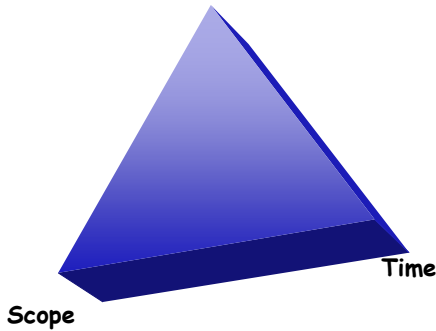


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Resources



## How do you begin? *(or project initiation)*

*"If you don't know how to do a task, start it, then ten people who know less than you will tell you how to do it."*  
-Anonymous



How do you know...  
...what to do?

Once the scope document has been agreed upon, the next step is to create a **work breakdown structure (WBS)**. A WBS breaks down the project into smaller, manageable tasks or work units. Providing a good WBS is the basis for the succeeding tasks in project management:

- Creating the schedule
- Identifying the resources — both manpower, monetary, and material resources — needed by the project
- Estimating the total cost of the project
- Identifying the risks that will be encountered
- Identifying the person responsible and accountable for the task

Miss a task, all the other components will be affected.

The basic process of creating the WBS involves subdividing the project into major project sections. These major sections are then subdivided iteratively into more manageable tasks. The subdivision ends when the following criteria are met:

- Can be realistically and confidently estimated
  - Cannot be logically subdivided further
  - Can be assigned to one person who is wholly responsible and accountable for the completion of the task
  - Has just one deliverable
  - Can be completed without interruption
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## Case : Getting Married

**Y**our brother is getting married next year and, like any other typical male, thinks that it's as simple as finding the church, then the reception and inviting family and friends over. Actually he has a list of things to do that he's about to show his fiancée.

Things to do

1. Find church
2. Find priest
3. Find hotel for reception and pre-wedding preparations
4. Pick out entourage
5. Order invites
6. Pick out dresses and barongs
7. Send out invitations
8. Hire florist
9. Hire photographer and videographer
10. Book honeymoon

You looked at the list and laughed. Having just recently helped out your best friend Raquel in their wedding as her bridesmaid, you tell him that's it not as simple as that.

After some bantering and bickering about the stress of orchestrating a wedding, you decided to show him what you and your friend did in planning the wedding. You pulled out part of a crumpled sheet of paper.

"Uh what's that?", you're brother asked.

"Our wedding project," you said.

Your brother took the paper and looked at it.

*Bong and Raquel's*

~~My~~ Dream Wedding Project — *SPANISH THEME!*

- 1.1 Decide on date — *Preferably December, but if not, then either January, May or June will do*
  - 1.2 Acquire various documents needed for marriage documents — *birth certificate, baptismal certificate, etc...*
  - 1.3 Acquire Marriage license
    - 1.3.1 File for Marriage license — *Need to complete all documents before acquiring the marriage license*
    - 1.3.2 Attend Family Planning seminar in Quezon City Hall
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- 1.4 Select and coordinate wedding entourage
    - 1.4.1 Select attendants — *Sheila and Roel for bridesmaid and best man; Lyn, Tina, Topi, for sure as girl secondary sponsors...need guys for secondary sponsors*
    - 1.4.2 Order dresses
    - 1.4.3 Fit dresses
  - 1.5 Do preparations for wedding ceremony
    - 1.5.1 Rent church — *Intramuros area!*
    - 1.5.2 Submit documents needed for reserving the church — *same documents as that of the marriage certificate*
    - 1.5.2 Hire florist — *Want a Spanish inspired design for the flowers and bouquets*
    - 1.5.3 Create/print programs — *Note: we can print out one and then photocopy it and design it later*
    - 1.5.4 Hire photographer — ~~*Still looking!!*~~ *Jomo Productions!*

"Wow! This a lot."

"And that's just until the wedding ceremony. Anna has the other page — we divided the sheet as a remembrance of all the things we went through together in creating Bong and Raquel's dream wedding."

"Can I just hire a wedding coordinator for this?"

"Not unless you want to shell out around twenty thousand pesos just for something you can do on your own, with the help of your friends and family."

"Well, call Anna and ask her for the other half, quick!"

"You forget that she and her husband just recently migrated to Guam. And no, they don't have an Internet connection there yet — and no, I will not pester her. Since it's your wedding, why don't you and Angela create your own wedding list," you chided him.

Your brother just stared at you incredulously, got out his cellphone and dialed his fiancée's number.

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## Guidelines in creating a WBS

Using the previous case as a basis, the following guidelines may help you create a better WBS.

### Numbering

The first level of the WBS contains only one entry, the project name, and is always numbered "1". In the Wedding Case, "Bong and Raquel's Dream Wedding" is the first level. The second level of the WBS contains the first level decomposition of the project and is numbered sequentially having the format "1.x" — i.e. "1.1", "1.2", etc. The succeeding levels of the WBS follow the same coding scheme (the 3rd level has 3 numbers separated by ".", the 4th level has 4 numbers separated by ".", and so on.)

