Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

Trinity Business School

New Product Development
2026/2027

MODULE CODE: BUU44702
MODULE NAME: New Product Development
ECTS (European Credit Transfer and Accumulation System): 5
Lecturer: Veronica Rahneberg (Module Director)
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Office Hours: By appointment (email to arrange)

Available to exchange students: Yes

MODULE DESCRIPTION
In this changing world, companies must continuously innovate and launch new products and services to remain relevant. This module is designed for students who wish to deepen their understanding of the complex management issues involved in developing new products and services in scale-up and multinational settings. It takes a strategic, process and organisational view of NPD (new product development). Students explore:

- The imperative and scope of NPD through cases such as Pfizer/BioNTech, BPE Coatings, Raspberry Pi, Adnams, MSF (Médecins Sans Frontières) Cholera Bed and the RNLI (Royal National Lifeboat Institution).
- How firms think strategically about NPD (product families, platforms, diversification, creating shared value) and how this links to competitive advantage, responsible innovation and societal impact.
- How to manage product development as a process, including Stage-Gate and its variants, design thinking, prototyping, organisational learning and evaluation.
- How leadership, teamworking, structure and climate enable or constrain innovation and change.
- The emerging role of AI (artificial intelligence) in NPD: its potential to accelerate ideation and development, and its ethical and organisational risks.

Classes are heavily participative. Attendance in class is mandatory. Teaching combines short framework input, team analysis of real-world case studies in class, readings, live polling and a semester-long team project in which students analyse the NPD practice of

a real company and develop a forward-looking NPD roadmap. The module content is subject to change at the discretion of the Module Director.

LEARNING AND TEACHING APPROACH

The module is organised in five parts:

- The imperative for and scope of new product development.
- Thinking strategically about new product development.
- Managing product development as a process.
- Organising for product development.
- Evaluating and improving the NPD process and ensuring customer success and retention.

It is delivered through weekly classes that are heavily participative. Each session is built around the case or framework of the week. Teams analyse the case in class, apply the frameworks, report their findings, and the lecturer then debriefs against what the teams found. Short framework input sets up each activity, and classes include structured team activities, with readout teams drawn at random. The examination asks you to apply frameworks to a case you have not seen before. You need to know the frameworks well enough to use them without notes, and we practise applying them in class. The module is deliberately practical and applied: the aim is to equip students for the job market, working with real organisations and applying NPD frameworks to live problems. Teamwork is central, and students form their own teams.

The module is built on real-world case studies. In each case session we work on how an actual organisation developed a product or service: what it did, what worked, and what it should do next. The team project applies the same audit tools to a real company. Your team chooses the company, researches it through published evidence and, where you can arrange it, conversations with people who work there, and makes recommendations its managers could act on. The team project is an audit of a real company's product development.

MODULE-LEVEL LEARNING OUTCOMES

Having completed this module, the student should be able to:

1. Identify and understand the contributors to successful development of new products and services, including market, technology, organisational and regulatory factors, and assess whether a proposed new product/service is likely to succeed.
2. Analyse and make informed choices about how to lead, structure and run the development process, integrating differing functional capabilities (strategy, marketing, design, engineering, operations, finance, human resources) and, where appropriate, digital and AI technologies.
3. Explore, develop and communicate specific, actionable recommendations for managers to improve a product/service development process, including: the proposed action; timescale; owner; resources; impact and knock-on effects on other areas; performance measures; risks and mitigations; and the framework grounding for each recommendation.

4. Work effectively as an individual within a team focused on evaluating the practice and performance (past and future) of a product development process in a real organisation, using structured audit tools and frameworks, and present findings clearly in written and oral form.
5. Understand the roles of entrepreneurs, innovators and change leaders in shaping new product development, including how they create shared value and contribute to wider societal goals (e.g. the UN (United Nations) Sustainable Development Goals).

RELATION TO DEGREE

As an area of managerial responsibility, new product and service development requires the integration of strategy, marketing, design, engineering, operations, accounting and HRM (human resource management) to translate ideas into manufacturable, marketable and environmentally sensitive products. The module sits at the intersection of these perspectives and develops the integrative, analytical and recommendation-focused capabilities expected of a final-year student, connecting to the School's emphasis on sustainability, responsible business and the responsible adoption of technology.

WORKLOAD

Content	***Indicative Number of Hours***
Lecturing and tutorial hours	30
Preparation for lectures	22
Individual assignment	–
Group assignment	25
Reading of assigned materials and active reflection on lecture and course content and linkage to personal experiences	22
Final exam preparation	15
Total	114

TEXTBOOKS AND REQUIRED RESOURCES

Required core course textbooks: There is no single required textbook. Each session has its essential reading (Session 1 has two), listed in the module schedule below, and the case where there is one. The session outline and readings section below lists every essential, optional and post-reading, with links. Readings are drawn mainly from the Library e-journals collection and, occasionally, Blackboard. Case studies are subject to change.

The following abbreviations are used throughout this module:

- CIM: Creativity and Innovation Management, Volume(Issue)
- CMR: California Management Review, Volume(Issue)
- HBR: Harvard Business Review, Volume(Issue)
- JPIM: Journal of Product Innovation Management, Volume(Issue)

General Supplemental Readings

Additional readings and case materials are posted on Blackboard and announced in class.

Student preparation for the module
Case studies and readings marked as pre-reading are prepared ahead of class, because teams work on them in class. Those marked post-reading may be discussed in class and read afterwards. Contribution to team activities, readouts and in-class polling is part of how sessions run.

