Project development TOOLS

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Work breakdown structure

A hierarchical decomposition of the total scope of work to be carried out by the project team to accomplish the project objectives and create the required deliverables.

📖 *A Guide to the Project Management Body of Knowledge (PMBOK® Guide) – Seventh Edition and The Standard for Project Management,* Project Management Institute, Newtown Square, PA, 2021.

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▶ process-oriented: steps and work phases

▶ deliverable-oriented: deliverable components

▶ combination: both tasks and deliverables

Work breakdown structure

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RECRUIT NEW SOFTWARE DEVELOPER

DEVELOP STRATEGY
- ASSESS REQUIREMENTS
- PREPARE JOB AD

SEARCH CANDIDATES
- POST JOB AD
- REPLY TO ENQUIRIES

EVALUATE APPLICATIONS
- CHOOSE PANEL
- PREPARE SHORTLIST
- HOLD INTERVIEWS
- DECIDE RANKING

HIRE SUITABLE CANDIDATE(S)
- PREPARE OFFERS
- SEND OFFERS

Work breakdown structure: rules

- ► "100%": all work must appear at all levels

- ► "MECE": mutually exclusive, collectively exhaustive

- ► "8/80": lowest components between 8h and 80h of work

- ► "reporting period": maximum duration of lowest components

- ► "makes sense": use common sense to estimate tasks

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These are **principles**, not prescriptions.

Gantt chart

A bar chart of schedule information where activities are listed on the vertical axis, dates are shown on the horizontal axis, and activity durations are shown as horizontal bars placed according to start and finish dates.

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Gantt chart: axes

x-axis: time (hours, days, weeks, months, …)

y-axis:

1. Tasks, with expected duration
2. Milestones, with (expected) date

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Glossary

- ► task: clearly defined chunk of work
- ► milestone: important **point** of the project

Be clear, be consistent

Not everyone agrees on what a milestone is!

- ► submission deadlines
- ► release deadlines
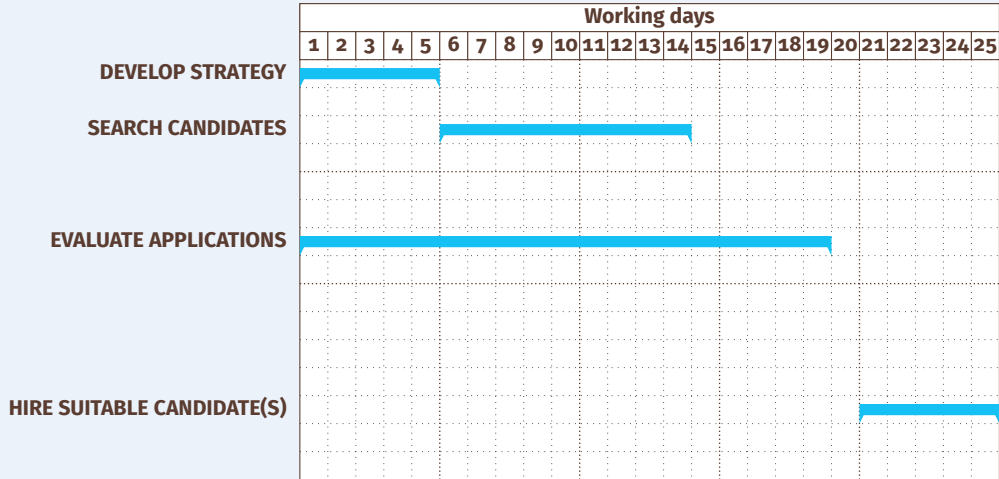- ► completion of major phases of work
- ► deliverables (outputs of the project)

Rules of thumb

- ► has a date
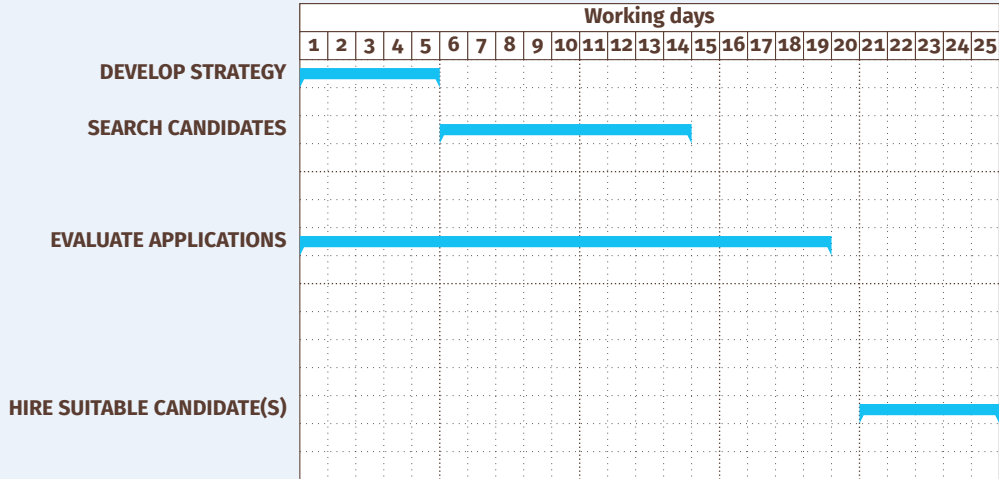- ► has no duration
- ► can "celebrate" when done