A rule of thumb would be that each level should have at least two significant sublevels. If you end up having one sublevel, reconsider combining the task in that level with another task in another sublevel or consider it as a terminal level.

### Creating the WBS

Usually, the project manager creates the WBS. However, in many cases, the project manager does not know all of the work involved in a project. For this scenario, a small group of people who have experience in parts of the project will be involved.

A structured way of creating the WBS with a group of people would be through a "Post-It" exercise. Each member of the group would write the tasks or deliverables that need to be accomplished on the Post-It note — one task or deliverable per Post-It sheet. These are then posted on a wall and categorized or organized in levels. Adding, deleting or rearranging the tasks will be as easy as moving around a Post-It note.

### Types

There are three common types of work breakdown structures: task-oriented, deliverable-oriented and time-phased.

In a task-oriented WBS, all the deliverables are defined in terms of actions that need to be done. Typically, each section or entry in the WBS starts with a verb — acquire, design, test, etc — and describe what should be done to finish a project deliverable. An example would be the WBS in the Wedding Case.

In a deliverable-oriented WBS, each section starts with a noun and describes a part or a component (whether physical or feature) of the whole project.

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For example, part of a deliverable-oriented WBS for a new cell phone would look like this:

- 1 Cell phone
  - 1.1 Casing
    - 1.1.1 Front casing
    - 1.1.2 Back casing
  - 1.2 LCD Screen
  - 1.3 Keypad
    - 1.3.1 Pad
    - 1.3.2 Keypad circuitry
  - 1.4 Camera
    - 1.4.1 Lens
    - 1.4.2 Software
  - .... And so on.

After this, the action-oriented tasks are then added as the final levels. Taking 1.1 Casing as an example, we would have:

- 1.1 Casing
  - 1.1.1 Front casing
    - 1.1.1.1 Design front casing
    - 1.1.1.2 Mould front casing
  - 1.1.2 Back casing
    - 1.1.2.1 Design back casing
    - 1.1.2.2 Mould back casing

Using the Wedding Case as an example, a deliverable-oriented WBS would look like this for #5:

- 1.5 Wedding Ceremony
  - 1.5.1 Rent Church
  - 1.5.2 Hire Florist
  - 1.5.3 Misalettes
    - 1.5.3.1 Create misallete
    - 1.5.3.2 Have misallete reproduced
    - 1.5.3.3 Decorate misallete
  - 1.5.4 Hire Photographer

Note that for the casing example, we have two significant sublevels — i.e. there is enough work complexity in designing and moulding the casings — compared to 1.5.1 Rent Church. We can have it say

- 1.5.1 Church
    - 1.5.1.1 Search for possible church
    - 1.5.1.2 Compare advantages and disadvantages of each church
    - 1.5.1.3 Rent church
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But that would be too detailed. This level of detail results in **micromanaging** the person/s assigned to do the task. The project manager in this case is more concerned with how the activity should be done rather than the result or the outcome. In the case of 1.5.3 Misalette, the couple decided that they want to customize the misalette rather than use the church provided misalette, thus the need for the task breakdown.

The Project Management Institute or the PMI recommends the use of a deliverables-oriented type of WBS.

A time-phased WBS, breaks the whole project into phases and then uses either a task-based WBS or deliverables-based WBS in the lower section or a combination of both. In this approach, only the earliest phases have detailed plans compared to the later phases, because there is no or little precedence of these types of project. These later phases are then detailed as the project progresses. Long-term projects like new software development and new product launches naturally lend themselves to this type of WBS.

As an example, the implementation of a new bar-coding technology for use in a university's ID can be subdivided as such:

- 1 University ID Bar-coding Project
  - 1.1 Request for Proposal
    - 1.1.1 Determine System Requirements
    - 1.1.2 Create Request for proposal
    - 1.1.3 Perform bidding for the proposal
  - 1.2 Software Development
    - 1.2.1 Requirements gathering
    - 1.2.2 Systems Design
    - ... and so on
  - 1.3 Hardware Installation
  - 1.4 System Testing
  - ... and so on

### Level of Detail

A common question asked by first time project managers doing a WBS is "How far down should I do the decomposition?" If the decompositions are too broad, it is difficult to track how far along the project is in relative to the schedule; if the decompositions are too narrow, the project manager may end up with too many tasks to monitor. Wysocki, in his book Effective Project Management, identified six criteria as a way to determine if the decomposition is just right.

