NPI Terminology

Note: The business and consultation worlds do not use standard terminology in the field of projects and New Product Introduction. The terminology listed in this document describes how the terms are interpreted and used in the IF material. Alternative terminology e.g. from sources such PRINCE2, has been included so people can relate the model used here to their own situation as easily as possible.

Term	Explanation in NPI context
Acceptance criteria or requirements	The agreed standard that a deliverable must meet in order to be acceptable to the customer or receiver of the deliverable. From PRINCE 2: The projects acceptance criteria form a list of measurable definitions of the attributes required for a set of products to be acceptable to key stakeholders.
APQP	Advanced Product quality Planning. The purpose of APQP is "to produce a product quality plan which will support development of a product or service that will satisfy the customer." (AIAG)
Benefits	A measurable improvement that results from the change made by the project and is perceived as an advantage by the stakeholders.
Business case	The justification for the project to go ahead project. From PRINCE 2: The business case presents the optimum mix of information used to judge whether the project is, and remains, desirable, viable and achievable, and therefore worthwhile investing in.
Business Impact Analysis	A business impact analysis (BIA) predicts the consequences of disruption of a business function and process and gathers information needed to develop recovery strategies. Potential loss scenarios should be identified during a risk assessment. Operations may also be interrupted by the failure of a supplier of goods or services or delayed deliveries. There are many possible scenarios which should be considered. Identifying and evaluating the impact of disasters on business provides the basis for investment in recovery strategies as well as investment in prevention and mitigation strategies.
Business strategy	The means by which a business sets out to achieve its desired ends (objectives). It can simply be described as long-term business planning.
CAPEX – capital expenditure	Funds used by a company to acquire or upgrade physical assets such as property, industrial buildings or equipment. This type of outlay is made by companies to maintain or increase the scope of their operations. These expenditures can include everything from repairing a roof to building a brand new factory.
Change Management	(1) On the people side. An approach to transitioning individuals, teams, and organisations to a desired future state. (2) On the technical side. A project management process where changes to the scope of a project are formally introduced and approved.
Characteristics matrix	An analytical technique for displaying the relationship between process parameters and manufacturing stations.
Concurrent engineering	A process where cross functional teams strive for a common goal. Key tasks overlap, not waiting for perfect information before moving forward. It replaces the sequential series of phases where results are transmitted to the next area for execution. The purpose is to expedite the introduction of quality products sooner. In NPI terms

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	concurrent engineering means developing the product and all of its associated processes (manufacturing, service, distribution etc.) at the same time. The proper functions work on the development project at the proper time. Also known as simultaneous engineering.
Control plans	Written descriptions of the systems for controlling parts and processes. Separate control plans cover three distinct phases: • Prototype – a description of the dimensional measurements and material and performance tests that will occur during prototype build. • Pre-launch – a description of the dimensional measurements and material and performance tests that will occur after prototype and before full production • Production – a comprehensive documentation of product / process characteristics, process controls, tests and measurement systems that will occur during mass production.
Critical characteristics (CC)	Product characteristics that may affect the: • Safety of product or operator • Compliance with legal requirements • Environmental requirements They are designated in the DFMEA or PFMEA, having a causal relationship to the effect of potential failure modes rated 9-10 for severity
Cross-functional	Denoting or relating to a system whereby people from different areas of an organisation work together as a team.
Deliverable	The result of a task undertaken during the project stages. Judged against acceptance criteria.
Design feasibility	A consensus on whether the design can be manufactured assembled, tested and packaged and delivered in sufficient quantity on schedule at an acceptable cost to the customer. Requires documenting along with all issues requiring resolution. (APQP Design Information Checklist can be used to aid team review.)
Design for manufacturability and assembly	A simultaneous engineering process designed to optimise the relationship between design function, manufacturability and ease of assembly.
Design goals	The translation of the Voice of the Customer into measurable design objectives
Design of Experiments (DOE)	The name given to the mathematical techniques used to set up and analyse combinations of factors to find the optimum set.
Design review or design verification	The check that the product design matches the customer requirements and the design input requirements. This can occur at several points throughout the project. Typically checked more often in complex design and development stages. In APQP terms they are regularly scheduled meetings that as a minimum must include evaluation of: • Design / functional requirements considerations • Formal reliability / confidence goals • Component/subsytem/system duty cycles • DFMEAs • Review of Design for Manufacturability & Assembly effort • Design of Experiments and assembly build variation results • Test failures

