

Requirements and scope

This topic has no formulas, so this page gives four key rules, each with a worked example, then the two model sheets. They serve IPMA, PMI and APM exams alike.

KEY RULES

From need to acceptance (SMART after Doran, 1981)

need → requirement → traced to an objective → acceptance criterion → test

Needs often go unsaid, so draw them out in workshops and interviews. Agree criteria before the work starts. SMART: specific, measurable, achievable, relevant, time-bound (Doran's A and R: assignable, realistic).

Example: Need: residents who cannot go online can still renew. Requirement: service-desk staff renew a permit for a resident. Criterion: in the test, 3 staff each renew 10 permits, each in under 5 minutes

MoSCoW (after Clegg and Barker, 1994; DSDM)

musts ≤ about 60% of the effort · could about 20%, the buffer · won't-haves written down

Test for a must: would we stop go-live without it? Shortcut: the ceiling for musts is $0.6 \times$ the effort available. The sponsor or customer decides; the project manager runs the process.

Example: 200 days of effort available: musts at most $0.6 \times 200 = 120$ days, could about $0.2 \times 200 = 40$ days. A list with 150 days of musts must move at least 30 days down to should or could

The 100% rule (Haugan, 2002; named in the PMBOK® Guide)

the parts under each WBS element = 100% of its work: nothing missing, nothing extra

Project management is work too, so it gets a branch. Each lowest part is a work package with clear boundaries and one owner; if its cost or duration is unclear, it is a planning package. In iterative work, keep the WBS shallow.

Example: A deliverable estimated at 30 days splits into work packages of 12, 10 and 8 days: $12 + 10 + 8 = 30$, so the branch is complete. If they added up to 26, 4 days of work would be missing

Scope creep or controlled change

in scope already? no change · if not: log → assess → decide at the agreed level → update

Scope creep is scope that grows while time, cost and resources stay the same. In iterative work, time and cost are often fixed, and a new backlog item pushes out one of the same size.

Example: A 5-day extra asked of one developer, with no change to the date or budget, is creep. Logged, priced at €750 a day ($5 \times €750 = €3,750$) and approved, it is a controlled change

IN THIS HANDOUT

MoSCoW prioritisation

p. 2

Work breakdown structure (WBS)

p. 3

Sources: IPMA ICB4 (2015); PMI, PMBOK® Guide, 8th ed.; PMI, PMP® Examination Content Outline (2026); APM Body of Knowledge, 8th ed.; APM, PMQ handbook (v6, 2026); IPMA International Certification Regulations (ICR) v4.4 (2025); Doran (1981), SMART; Clegg & Barker, CASE Method Fast-Track (1994); Agile Business Consortium, DSDM handbook; MoSCoW; Haugan, Effective Work Breakdown Structures (2002)

Key: IPMA = International Project Management Association; ICB4 = IPMA's Individual Competence Baseline; PMI = Project Management Institute; PMBOK® Guide = PMI's body-of-knowledge guide; PMP® = PMI's Project Management Professional; APM = Association for Project Management; PMQ = APM's Project Management Qualification; ICR = IPMA's International Certification Regulations; DSDM = Dynamic Systems Development Method, an agile framework. Unofficial study material for IPMA®, PMI® and APM exams. Not affiliated with, endorsed by or approved by IPMA, PMI or APM, and not an accredited or endorsed training provider. IPMA® and IPMA ICB® are registered trademarks of IPMA in Switzerland and other countries. PMI, PMP, CAPM and PMBOK are registered marks of Project Management Institute, Inc. APM is a trade mark of the Association for Project Management. Other marks belong to their owners. PMP® exam facts are from PMI's public PMP® Examination Content Outline (2026); check the current version on [pmi.org](https://www.pmi.org). APM's qualifications are its own; this series is not an APM Accredited Provider or APM Endorsed. Examples use a fictional city and its projects.



Scan for the episode

All episodes, sheets and handouts: pm.fannarmaximus.com · Watch: youtube.com/@fannarmaximus

MoSCoW prioritisation

Sort requirements into four agreed groups, so the essentials are protected and the rest can flex when time or money runs short.

GROUP	OUR TEST	EFFORT GUIDE
Must have	Would we stop go-live without it?	At most about 60%
Should have	Hurts to drop; a workaround exists	The rest
Could have	Wanted; the first to drop	About 20%
Won't have this time	Agreed out for now; written down	None this time

Our own table and tests; the effort guide is DSDM's (Agile Business Consortium). Percentages of the effort available.