CLASS PARTICIPATION AND ATTENDANCE

Class participation is key to this module. Classes are interactive and you work in groups. We work through the case of the week together: teams analyse it, apply the frameworks and report back, and we then debrief against what the teams found. Attendance at all classes is mandatory. Come to every class prepared: read the case and the essential reading before the session, because your team works on them in class. Readout teams are drawn at random, so teams need their members in the room and ready to contribute.
The examination asks you to apply the module frameworks to a case you have not seen before. We practise that skill in class, so being in the room each week is good preparation for it.

COURSE COMMUNICATION

Lecture slides and readings, assignment descriptions and announcements will be posted on Blackboard.
Classes will not be recorded and students are expected at class. Any specific recording or alternative-access provision set out in a LENS (Learning Educational Needs Summary) accommodation will be honoured.

Please send all course-related email from your TCD (Trinity College Dublin) email address. We reply to emails sent from TCD addresses.

ASSESSMENT

The assessment for this module is split between a group team project and a closed-book end-of-semester examination. The breakdown is as follows:

- Team Project (group): 40%. A semester-long group report on a real organisation's product and service development, submitted via Turnitin by Thursday 25 March 2027, 23:59 (Irish time).
- End-of-semester examination: 60%. A two-hour closed-book examination (no notes, readings or calculators) based on a case study, held in the Semester 2 assessment session, 19 to 30 April 2027 (College Academic Year Structure 2026/27; the Academic Registry sets the exact date). Question 1 (40 marks) is compulsory; students then answer two of Questions 2 to 5 (30 marks each). Students apply module frameworks and readings to analyse NPD situations and propose well-reasoned, actionable recommendations.

Complete the generative AI declaration on the Trinity Business School cover sheet, and set out your team's use of GenAI (generative artificial intelligence) in the declaration

appendix; a missing or incomplete appendix is reflected in the Substantiation mark (see Academic Integrity and Generative AI below).
Late submission: work submitted after the deadline without an approved extension loses 5% of the awarded mark per day (for example, a mark of 60 becomes 57 after one day), including weekends, for up to five days. Work more than five days late, without an approved extension, a medical certificate or documented extenuating circumstances, may be refused marking. These rules follow the College Late Submission of Assessments (Extensions) Policy (version 1.1, effective 27 May 2026): https://www.tcd.ie/media/tcd/about/policies/pdfs/academic/Late-Submission-of-Assessments-%28Extensions%29-Policy.pdf
Extensions: if you cannot submit on time for a legitimate reason, email the Module Director before the deadline, or as soon as you can if illness prevents this, copying your College tutor, and include supporting documentation such as a medical certificate. If you prefer not to send private documents, your College tutor can confirm to the Module Director that they have seen them. Students whose LENS report includes flexible assessment deadlines receive a one-week extension where practical; where a team member has this accommodation, the whole team receives the extension, and the team is not told the reason. Send any medical certificate to undergraduate.business@tcd.ie no later than one week after the due date (Trinity Business School Undergraduate Programmes Handbook 2026–2027, Coursework).

Students who fail the module will be reassessed in the August reassessment session (week beginning 23 August 2027) through a single 100% examination, in line with the module assessment profile.
Marking: marking is anonymous. The examination marking scheme is set before the examination and agreed with the External Examiner. Your examination mark reflects only what is in your answer book; attendance does not change it. Correct use of any reading listed in this outline earns credit. Rough work clearly crossed out is not marked. Where a question part names a framework, the portion of that part that asks for the framework cannot score above the Third band if the framework is not used. Your College tutor is the academic tutor the College assigns to you; the PhD researchers are your project tutors.
Attendance at all classes, lectures and tutorials, is mandatory, and attendance is recorded at every class. The Trinity Business School Undergraduate Programmes Handbook 2026–2027 (section 4.9) expects students to attend all lectures, tutorials and seminars. A student who misses more than one third of the contact time of a module in a semester without an excusable reason is deemed non-satisfactory, and the Course Director may report them to the Programme Committee. Under the College Calendar 2026-27 (General Regulations and Information, Part II Academic Progress, §§24 and 25), a student who does not meet a module's attendance requirement may be reported as non-satisfactory in their attendance for that term, and the Senior Lecturer may require a student reported as non-satisfactory to repeat the year: https://www.tcd.ie/media/tcd/calendar/undergraduate-studies/general-regulations-and-information.pdf
If you miss a class, email the Module Director from your TCD address, copying your College tutor. If you are ill, see your doctor and ask for a medical certificate for the

period; your College tutor copies it to the School (College Calendar 2026-27, Part II, §23).

ACADEMIC INTEGRITY AND GENERATIVE AI

All submitted work follows the College's academic integrity regulations (College Calendar 2026-27, General Regulations and Information, Part II Academic Progress, §§96 to 98). Before you submit, complete the Library's Ready Steady Write tutorial: https://libguides.tcd.ie/academic-integrity/ready-steady-write

The team project is group work done with the Module Director's permission. Every member of the team is responsible, so far as is possible, for making sure that nothing in the team's report is plagiarised. Reports are submitted through Turnitin.

Generative AI is permitted in the team project, in line with College policy. Your team declares its use in the declaration appendix: every tool used, what it was used for, and how the team checked and supplemented the output. Where GenAI output is used in the report, acknowledge and cite it following the Library guide: https://libguides.tcd.ie/gen-ai

The College Statement on Artificial Intelligence and Generative AI (version 2, June 2026): https://www.tcd.ie/media/tcd/academic-affairs/pdfs/College_Statement_on_GenAI_v2_2026.pdf

RESPECT FOR STAFF AND STUDENTS

The College Calendar asks all members of the University “to work to develop and maintain a high degree of respect and civility in our diverse community and to participate in creating a positive environment” (College Calendar 2026-27, General Regulations and Information, Part XIII Dignity and Respect). This applies to how we deal with each other in class, in tutorials and by email.