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	• Design verification progress • Product & process validation of components and assemblies through the application of a comprehensive test plan and report
DFMEA	Design Failure Mode Effects Analysis – a disciplined analytical technique that assesses the probability of failure as well as the effects of such failure. A living document continually updated as customer needs and expectations require.
Engineering drawings and math data review	Engineering drawings must be reviewed by the product quality planning team (even if the customer has provided the drawing). They must determine: • If there is sufficient information for a dimensional layout of individual parts. • Control or datum surfaces/locators should be clearly identified so that appropriate functional gauges and equipment can be designed for ongoing controls. • Dimensions should be evaluated to assure feasibility and compatibility with industry manufacturing and measuring standards. • If appropriate, assure the math data is compatible with the customers system for effective 2-way communication. If engineering drawings are non-existent from the customer then the controlling drawings should be reviewed to determine which characteristics affect fit, function, durability and / or governmental regulatory safety requirements.
Engineering specifications	The team need to determine which characteristics affect meeting functional, durability and appearance requirements.
Escalation process	A process used to highlight or flag certain issues within an organisation, so that the appropriate personnel can respond to these situations and monitor the resolutions. An escalation management system allows an organisation to identify, track, monitor, and manage situations that require increased awareness and swift action.
Executive	See also project sponsor.
Feasibility	A determination that a process, design, procedure or plan can be successfully accomplished in the required time frame.
Features	The things that engineers, designers and scientists build into products. Are those things that cost the developing organisation money. In contrast the benefits are what the customer pays or views as having value to them.
Gated process	A technique to manage projects; consists of stages of tasks punctuated with review points called gates.
Gatekeepers	The team who review the projects at the gate review meetings and make the decision on how the project proceeds. They must have the authority to approve the resources required and are usually independent from the project team. The gatekeeper with ultimate accountability is the project sponsor. Also known as Project Board (PRINCE 2), Project Review Board and steering committee.Their activities include: • Authorising project initiation • Authorising the project • Authorising a stage or exception plan • Giving project manager or team members ad hoc direction

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	• Authorising project closure
Gates	The control points in a gated process, at which a designated management team, “gatekeepers”, formally evaluate the status of the project and make decisions on how to proceed. A gate is different to a milestone which only checks achievement, at a gate a go / no go decision is made. Each gate has a defined purpose, evidence is presented to the gatekeepers who decide if it satisfies the purpose of the gate.
Intellectual property rights	Intellectual property rights (IPR) are the legally recognised exclusive rights to creations of the mind. Common types of intellectual property rights include copyright, trademarks, patents, industrial design rights and in some jurisdictions trade secrets.
Issue	Any relevant event that has happened, was not planned, and requires management action. For example; a concern, query, request for change etc. Different to Risk.
Launch	Project is “done” from an innovations perspective and moves to operations for production and commercial team for sales. Note: There may be sales before “launch” as the market is tested & may be public announcement about the product before it is finalised to generate market buzz.
Leverage of core competencies	Having a strong fit between the needs of the new product project and the resources, competencies and experience of the firm in terms of: • R&D resources • Marketing, selling & distribution resources • Manufacturing or operations capabilities and resources • Technical support and customer services resources • Market research and market intelligence resources • Management capabilities
Lifecycle stages	Chronologically based phases through which a product or process will pass in its journey from “cradle to grave”, i.e. its conception as an idea to disposal at the end of its useful life
Manufacturing feasibility	A consensus on whether the product can be manufactured assembled, tested and packaged and delivered in sufficient quantity on schedule at an acceptable cost to the customer, as defined in the budget conditions. Example: Must meet prescribed run rates, NRFT levels, OEE etc.
Market attractiveness or prospects	How large and growing the market is and whether the competitive situation is positive.
Market launch plan	A plan of action for NPI that specifies marketing objectives, marketing strategies and marketing programmes. It typically includes: • Promotional materials sufficient for sales to communicate product and sell value (brochure, product data sheet, website, etc… tested and produced or in final form) • Key customers and timing identified • Sales trained and armed with sales tools
Material specification review	Review for special characteristics relating to physical properties, performance, environmental, handling and storage requirements.
Measurement Systems Analysis Plan	A plan to ensure the required measurement systems analysis is developed. Minimum requirements include; laboratory scope for the requirement measurements and tests, the responsibility to ensure gauge linearity, accuracy, repeatability, reproducibility and

