Conclusion:

Back at work, the participant gives the executive committee and business unit heads a technology roadmap and R&D portfolio review on which to base the R&D plan, laboratory budget and staffing choices. Engineering and product teams use the roadmap to time technology insertion into products, while gate reviewers use the readiness grades to release or hold funding. After the first planning cycle, the R&D unit should review which projects moved up a readiness level, whether scale-up milestones held and how far the portfolio balance shifted, then refresh the roadmap.

Frequently Asked Questions FAQ:

What should participants know before an R&D management and technology roadmapping course?

Participants should already lead or coordinate R&D projects, engineering teams or technology planning. Anonymised data on current projects, budgets and product plans is useful, because exercises apply readiness grading and portfolio scoring to realistic pipelines. Spreadsheet skills are enough; no specialist software is needed.

How does R&D management and technology roadmapping differ from a general innovation management course?

It concentrates on the technical R&D function: laboratory strategy, roadmaps, readiness levels, engineering capacity and scale-up to production. General innovation courses address idea management, innovation systems and culture across the whole organisation, which this course touches only briefly.

Why does R&D management and technology roadmapping rely on readiness levels?

Readiness levels give laboratory, engineering and business staff one shared scale for technical and manufacturing maturity. Tying gates to these levels shows where a project stands, what evidence is missing and when funding should rise, which reduces late failure between prototype and production.

What does a participant take back from R&D management and technology roadmapping training?

Each participant takes back a technology roadmap and R&D portfolio review built on a case company, together with templates for project scoring, readiness grading, budget allocation and scale-up risk that can be adapted to their own R&D unit.