- **Measurable Status:** We can objectively measure each decomposed task's progress toward completion. Some measurements can be a clear cut "done" or "not done" like 1.5.2 Hire florist — it's either a florist has been hired or not; others can be measured in terms of percentages like 1.5.3 Create/print program — 50% of the programs have been printed out.
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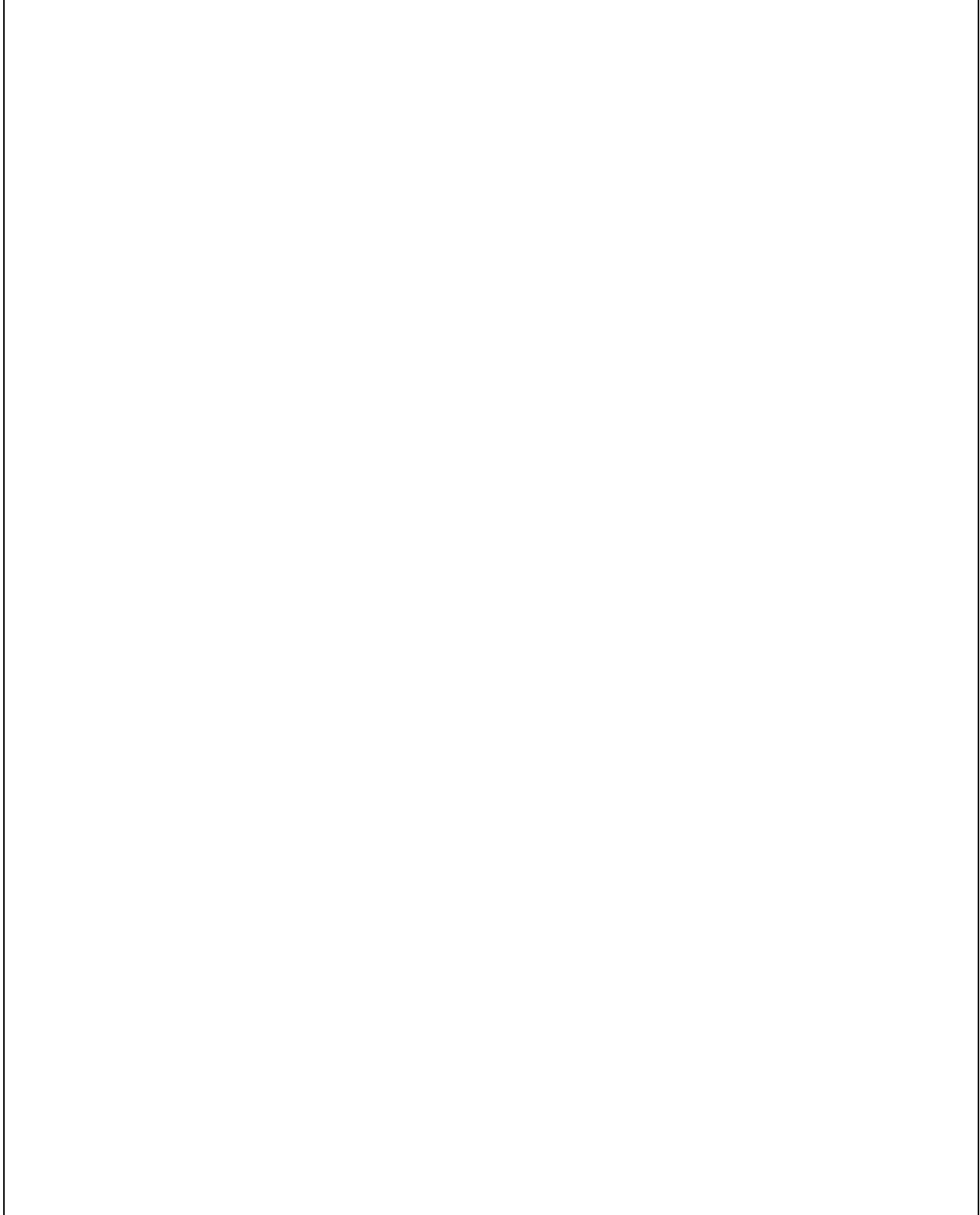
- 
- **Time- and Activity-Bounded:** There a clearly defined starting and ending event for each decomposed task. Take for example 1.4.3 Fit dresses — the starting event would be a consultation with the designer for fitting and the ending event would be the finished and fitted dress.
  - **Deliverable:** There must be an output for each task when it is completed.
  - **Cost & Time Determinable:** The tasks must be at the level where a cost and time estimate can be made with reasonable accuracy. People can relatively tell you how long it takes to finish Task 1.2 Acquire documents needed — e.g. it takes one whole day to get the birth certificates from the NSO (well, if you go there as early as 7 in the morning).
  - **Limited Duration:** (A corollary to the previous criteria) Each task can be completed with in a reasonable period of time.
  - **Activity Independence:** After any task is started, it can be completed independent of other components or additional inputs until the activity is finished. Although some florists would insist that they know the church so that they can think of a more appropriate floral arrangement, I can hire the florist independent of renting a church.

### Things to watch out

- A WBS is not a grocery list of “things-to-do”
  - A WBS is not a chronological listing of what should be done.
  - Any changes to the WBS requires a formal change management process (*to be discussed later*) that is agreed upon by both the project team and the client. This is because it affects both the time and the cost of the whole project.
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**Q: Working in groups of at most three, prepare the rest of the Work Breakdown Structure of the remaining part of the Wedding Project.**

A large, empty rectangular box with a thin black border, intended for students to draw their Work Breakdown Structure (WBS) for the wedding project. The box is currently blank.