Gantt chart

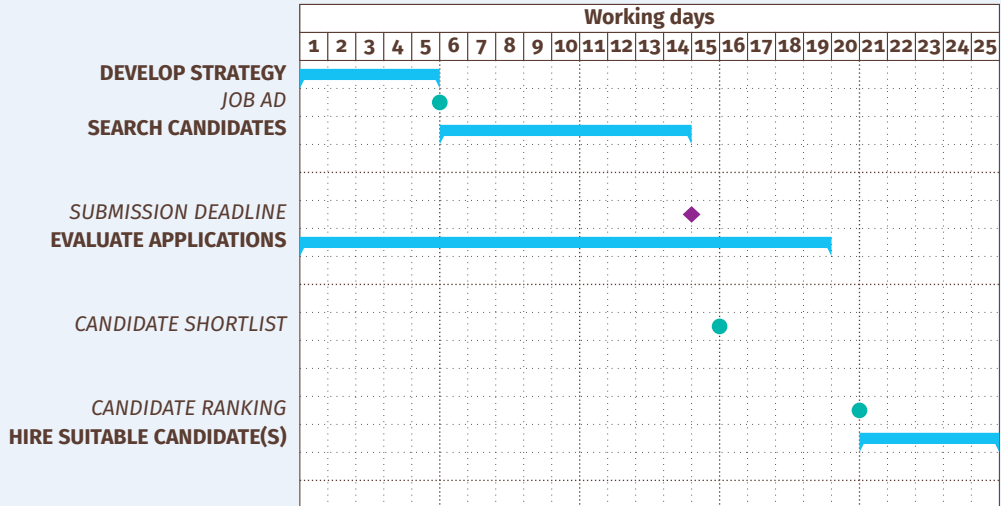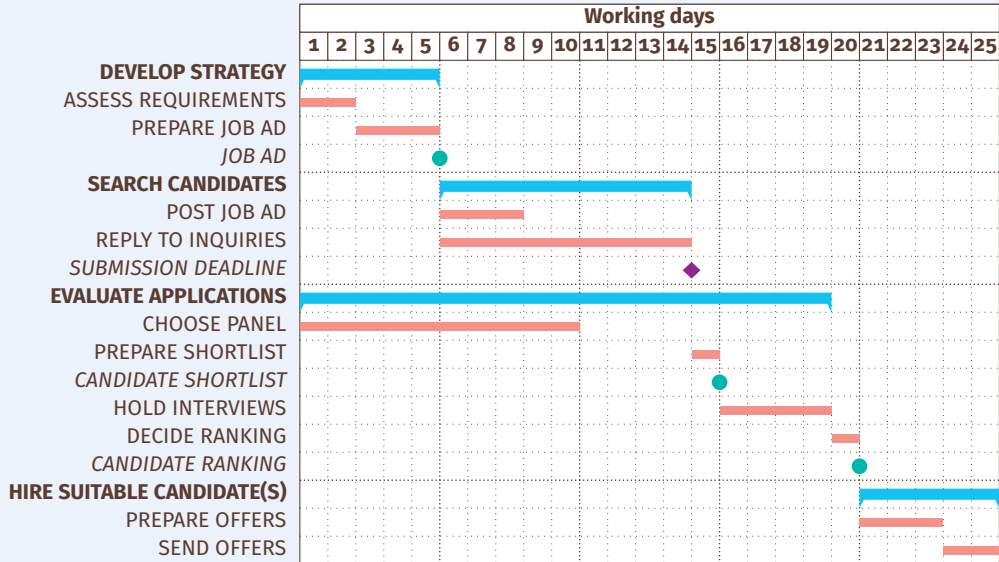| Working days																								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25