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	correlation for duplicate gauges.
Milestone	Points in a project where you think it is important to check on progress so far. It usually marks the completion of a key task. In a commercial task it may mark the point at which payment to a supplier is made. Different to gates, where a go/no go decision is made. Milestones give project managers early indications of project progress.
MSA	Measurement Systems Analysis evaluates the test method, measuring instruments, and the entire process of obtaining measurements to ensure the integrity of data used for analysis (usually quality analysis) and to understand the implications of measurement error for decisions made about a product or process
Packaging standards and specifications	Design should ensure integrity at point of use. Individual product packaging and interior partitions should be designed so that the product performance and characteristics will remain unchanged during packaging, transit and unpacking. It should have compatibility with all identified material handling equipment and meet customer or generic packaging standards.
PFMEA	Process Failure Mode and Effect Analysis is a disciplined review and analysis of a new or revised process and is conducted to anticipate, resolve or monitor potential process problems.
Positioning strategy	How the product will be positioned versus competitive products, including the price point.
Pre-launch control plan (Checklist A8)	A description of the dimensional measurements and material and function tests that will occur after prototype and before full production. Should include additional product / process controls to be implemented until the production process is validated. Its purpose is to contain potential non conformities during or prior to initial production runs.
Process audit	An audit of the physical process where the product is produced.
Process Capability Study	A process capability study determines the extent to which a process can meet customer requirements, specifications, or engineering tolerances. The ability of a process to meet specifications can be expressed as a single number using a process capability index or it can be assessed using control charts. Either case requires running the process to obtain enough measurable output so that engineering is confident that the process is stable and so that the process mean and variability can be reliably estimated. Statistical process control defines techniques to properly differentiate between stable processes, processes that are drifting (experiencing a long-term change in the mean of the output), and processes that are growing more variable. Process capability indices are only meaningful for processes that are stable (in a state of statistical control).
Product quality timing plan	Timing plan for the product quality team
Production control plan	A written description of the systems for controlling production parts and processes. A living document that should be updated to reflect the addition or deletion of controls based on experience gained by producing parts. A logical extension of the pre-launch control plan.
Production part approval	The purpose of PPAP is to provide the evidence that all customer engineering design record and specification requirements are properly understood by the organisation and that the manufacturing process has the potential to produce product consistently meeting

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	these requirements during a production run at required rate.
Programme (PPAP)	A temporary flexible organisational structure created to coordinate, direct and oversee the implementation of a set of related projects and activities, in order to deliver outcomes and benefits related to the organisation's strategic objectives.
Programme management	The management of a number of different projects. Requires the use of resource capacity planning to ensure all projects resourced (peoples time, money, access to equipment etc.) as required by plans.
Project	A temporary group activity designed to produce a unique product, service or result. A project is temporary in that it has a defined beginning and end in time, and therefore defined scope and resources. And a project is unique in that it is not a routine operation, but a specific set of operations designed to accomplish a singular goal. So a project team often includes people who don't usually work together – sometimes from different organizations and across multiple geographies.
Project management	Project management is the application of knowledge, skills and techniques to execute projects effectively and efficiently. It's a strategic competency for organisations, enabling them to tie project results to business goals — and thus, better compete in their markets. From PRINCE 2: Project management is the planning, delegating, monitoring and controlling of all aspects of the project, and the motivation of all those involved, to achieve the project objectives within the expected performance targets for time, cost, quality, scope, benefits and risks.
Project mandate	This term is applied to whatever information is deemed to have triggered or started the project e.g. request for quote or a feasibility study. The mandate provides the terms of reference for the project and enough information to identify a project sponsor, if one is not already in position.
Project deliverables	Deliverable is a term used in project management to describe a tangible or intangible object produced as a result of the project that is intended to be delivered to a customer (either internal or external). A deliverable could be a report, a document, a server upgrade or any other building block of an overall project. Known as "products" in PRINCE2.
Project sponsor	Or Executive. The executive level person who either requested the project or has overall accountability for the project (head of the project board), often both. They ensure the project remains a viable proposition and the benefits are realised. They are the primary risk taker and owner of the project's business case.
Quality planning sign off	Sign off by product quality team prior to first product shipment that the appropriate APQP activities have been completed.
RACI matrix	A responsibility assignment matrix (RAM), also known as ARCI matrix or linear responsibility chart (LRC), describes the participation by various roles in completing tasks or deliverables for a project or business process. It is especially useful in clarifying roles and responsibilities in cross-functional/departmental projects and processes.