WHAT IT IS

MoSCoW sorts requirements into four groups, from **must have** down to **won't have this time**. Dai Clegg described it with Richard Barker in 1994; DSDM (Dynamic Systems Development Method) made it a core practice. DSDM's guide: musts at most about 60% of the effort, could about 20%, the buffer that protects the date. The sponsor or customer decides; the project manager runs the process and turns each must into acceptance criteria.

HOW IT WORKS

- 01 Agree the tests and who decides before ranking.
- 02 Check the effort against the guide.
- 03 Write down the won't-haves; give each must acceptance criteria.
- 04 Review the priorities at each gate or iteration.

MID-LEVEL · WORKED EXAMPLE

Apply it well

The situation: A city team has eight months to move resident parking permits online. Its supplier's fixed price covers about 100 days of feature work, but the requests add up to 140.

The project manager agrees the go-live test first, then proposes and the sponsor decides: musts 55 days (55%), shoulds 25, coulds 20 (20%): $55 + 25 + 20 = 100$. A 40-day mobile app is won't have this time, because the service works in a phone's browser.

In the exam: Sort four or five requirements, give the test behind each must, show that the effort fits the guide, and say who decided and when it is reviewed.

SENIOR · WORKED EXAMPLE

Design and lead it

The situation: A city is joining 14 online services under one login over 30 months, in three waves of services, under a board. Each service owner wants their own features first.

The project manager agrees one set of tests with the steering board, which settles conflicts between services. Accessibility is a must in every service, by law. Priorities are reviewed at each wave, and a new must pushes out work of the same size or goes to the board.

In the exam: Show the process you designed for many owners: shared tests, who decides between them, legal musts, reviews, and how you kept expectations realistic for those who lost out.

WHERE IT SITS

IPMA · ICB4	PMI · PMBOK® GUIDE 8 · PMP® EXAM	APM · BOK 8 · PMQ EXAM
4.5.2.3: sponsor, top managers or customers set priorities; requirements become acceptance criteria	Guide: ranking methods, MoSCoW among them (p. 187); the backlog (§2.2). Exam outline: Domain II, tasks 2–3	BoK (APM's Body of Knowledge) §5.1.3: prioritise by value, cost, risk and size, then baseline. PMQ (APM's Project Management Qualification) 16a, 17a

Sources: Clegg & Barker, CASE Method Fast-Track (1994); Agile Business Consortium, DSDM handbook: MoSCoW; IPMA ICB4 (2015); PMI, PMBOK® Guide, 8th ed.; PMI, PMP® Examination Content Outline (2026); APM Body of Knowledge, 8th ed.; APM, PMQ handbook (v6, 2026)

Key: IPMA = International Project Management Association; ICB4 = IPMA's Individual Competence Baseline (4.5.2 etc.: its competence elements); PMI = Project Management Institute; PMBOK® Guide = PMI's body-of-knowledge guide; PMP® = PMI's Project Management Professional; APM = Association for Project Management. Unofficial study material for IPMA®, PMI® and APM exams. Not affiliated with, endorsed by or approved by IPMA, PMI or APM, and not an accredited or endorsed training provider. IPMA® and IPMA ICB® are registered trademarks of IPMA in Switzerland and other countries. PMI, PMP, CAPM and PMBOK are registered marks of Project Management Institute, Inc. APM is a trade mark of the Association for Project Management. Other marks belong to their owners. PMP® exam facts are from PMI's public PMP® Examination Content Outline (2026); check the current version on pmi.org. APM's qualifications are its own; this series is not an APM Accredited Provider or APM Endorsed. Examples use a fictional city and its projects. Levels (this series' labels): Mid-level = moderately complex projects (IPMA Level C, PMI's PMP®); Senior = complex projects and people (IPMA Level B, APM's Chartered Project Professional).

All episodes, sheets and handouts: pm.fannarmaximus.com · Watch: youtube.com/@fannarmaximus



Scan for the episode

Work breakdown structure (WBS)

Divide a project's work into parts that can be planned, owned and checked, so nothing is missed or unplanned.