Intimidation, harassment or bullying of staff or students is a disciplinary offence under the College's conduct regulations (Part III Conduct and College Regulations, §1(e)), and unreasonably impeding members of the College in carrying out their duties is listed as a major offence (Part III, §4(c)). The College Dignity and Respect Policy: https://www.tcd.ie/media/tcd/about/policies/pdfs/hr/dignity-and-respect.pdf

KEY DATES AND RULES

Teams: you form your own team of three or four in Session 2, Wednesday 27 January 2027. Every student joins a team in that session. A student who misses Session 2 is placed in a team by one of the PhD researchers. A team of five can be formed at the discretion of the Module Director. If a team falls below three members, the PhD researchers rebalance or merge teams. All teams are marked in exactly the same way, with no allowance in grading for team size. Each team chooses its own company, and each company can be used by one team only. Where two teams want the same company, it goes to the first team that submits a complete team list and a complete proposal for it. A proposal is complete when every member is named with their student number and every section of the proposal template is filled in. The Blackboard submission time decides which team was first.

Proposal: each team writes its project proposal in Session 2. At the start of the session the PhD (doctoral) researchers explain what they expect in the proposal and the project. Each team submits its team list and proposal on Blackboard by the end of the class, 11:00 on Wednesday 27 January 2027. In the proposal, declare any employment or family link between a team member and the company.
Company contacts: treat anything company staff tell you as confidential, and ask before quoting anyone by name in the report.
Team project report: due Thursday 25 March 2027, 23:59 (Irish time), via Turnitin. One upload per team. 3,500 words maximum for the main body. Text beyond 3,500 words in the main body is not read or marked.
Recommendations: we use an 8-element recommendation template in class and in the project's plan of action: action; timescale; owner; resources; impact and knock-on effects; measures; risks and mitigations; framework grounding. In the examination, each question states what it asks for.
Project marking (100 marks): understanding 15; substantiation 20; insight 20; clarity 10 (written report 5, presentation 5); NPD audit 10; SWOT (strengths, weaknesses, opportunities and threats) analysis 5; 3 to 5 year NPD roadmap 5; €100 million R&D (research and development) investment allocation 5; plan of action 5; conclusions 5. The full rubric is in the project brief on Blackboard.
Contribution: each team member signs a contribution statement in the project appendix. Where the statements show that a member did not contribute, the Module Director may adjust that student's mark. Before any adjustment, the student is told in writing and has five working days to respond. The Module Director decides with one of the PhD researchers and records the reasons.
Presentation: every team presents its findings to the project tutors in its final tutorial, in the week beginning 22 March 2027, before the report deadline: 5 minutes, then questions. The presentation carries 5 of the 10 Clarity marks of the project; the written report carries the other 5. Every team member attends. A member who cannot attend for an excusable reason follows the missed-class route, and the team presents without them.
Tutorials: one hour a week, from teaching week 3 (week beginning 1 February 2027) to the project submission week (week beginning 22 March 2027, before the Thursday deadline), with no tutorial in study/review week (1 to 5 March). That is seven tutorials. You will be assigned a slot. The PhD (doctoral) researchers are your project tutors: they run the tutorials and support teams by TCD email. If your slot falls on a public holiday (Monday 1 February or Wednesday 17 March 2027), the PhD researchers will arrange an alternative. Attendance at your tutorial is mandatory.
Examination: closed book, two hours, no notes, readings or calculators. Question 1 (40 marks) is compulsory, then two of Questions 2 to 5 (30 marks each).
Exam questions: we take your questions about the exam in class in Session 12, Wednesday 7 April 2027.

MODULE SCHEDULE

Sessions run on Wednesdays, 09:00 to 11:00, beginning 20 January 2027. Wednesday 17 March 2027 is a public holiday, so the Session 9 slot is TBD (to be decided) and will be confirmed on Blackboard. The sequence below is indicative and may change at the

discretion of the Module Director. Any change is announced on Blackboard with the reason. Blackboard has the confirmed schedule.

Hilary Term			
Session	**Date**	**Topic**	**Lecture & readings**
1	Wed 20 Jan 2027	NPD and Artificial Intelligence: the imperative and scope of NPD; NPD as a complex adaptive system; AI across the lifecycle and its risks	Essential: McCarthy et al. (2006) JPIM 23(5). Essential: Dell'Acqua et al. (2026) Organization Science 37(4). Case: Pfizer PACT (AWS, Amazon Web Services).
2	Wed 27 Jan 2027	Project-focused session, led by the PhD researchers while the Module Director is away: applying NPD audit tools to the team project	Essential: Chiesa, Coughlan & Voss (1996) JPIM 13(2).
3	Wed 3 Feb 2027	Pfizer/BioNTech COVID-19 vaccine: strategic innovation, shared value and best-practice clinic	Case: COVID-19 vaccine development. Essential: Porter & Kramer (2011) HBR 89(1/2); Markopoulos & Gann (2021).
4	Wed 10 Feb 2027	BPE Coatings: auditing practice and performance with a shared value lens	Case: BPE Coatings. Essential: the BPE Coatings case.
5	Wed 17 Feb 2027	Thinking strategically: product families, platforms and the product innovation charter	Case: Raspberry Pi. Essential: Crawford (1980) Sloan Management Review 22(1).
6	Wed 24 Feb 2027	Managing product development as a process: Stage-Gate and variants; the five process models; post-project reviews	Essential: Cooper (2008) JPIM 25(3).
Session 7, Wed 3 Mar 2027: study/review week, no class			
8	Wed 10 Mar 2027	Design-driven innovation at Adnams Southwold: product meaning, environmental impact and sustainability	Case: Adnams Southwold (A). Essential: Verganti (2008) JPIM 25(5).
9	Slot TBD (Wed 17 Mar 2027 is a public holiday)	Organising for innovation: the congruence model, cross-functional teams and leadership	Essential: Tushman & Nadler (1986) CMR 28(3).
10	Wed 24 Mar 2027	Design thinking in humanitarian innovation: MSF Cholera Bed (team project report due Thu 25 Mar, 23:59)	Case: MSF Cholera Bed (A). Essential: Carlgren, Rauth & Elmquist (2016) CIM 25(1).
11	Wed 31 Mar 2027	Knowledge, learning and NPD capability: learning from the	Case: RNLI. Essential: Koners & Goffin (2007) JPIM 24(3).