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	RACI and ARCI are acronyms derived from the four key responsibilities most typically used: Responsible, Accountable, Consulted, and Informed.
Reliability and quality goals	Reliability goals are established based on customer wants and expectations, programme objectives and reliability benchmarks. Example of customer wants and expectations – no safety failures. Example reliability benchmark – competitor product reliability, warranty data or frequency of repair over a set period of time. Quality goals are expressed as metrics e.g. parts per million, problem levels or scrap reduction.
Risk	An uncertain event or set of events that should they occur will have an effect on the achievement of objectives. A risk is measured by a combination of the probability of it occurring and the impact it will have on the objectives. Different to issue.
Risk appetite	An organisations' attitude toward risk taking that dictates the amount of risk that they consider acceptable
Risk management	The systematic application of principles, approaches and processes to the tasks of identifying and assessing risks and then planning and implementing risk responses
Risk management strategy	A strategy describing the goals of applying risk management, as well as the procedure that will be adopted, roles and responsibilities, risk tolerances, the timing of risk management interventions, the tools and techniques that will be used and the reporting requirements
Risk register	A record of identified risks relating to an initiative including their status and history
Significant production run	A production run conducted using production tooling, production equipment, production environment and operators, production gauges and at production rate. This is the start of the validation of the effectiveness of the manufacturing process.
Simultaneous engineering	See concurrent engineering.
Special (or significant) characteristics (SC)	These are product characteristics that may affect: • The form, fit or function of the product • The production / assembly process They are designated in the DFMEA or PFMEA, having a causal relationship to the effect of potential failure modes rated 5-8 for severity. They may be influenced by the manufacturing process and may require special control to maintain the required process capability and customer requirements.
Stages	The section of the gated process that groups together a set of tasks that are conducted to i) move the project on and ii) produce the deliverables required for evaluation at the gate.
Target market	Precisely who the product is aimed at
Task	An activity that is carried out in order to move a project on. Known as workpackage in PRINCE2. A workpackage is a set of information relevant to the creation of one or more products.
Technical feasibility	Asses the likelihood of being able to develop and manufacture the product. Is it a new science, a technically complex project or a technology repackage?
Tolerances	Define the amount of discretion each management level can exercise without the need to refer up to the next level for approval.
User needs and wants study	The Voice of the Customer market research used to probe the customer in order to put meat on an idea. Wants are easily put into

	words by the customer, needs are the unarticulated, often unmet wants.
Validation.	The assurance that a product, service, or system meets the needs of the customer and other identified stakeholders. It often involves acceptance and suitability with external customers. Contrast with *verification*. Customer validation of product can cover both: • Technically – FFU/product attributes satisfied, Customer tested validation • Commercially – Key value elements & valuation identified, value tested with customer, value based pricing strategy
Value management	A structured approach to defining what value means to the organisation and project.
Value proposition	What is in it for the prospective customer? What value does it bring to them?
Verification.	The evaluation of whether or not a product, service, or system complies with a regulation, requirement, specification, or imposed condition. It is often an internal process. Contrast with *validation*."