Gantt chart

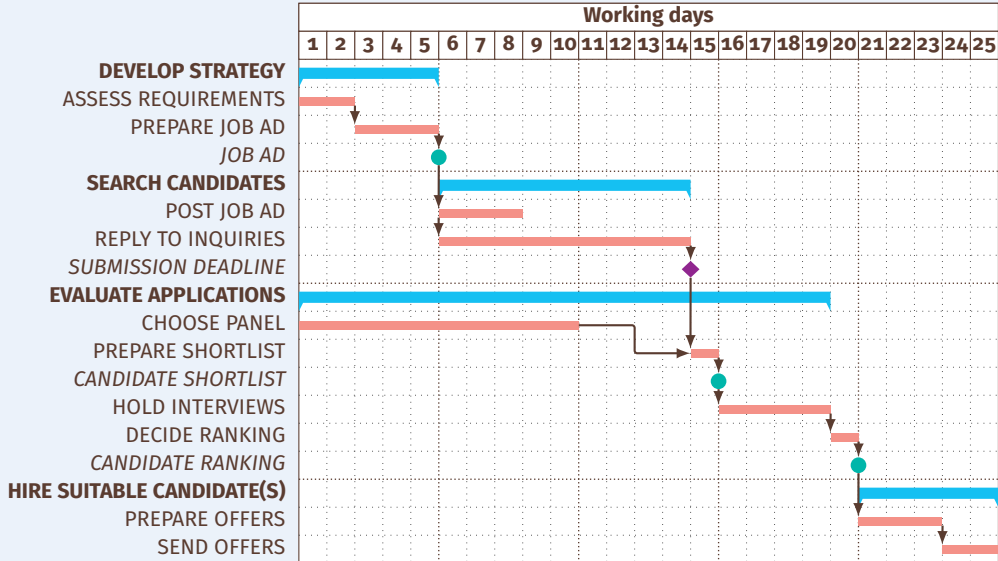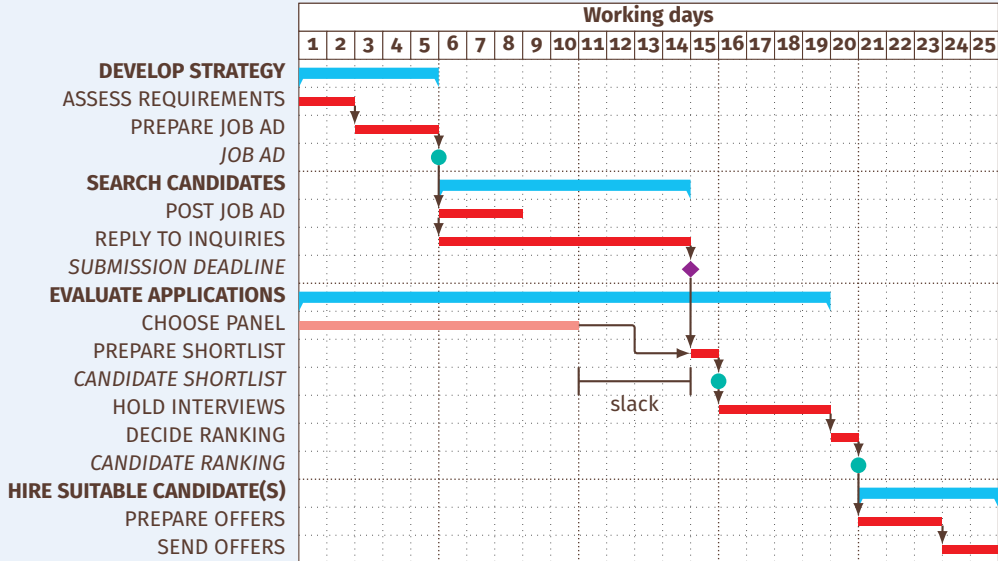# Gantt chart

Gantt chart

Gantt chart

Gantt chart

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Gantt chart

A few examples from the web

1. Example

2. Example

3. Example

4. Example

5. Example

6. Example

Steps

1. Draw timescale (x-axis)
2. List tasks and milestones (y-axis)
3. Mark milestones
4. Estimate duration of tasks
5. **Add legend**
6. Mark **all** dependencies
7. **Rethink** and **restructure** if
   - ▶ no branching
   - ▶ no concurrency
8. Identify critical path
9. Mark slack

Gantt chart checklist

1. Is task granularity right?

2. Does chart expose concurrency?

3. Does chart reflect project management approach?

4. Are all dependencies tracked?

5. Are slacks and critical path clearly marked?