		first of a product family (RNLI Shannon class)	
12	Wed 7 Apr 2027	Review, evaluation and assessment preparation: measuring NPD performance	Essential: Bart & Pujari (2007) JPIM 24(1).

SESSION OUTLINE AND READINGS

Each session lists the case, the essential reading, optional readings and any post-reading. Optional readings deepen the session and strengthen the team project. Cases are on Blackboard. Journal articles and books are available through the Library.

Session 1, Wednesday 20 January 2027: NPD and artificial intelligence
In class we work in groups on the Pfizer PACT case and on the evidence from the Dell'Acqua et al. (2026) field experiment at P&G (Procter & Gamble). The session draws on peer-reviewed evidence on AI (artificial intelligence) in product innovation.
Case: Pfizer PACT case study (AWS), open access. Link: https://aws.amazon.com/solutions/case-studies/pfizer-PACT-case-study/
Essential reading: McCarthy, I.P., Tsinopoulos, C., Allen, P. and Rose-Anderssen, C. (2006) 'New product development as a complex adaptive system of decisions', Journal of Product Innovation Management, 23(5), pp. 437–456. Link: https://doi.org/10.1111/j.1540-5885.2006.00215.x
Essential reading: Dell'Acqua, F., Ayoubi, C., Lifshitz, H., Sadun, R., Mollick, E., Mollick, L., Han, Y., Goldman, J., Nair, H., Taub, S. and Lakhani, K.R. (2026) 'The cybernetic teammate: a field experiment on generative AI and teamwork', Organization Science, 37(4), pp. 1217–1242. Link: https://doi.org/10.1287/orsc.2025.20702
Optional reading:

- Mariani, M. and Dwivedi, Y.K. (2024) 'Generative artificial intelligence in innovation management: a preview of future research developments', Journal of Business Research, 175, 114542. Link: https://doi.org/10.1016/j.jbusres.2024.114542
- Babina, T., Fedyk, A., He, A. and Hodson, J. (2024) 'Artificial intelligence, firm growth, and product innovation', Journal of Financial Economics, 151, 103745. Link: https://doi.org/10.1016/j.jfineco.2023.103745
- Czarnitzki, D., Fernández, G.P. and Rammer, C. (2023) 'Artificial intelligence and firm-level productivity', Journal of Economic Behavior & Organization, 211, pp. 188–205. Link: https://doi.org/10.1016/j.jebo.2023.05.008
- Park, G., Kang, S., Yi, S. and Kim, J. (2026) 'Diverse impacts of AI investments on productivity gains: effects of industry and innovation characteristics', Technological Forecasting and Social Change, 224, 124471. Link: https://doi.org/10.1016/j.techfore.2025.124471
- Calvino, F. and Fontanelli, L. (2026) 'AI users are not all alike: the characteristics of French firms buying and developing AI', Research Policy, 55(5), 105473. Link: https://doi.org/10.1016/j.respol.2026.105473
- Oduro, S., De Nisco, A. and Mainolfi, G. (2023) 'Do digital technologies pay off? A meta-analytic review of the digital technologies/firm performance nexus',

Technovation, 128, 102836. Link: https://doi.org/10.1016/j.technovation.2023.102836

- Kazakis, P. (2026) 'Conditional gains: when AI investment enhances firm efficiency', Scottish Journal of Political Economy, 73(4), e70055. Link: https://doi.org/10.1111/sjpe.70055
- Jobin, A., Ienca, M. and Vayena, E. (2019) 'The global landscape of AI ethics guidelines', Nature Machine Intelligence, 1(9), pp. 389–399. Link: https://doi.org/10.1038/s42256-019-0088-2
- Wetzels, M. (2021) 'The road ahead is digital for innovation management and there is no way back', Journal of Product Innovation Management, 38(2), pp. 245–247. Link: https://doi.org/10.1111/jpim.12571
- Ferdows, K. and De Meyer, A. (1990) 'Lasting improvements in manufacturing performance: in search of a new theory', Journal of Operations Management, 9(2), pp. 168–184. Link: https://doi.org/10.1016/0272-6963(90)90094-T

Post-reading:

- Gama, F. and Magistretti, S. (2025) 'Artificial intelligence in innovation management: a review of innovation capabilities and a taxonomy of AI applications', Journal of Product Innovation Management, 42(1), pp. 76–111. Link: https://doi.org/10.1111/jpim.12698
- Boussioux, L., Lane, J.N., Zhang, M., Jacimovic, V. and Lakhani, K.R. (2024) 'The crowdless future? Generative AI and creative problem-solving', Organization Science, 35(5), pp. 1589–1607. Link: https://doi.org/10.1287/orsc.2023.18430

Session 2, Wednesday 27 January 2027: project session, applying NPD audit tools to the team project

This session is led by the module's PhD researchers. The PhD researchers explain what they expect in the proposal and the project, and set out the audit tools. Every student joins a team of three or four. A student who misses the session is placed in a team by one of the PhD researchers. Each team chooses its company and writes its proposal in class. Each team submits its team list and proposal on Blackboard by 11:00. The audit uses the nine process areas of Coughlan's development process framework, set out in the project brief: product/service development, teamworking and organisation, process development, market focus and transfer (core processes); systems and tools, resources and leadership (enablers); and performance (outcome).