LEVEL 2 · DELIVERABLE	LEVEL 3 · WORK PACKAGES		
1 Online permit service	1.1 Permit rules and fees	1.2 Apply, pay and renew	1.3 End-to-end test
2 Links to other systems	2.1 National e-ID login	2.2 Card payments	2.3 Wardens' handhelds
3 Permit data moved	3.1 Clean the old data	3.2 Trial migration	3.3 Final migration
4 Users ready	4.1 Service-desk guide	4.2 Training	4.3 Support after go-live
5 Project management	5.1 Plan and control	5.2 Supplier contract	5.3 Reports to the sponsor

Illustrative WBS of a city project moving parking permits online (level 1). Each row: a deliverable, then work packages.

WHAT IT IS

A WBS divides scope into a tree: the project, its deliverables, and **work packages** at the lowest level, each with clear boundaries and an owner. We divide by deliverables, or by work stages. The **100% rule** (Gregory Haugan, 2002): each element's parts hold all its work, no more, no less, project management included.

HOW IT WORKS

- 01 Start from the deliverables; list exclusions.
- 02 Break down until each part has one owner.
- 03 Check the 100% rule at each level.
- 04 Describe each in a WBS dictionary; unclear work: a planning package; iterative work: stay shallow.

MID-LEVEL · WORKED EXAMPLE

Apply it well

The situation: A city team has eight months to move resident parking permits online, with an outside supplier, four links to other systems and old permit data to move.

The project manager builds the WBS with the team and supplier: 5 branches × 3 work packages = 15, one page, project management included, one owner each. Exclusion: the parking fines process.

In the exam: Sketch three levels of your WBS by deliverable, with project management as a branch. Describe one work package fully, and name an exclusion.

SENIOR · WORKED EXAMPLE

Design and lead it

The situation: A city is joining 14 online services under one login over 30 months, in three waves, with a platform supplier, an integration partner and nine owners of old systems.

Level two: platform, services, nine old portals, people, change and project management. Suppliers keep their own contract WBS. Later waves stay planning packages until they start.

In the exam: Explain your structure, how suppliers' breakdowns nest in yours, and why later waves stay coarse. Say where a full WBS fails.

WHERE IT SITS

IPMA · ICB4	PMI · PMBOK® GUIDE 8 · PMP® EXAM	APM · BOK 8 · PMQ EXAM
4.5.3.2 two ways to structure the scope; less depth in iterative work. 4.5.3.3 work and planning packages	Guide: Develop Scope Structure (\$2.2); the 100 percent rule (p. 166); scope baseline. Exam outline: Domain II, task 2	BoK (APM's Body of Knowledge) \$5.2.1: PBS (product breakdown structure) for the products, WBS for the work; a work package goes to one person. PMQ (APM's Project Management Qualification) objectives 17a, 20a

Sources: IPMA ICB4 (2015); Haugan, Effective Work Breakdown Structures (2002); PMI, PMBOK® Guide, 8th ed.; PMI, PMP® Examination Content Outline (2026); APM Body of Knowledge, 8th ed.; APM, PMQ handbook (v6, 2026)

Key: IPMA = International Project Management Association; ICB4 = IPMA's Individual Competence Baseline (4.5.3 etc.: its competence elements); PMI = Project Management Institute; PMBOK® Guide = PMI's body-of-knowledge guide; PMP® = PMI's Project Management Professional; APM = Association for Project Management. Unofficial study material for IPMA®, PMI® and APM exams. Not affiliated with, endorsed by or approved by IPMA, PMI or APM, and not an accredited or endorsed training provider. IPMA® and IPMA ICB® are registered trademarks of IPMA in Switzerland and other countries. PMI, PMP, CAPM and PMBOK are registered marks of Project Management Institute, Inc. APM is a trade mark of the Association for Project Management. Other marks belong to their owners. PMP® exam facts are from PMI's public PMP® Examination Content Outline (2026); check the current version on pmi.org. APM's qualifications are its own; this series is not an APM Accredited Provider or APM Endorsed. Examples use a fictional city and its projects. Levels (this series' labels): Mid-level = moderately complex projects (IPMA Level C, PMI's PMP®); Senior = complex projects and people (IPMA Level B, APM's Chartered Project Professional).

All episodes, sheets and handouts: pm.fannarmaximus.com · Watch: youtube.com/@fannarmaximus



Scan for the episode