Essential reading: Chiesa, V., Coughlan, P. and Voss, C.A. (1996) 'Development of a technical innovation audit', Journal of Product Innovation Management, 13(2), pp. 105–136. Link: https://doi.org/10.1111/1540-5885.1320105

Optional reading:

- Koners, U. and Goffin, K. (2007) 'Learning from postproject reviews: a cross-case analysis', Journal of Product Innovation Management, 24(3), pp. 242–258. Link: https://doi.org/10.1111/j.1540-5885.2007.00248.x
- Coughlan, P. (2002) 'Combining tools to audit the management of the product development process', paper presented at the 9th International Product Development Management Conference, Sophia Antipolis, France, 27-28 May 2002. On Blackboard.

- Coughlan, P. and Brady, E. (1995) 'Self-assessment and benchmarking product development in five Irish firms', Journal of Managerial Psychology, 10(6), pp. 41–47. Link: https://doi.org/10.1108/02683949510093876
- Voss, C.A., Coughlan, P.D. and Chiesa, V. (1993) Innovation - your move. Department of Trade and Industry, UK. Extract (the innovation scorecards and innovation profile), on Blackboard. Citation as given in Coughlan (2002).
- Innovation profile template (Word), for recording your scorecard results. On Blackboard.
- Knudsen, M.P., von Zedtwitz, M., Griffin, A. and Barczak, G. (2023) 'Best practices in new product development and innovation: results from PDMA's 2021 global survey', Journal of Product Innovation Management, 40(3), pp. 257–275. Link: https://doi.org/10.1111/jpim.12663

Session 3, Wednesday 3 February 2027: Pfizer/BioNTech, strategic innovation, shared value and best-practice clinic

Weekly tutorials start this week. You will be assigned a slot.

Case: COVID-19 Vaccine Development: Safe and Timely Delivery (Coughlan, 2025), on Blackboard.

Essential reading: Porter, M.E. and Kramer, M.R. (2011) 'Creating shared value', Harvard Business Review, 89(1/2), pp. 62–77. Link: https://hbr.org/2011/01/the-big-idea-creating-shared-value

- **Essential reading:** Markopoulos, E. and Gann, E.L. (2021) 'Bilateral knowledge-sharing for new product development under the UN Sustainable Development Goals', in Advances in Creativity, Innovation, Entrepreneurship and Communication of Design. AHFE 2021. Lecture Notes in Networks and Systems, 276. Cham: Springer, pp. 85–93. Link: https://doi.org/10.1007/978-3-030-80094-9_11

Optional reading:

- Barney, J.B. (1991) 'Firm resources and sustained competitive advantage', Journal of Management, 17(1), pp. 99–120. Link: https://doi.org/10.1177/014920639101700108
- Barney, J.B. (1995) 'Looking inside for competitive advantage', Academy of Management Executive, 9(4), pp. 49–61. Barney (1991) sets out valuable, rare, inimitable and non-substitutable resources; Barney (1995) adds organisation, giving VRIO. Link: https://doi.org/10.5465/ame.1995.9512032192
- Ansoff, H.I. (1957) 'Strategies for diversification', Harvard Business Review, 35(5), pp. 113–124. Available via the Trinity Library (Harvard Business Review archive).
- Bourla, A. (2022) Moonshot: Inside Pfizer's Nine-Month Race to Make the Impossible Possible. New York: Harper Business. Available via the Trinity Library catalogue.
- Bown, C.P. and Bollyky, T.J. (2022) 'How COVID-19 vaccine supply chains emerged in the midst of a pandemic', The World Economy, 45(2), pp. 468–522. Link: https://doi.org/10.1111/twec.13183
- Novartis (2021) 'Novartis signs new initial agreement with BioNTech to support fill and finish of the mRNA Pfizer-BioNTech COVID-19 vaccine', Novartis media release, 21 October. Link:

https://www.novartis.com/news/media-releases/novartis-signs-new-initial-agreement-biontech-support-fill-and-finish-mrna-pfizer-biontech-covid-19-vaccine

Questions to prepare:

- Bourla (2022) describes discovering the vaccine in record time as the first miracle, and manufacturing and distributing it at scale as the second. Briefly describe and critically evaluate the product and process development decisions Pfizer made in developing, manufacturing and distributing the vaccine.
- As Pfizer CEO (chief executive officer), Albert Bourla, what improvements to the Pfizer/BioNTech vaccine development process would you bring to a post-project review, given ongoing demand for vaccines? Be specific: priorities, resources, partnerships, regulatory strategy and the use of AI and data.

Session 4, Wednesday 10 February 2027: BPE Coatings, auditing practice and performance with a shared value lens

Case: BPE Coatings, on Blackboard. The case is the essential reading.

Optional reading:

- Porter, M.E. and Kramer, M.R. (2011) 'Creating shared value', Harvard Business Review, 89(1/2), pp. 62–77. Link: https://hbr.org/2011/01/the-big-idea-creating-shared-value
- Markopoulos, E. and Gann, E.L. (2021) 'Bilateral knowledge-sharing for new product development under the UN Sustainable Development Goals', in Advances in Creativity, Innovation, Entrepreneurship and Communication of Design. AHFE 2021. Lecture Notes in Networks and Systems, 276. Cham: Springer, pp. 85–93. Link: https://doi.org/10.1007/978-3-030-80094-9_11

Questions to prepare:

- Briefly describe and critically evaluate the product development profile that has yielded a stream of new products at BPE Coatings.
- How might BPE Coatings manage its product development process so that the right decisions are made on an ongoing basis?
- What actions should Lucy Power and her team take to improve the product development process at BPE?

Session 5, Wednesday 17 February 2027: thinking strategically, product families, platforms and the product innovation charter

Case: Raspberry Pi, on Blackboard.

Essential reading: Crawford, C.M. (1980) 'Defining the charter for product innovation', Sloan Management Review, 22(1). Available via the Trinity Library (Sloan Management Review archive). Link: https://www.proquest.com/docview/1302983977

Optional reading:

- Nyström, H. (1985) 'Product development strategy: an integration of technology and marketing', Journal of Product Innovation Management, 2(1), pp. 25–33. Link: https://doi.org/10.1111/1540-5885.210025
- Meyer, M.H. and Utterback, J.M. (1993) 'The product family and the dynamics of core capability', Sloan Management Review, 34(3), pp. 29–47. Link: https://sloanreview.mit.edu/article/the-product-family-and-the-dynamics-of-core-capability/

- Verganti, R. (1999) 'Planned flexibility: linking anticipation and reaction in product development projects', Journal of Product Innovation Management, 16(4), pp. 363–376. Link: https://doi.org/10.1111/1540-5885.1640363
- Slack, N. and Lewis, M. (2017) Operations Strategy. 5th edn. Harlow: Pearson. Chapters 7 and 8. Available via the Trinity Library catalogue.
- Chesbrough, H.W. (2003) Open Innovation: The New Imperative for Creating and Profiting from Technology. Boston: Harvard Business School Press. Available via the Trinity Library catalogue.
- Cooper, R.G. and Kleinschmidt, E.J. (1995) 'Benchmarking the firm's critical success factors in new product development', Journal of Product Innovation Management, 12(5), pp. 374–391. Link: https://doi.org/10.1111/1540-5885.1250374
- Crawford, C.M. and Di Benedetto, C.A. (2011) New Products Management. 10th edn. New York: McGraw-Hill. Available via the Trinity Library catalogue.
- Nijssen, E.J. and van Bommel, T. (2024) 'How marketers influence product platform decisions: a configurational approach', Journal of Product Innovation Management, 41(3), pp. 600–622. Link: https://doi.org/10.1111/jpim.12723

Questions to prepare:

- Using Nyström's framework (technology strategy, marketing strategy, and product and process design), is Raspberry Pi's product development strategy open or closed, and what evidence supports your view?
- Does Raspberry Pi pursue open or closed innovation? What does this reveal about its strategic choices?
- How well does Meyer and Utterback's product family and platform framework explain Raspberry Pi's approach to product development?
- How do Raspberry Pi's operations choices, including the Sony manufacturing partnership, support its innovation strategy?
- What should Alex Spriet recommend to strengthen Raspberry Pi's strategic fit?

Session 6, Wednesday 24 February 2027: managing product development as a process

Essential reading: Cooper, R.G. (2008) 'Perspective: the Stage-Gate idea-to-launch process: update, what's new, and NexGen systems', Journal of Product Innovation Management, 25(3), pp. 213–232. Link: https://doi.org/10.1111/j.1540-5885.2008.00296.x

Optional reading:

- Koners, U. and Goffin, K. (2007) 'Learning from postproject reviews: a cross-case analysis', Journal of Product Innovation Management, 24(3), pp. 242–258. Link: https://doi.org/10.1111/j.1540-5885.2007.00248.x
- Zhang, H., Ma, Z., Liang, X. and Garrett, T.C. (2024) 'Antecedents and outcomes of open innovation over the past 20 years: a framework and meta-analysis', Journal of Product Innovation Management, 41(4), pp. 793–815. Link: https://doi.org/10.1111/jpim.12710
- Gehani, R.R. (1992) 'Concurrent product development for fast-track corporations', Long Range Planning, 25(6), pp. 40–47. Link: https://doi.org/10.1016/0024-6301(92)90168-2

- Saren, M.A. (1984) 'A classification and review of models of the intra-firm innovation process', R&D Management, 14(1), pp. 11–24. This is the source of the five process models. Link: https://doi.org/10.1111/j.1467-9310.1984.tb00504.x
- Coughlan, P. and Graham, A. (2009) 'Embedding a threshold concept in teaching and learning of product development management', Creativity and Innovation Management, 18(3), pp. 190–198. Link: https://doi.org/10.1111/j.1467-8691.2009.00524.x

Post-reading:

- Cooper, R.G. and Sommer, A.F. (2016) 'The Agile–Stage-Gate hybrid model: a promising new approach and a new research opportunity', Journal of Product Innovation Management, 33(5), pp. 513–526. Link: https://doi.org/10.1111/jpim.12314
- Grönlund, J., Sjödin, D.R. and Frishammar, J. (2010) 'Open innovation and the Stage-Gate process: a revised model for new product development', California Management Review, 52(3), pp. 106–131. Link: https://doi.org/10.1525/cmr.2010.52.3.106

Session 7, Wednesday 3 March 2027: study/review week, no class

Session 8, Wednesday 10 March 2027: design-driven innovation at Adnams Southwold

Case: Adnams Southwold (A), on Blackboard.

Essential reading: Verganti, R. (2008) 'Design, meanings, and radical innovation: a metamodel and a research agenda', Journal of Product Innovation Management, 25(5), pp. 436–456. Link: https://doi.org/10.1111/j.1540-5885.2008.00313.x

Optional reading:

- Saeed, S. and Dangelico, R.M. (2026) 'Success factors for environmentally sustainable product innovation: a meta-analysis', Journal of Product Innovation Management, 43(3), pp. 539–570. Link: https://doi.org/10.1111/jpim.70021
- Lawson, B., Krause, D. and Potter, A. (2015) 'Improving supplier new product development performance: the role of supplier development', Journal of Product Innovation Management, 32(5), pp. 777–792. Link: https://doi.org/10.1111/jpim.12231
- Carlgren, L., Rauth, I. and Elmquist, M. (2016) 'Framing design thinking: the concept in idea and enactment', Creativity and Innovation Management, 25(1), pp. 38–57. Also the Session 10 essential reading; used in the Session 8 jigsaw. Link: https://doi.org/10.1111/caim.12153
- Srinivasan, R., Lilien, G.L., Rangaswamy, A., Pingitore, G.M. and Seldin, D. (2012) 'The total product design concept and an application to the auto market', Journal of Product Innovation Management, 29(S1), pp. 3–20. Link: https://doi.org/10.1111/j.1540-5885.2012.00958.x

Questions to prepare:

- Briefly describe and critically evaluate the product development process at Adnams.

- Innovation of meaning is a major driver of value in many industries. Briefly describe and critically evaluate how Adnams is trying to change the meaning of a beer.
- What actions, if any, should Richard Carter lead at Adnams to seek further carbon savings through a lighter embossed bottle for the premium packaged beer sector? Be specific and defend your recommendations.

Session 9, slot TBD: organising for innovation
Wednesday 17 March 2027 is a public holiday. The new slot will be confirmed on Blackboard.
Essential reading: Tushman, M.L. and Nadler, D.A. (1986) 'Organizing for innovation', California Management Review, 28(3), pp. 74–92. Link: https://doi.org/10.2307/41165203
Optional reading:

- Donnellon, A. (1993) 'Crossfunctional teams in product development: accommodating the structure to the process', Journal of Product Innovation Management, 10(5), pp. 377–392. Link: https://doi.org/10.1111/1540-5885.1050377
- Frischer, J. (1993) 'Empowering management in new product development units', Journal of Product Innovation Management, 10(5), pp. 393–402. Link: https://doi.org/10.1111/1540-5885.1050393
- Edmondson, A.C. and Nembhard, I.M. (2009) 'Product development and learning in project teams: the challenges are the benefits', Journal of Product Innovation Management, 26(2), pp. 123–138. Link: https://doi.org/10.1111/j.1540-5885.2009.00341.x
- Byron, K., Keem, S., Darden, T., Shalley, C.E. and Zhou, J. (2023) 'Building blocks of idea generation and implementation in teams: a meta-analysis of team design and team creativity and innovation', Personnel Psychology, 76(1), pp. 249–278. Link: https://doi.org/10.1111/peps.12501
- Coutifaris, C.G.V. and Grant, A.M. (2022) 'Taking your team behind the curtain: the effects of leader feedback-sharing and feedback-seeking on team psychological safety', Organization Science, 33(4), pp. 1574–1598. Link: https://doi.org/10.1287/orsc.2021.1498
- Norrgren, F. and Schaller, J. (1999) 'Leadership style: its impact on cross-functional product development', Journal of Product Innovation Management, 16(4), pp. 377–384. Link: https://doi.org/10.1111/1540-5885.1640377
- Chong, D.S.F., van Eerde, W., Rutte, C.G. and Chai, K.H. (2012) 'Bringing employees closer: the effect of proximity on communication when teams function under time pressure', Journal of Product Innovation Management, 29(2), pp. 205–215. Link: https://doi.org/10.1111/j.1540-5885.2011.00890.x
- Wheelwright, S.C. and Clark, K.B. (1992) Revolutionizing Product Development. New York: Free Press. Available via the Trinity Library catalogue.
- Larson, E.W. and Gobeli, D.H. (1988) 'Organizing for product development projects', Journal of Product Innovation Management, 5(3), pp. 180–190. The balanced matrix form. Link: https://doi.org/10.1111/1540-5885.530180

- Fujimoto, T. (1991) 'Product integrity and the role of designer-as-integrator', Design Management Journal, 2(2), pp. 29–34. Link: https://doi.org/10.1111/j.1948-7169.1991.tb00072.x
- Tripsas, M. and Gavetti, G. (2000) 'Capabilities, cognition, and inertia: evidence from digital imaging', Strategic Management Journal, 21(10–11), pp. 1147–1161. The Polaroid example. Link: https://doi.org/10.1002/1097-0266(200010/11)21:10/11<1147::AID-SMJ128>3.0.CO;2-R

Session 10, Wednesday 24 March 2027: design thinking in humanitarian innovation, MSF Cholera Bed

Team project report due Thursday 25 March 2027, 23:59 (Irish time), via Turnitin.
Case: MSF Cholera Bed (A), on Blackboard.
Essential reading: Carlgren, L., Rauth, I. and Elmquist, M. (2016) 'Framing design thinking: the concept in idea and enactment', Creativity and Innovation Management, 25(1), pp. 38–57. Link: https://doi.org/10.1111/caim.12153
Post-reading:

- Carlgren, L., Elmquist, M. and Rauth, I. (2016) 'The challenges of using design thinking in industry: experiences from five large firms', Creativity and Innovation Management, 25(3), pp. 344–362. Link: https://doi.org/10.1111/caim.12176
- Schweitzer, F., Rau, C., Gassmann, O. and van den Hende, E. (2015) 'Technologically reflective individuals as enablers of social innovation', Journal of Product Innovation Management, 32(6), pp. 847–860. Link: https://doi.org/10.1111/jpim.12269
- Kelley, T. and Kelley, D. (2012) 'Reclaim your creative confidence', Harvard Business Review, 90(12). Available via the Trinity Library (Harvard Business Review archive). Link: https://hbr.org/2012/12/reclaim-your-creative-confidence
- Vassallo, J.P., Banerjee, S., Zaman, H. and Prabhu, J.C. (2023) 'Design thinking and public sector innovation: the divergent effects of risk-taking, cognitive empathy and emotional empathy on individual performance', Research Policy, 52(6), 104768. Link: https://doi.org/10.1016/j.respol.2023.104768
- Cozzolino, A., Rossi, S. and Conforti, A. (2012) 'Agile and lean principles in the humanitarian supply chain', Journal of Humanitarian Logistics and Supply Chain Management, 2(1), pp. 16–33. Link: https://doi.org/10.1108/20426741211225984

Questions to prepare:

- How does MSF innovate in a humanitarian relief context?
- What is the new product development opportunity for the cholera bed, and how does it fit this context?
- How difficult might it be for Monique to get anything done other than managing for today?
- What actions should Monique take to progress her proposed design?

Session 11, Wednesday 31 March 2027: knowledge, learning and NPD capability, the RNLI Shannon class

Case: Royal National Lifeboat Institution, on Blackboard.
Essential reading: Koners, U. and Goffin, K. (2007) 'Learning from postproject reviews: a cross-case analysis', Journal of Product Innovation Management, 24(3), pp. 242–258. Link: https://doi.org/10.1111/j.1540-5885.2007.00248.x

Optional reading:

- Edmondson, A.C. and Nembhard, I.M. (2009) 'Product development and learning in project teams: the challenges are the benefits', Journal of Product Innovation Management, 26(2), pp. 123–138. Link: https://doi.org/10.1111/j.1540-5885.2009.00341.x
- Tao, X., Robson, P.J.A. and Wang, C.L. (2023) 'To learn or not to learn from new product development project failure: the roles of failure experience and error orientation', Technovation, 127, 102830. Link: https://doi.org/10.1016/j.technovation.2023.102830

Post-reading:

- Cirella, S., Canterino, F., Guerci, M. and Shani, A.B. (2016) 'Organizational learning mechanisms and creative climate: insights from an Italian fashion design company', Creativity and Innovation Management, 25(2), pp. 211–222. Link: https://doi.org/10.1111/caim.12161

Questions to prepare:

- What would you consider when designing an all-weather lifeboat (ALB)?
- Describe the Shannon class. What changes does it bring to the ALB fleet?
- What is the significance of the resin impregnation issue?
- How would you advise Dan Sharp in relation to the resin impregnation issue?
- How might Dan and his team prevent further issues arising?

Session 12, Wednesday 7 April 2027: review, evaluation and assessment preparation

We take your questions about the exam in class.

Essential reading: Bart, C. and Pujari, A. (2007) 'The performance impact of content and process in product innovation charters', Journal of Product Innovation Management, 24(1), pp. 3–19. Link: https://doi.org/10.1111/j.1540-5885.2006.00229.x

Optional reading:

- Cooper, R.G. (1984) 'The strategy-performance link in product innovation', R&D Management, 14(4), pp. 247–259. Link: https://doi.org/10.1111/j.1467-9310.1984.tb00521.x
- Crawford, C.M. (1986) 'Evaluating new products: a system, not an act', Business Horizons, 29(6), pp. 48–55. Link: https://doi.org/10.1016/0007-6813(86)90037-6
- Manion, M.T. and Cherion, J. (2009) 'Impact of strategic type on success measures for product development projects', Journal of Product Innovation Management, 26(1), pp. 71–85. Link: https://doi.org/10.1111/j.1540-5885.2009.00335.x
- Calik, E. (2024) 'A validated measurement scale for sustainable product innovation performance', Technovation, 129, 102882. Link: https://doi.org/10.1016/j.technovation.2023.102882
- Patterson, D. et al. (2022) 'The carbon footprint of machine learning training will plateau, then shrink', Computer, 55(7), pp. 18–28. Link: https://doi.org/10.1109/MC.2022.3148714

BIOGRAPHICAL NOTE:

Veronica Rahneberg is a technology executive with 30 years at the commercial end of enterprise technology. In February 2026 she founded Innovera, an AI governance and commercial strategy advisory. She has been Module Director for New Product

Development at Trinity Business School since January 2026 and an Adjunct Teaching Fellow since October 2021, where she also tutors on the Executive MBA (Master of Business Administration). She was a Partner at EY Ireland, leading technology consulting and managed services, and Sales and Marketing Director at Fujitsu Ireland, working with clients including CRH, Revenue, An Garda Síochána, ESB Networks and the Department of Defence. She is a Past President of the Institute of Management Consultants Ireland.

In 2026 she was appointed to the Audit and Evaluation Committee of the Department of Foreign Affairs (May 2026) and the Governing Body of the Technological University of the Shannon (July 2026). She completed the Deloitte Board Ready Programme with the 30% Club and is a Council Member of the 30% Club Technology Steering Group. As lead faculty and curriculum assurer on the Corporate Governance Institute's Diploma in AI Governance, she has briefed 511 directors across four continents and delivered AI governance sessions for the boards of Greek state-owned enterprises. She was shortlisted for Role Model of the Year at the Business Post Women in STEM (science, technology, engineering and mathematics) Awards 2026, and in September 2026 she began a DBA (Doctorate in Business Administration) in Artificial Intelligence at the Kemmy Business School, University of Limerick.

She holds a First Class Honours Executive MBA from Trinity, a Postgraduate Diploma in Technology Commercialisation from the University of Galway, a BSc (Bachelor of Science) in Computer Applications from DCU (Dublin City University), and the HEA (Higher Education Authority) GenAI for Teaching and Learning Digital Badge.