GSOE9820

Engineering Project Management

Web Based Project

Project 2: Develop a WBS For a Local Stage Play

Final Project Report

UNSW SYDNEY

Group members

Feng Yu

Likun Cui

Danish Imtiaz

Jinpeng Gu

Wei He

Yubo Zhang

Faculty of Engineering

University of New South Wales

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EXECUTIVE SUMMARY

This project is essentially a meta-project that works on a work breakup structure (WBS) for a local stage play. The topic offered to us was rather general, and it was up to us to determine what stage play it will be like. Since there were 7 deliverables for this meta-project and we had only 2 weeks, the time table of discussion was intensive, allowing 2 days in average to work out each deliverable item. For each topic, every one of our team, including the PM's, first presented his/her individual outcome, and then discussed with the group to reach an agreement. There were some discrepancies during discussion, but they mostly differed at merely details, and through discussion, we adjusted our opinions while listening to other's reasoning. Final opinions were then forged through logical reasoning as possible, but also through following the opinion of the majority.

INTRODUCTION

In this project, we were required to develop a work breakdown structure (WBS) for a stage play which involves the scope, main deliverables, a WBS in hierarchy, and an organization breakdown structure (OBS). After that, we will intersect the WBS with the OBS to work out an example of the work packages.

Our team consists of 6 members, including 2 project managers (PM's). To work on this project, we first defined its scope. We figured out what sort of a stage play we would deal with, and to how much detail we would break down the work and organization structures. Once we are sure about our objective setup, we determined the deliverables, which are the expected, measurable outputs over the life of the project. With deliverables determined, we organized them in a hierarchy that involves various work packages, which constructs the WBS. After that, based on the work packages, we determined which personnel would be needed for the tasks, and developed the OBS. Finally, we provided an example work package.

EVALUATIONS AND ANALYSES

Defining the scope

The project was handed to our team only referring to a stage play in general with hardly any details, and we had to determine what kind of stage play we would work on before doing any further work. During the first 2 days of the project, each of us presented our desired project scope. All our team members defined individually that the corresponding stage play be a small or medium one with a small or medium budget and an audience of a hundred to a few hundred people. Through further discussion, we determined that it should be a small stage play with its influence restricted in the local suburb, since a smaller player would be easier to handle as a student project. We determined that its budget would be small, to suit with the scale of the play. We further decided that this would be a regular dance play which does not need highly specialized equipment or design, since this is the most familiar range of topic for our team members.

Deliverables

In the first section, deliverables as a section, in its preliminary form, was already a part of the scope plan. At this stage, we refine our deliverable schema with sub-deliverables with details until it shapes into an atomic work package. After presentation of our individual plans, most of us agreed on three main sections of deliverables:

- **Stage**
- **Logistics and support**
- **Marketing and finance**

We agreed that the **stage** section would contain:

- Stage play itself by actors and actress
- Site preparation

- Costume preparation
- Electrical, equipment
- Script preparation

With the **marketing and finance** section, we all agreed that it would contain:

- Marketing
- Advertisement
- Tickets
- Sponsors/ Investment

With the **support/logistics** section, most of us have mentioned:

- Purchasing
- Transportation
- Security, guards, and emergency
- Finance and accounting
- Parking arrangement

We had controversy whether security should make a main section among the deliverables. We considered that we are dealing with a small budget project, and in such a regular stage play, it does not involve particular security concerns. Therefore, security does not stand out as more important than other branches of the deliverable table, and should be a part of support and logistics.

WBS and coding of WBS

Based on the deliverables, we built up the hierarchy following the categorization we have determined. It is shown as Figure 1.

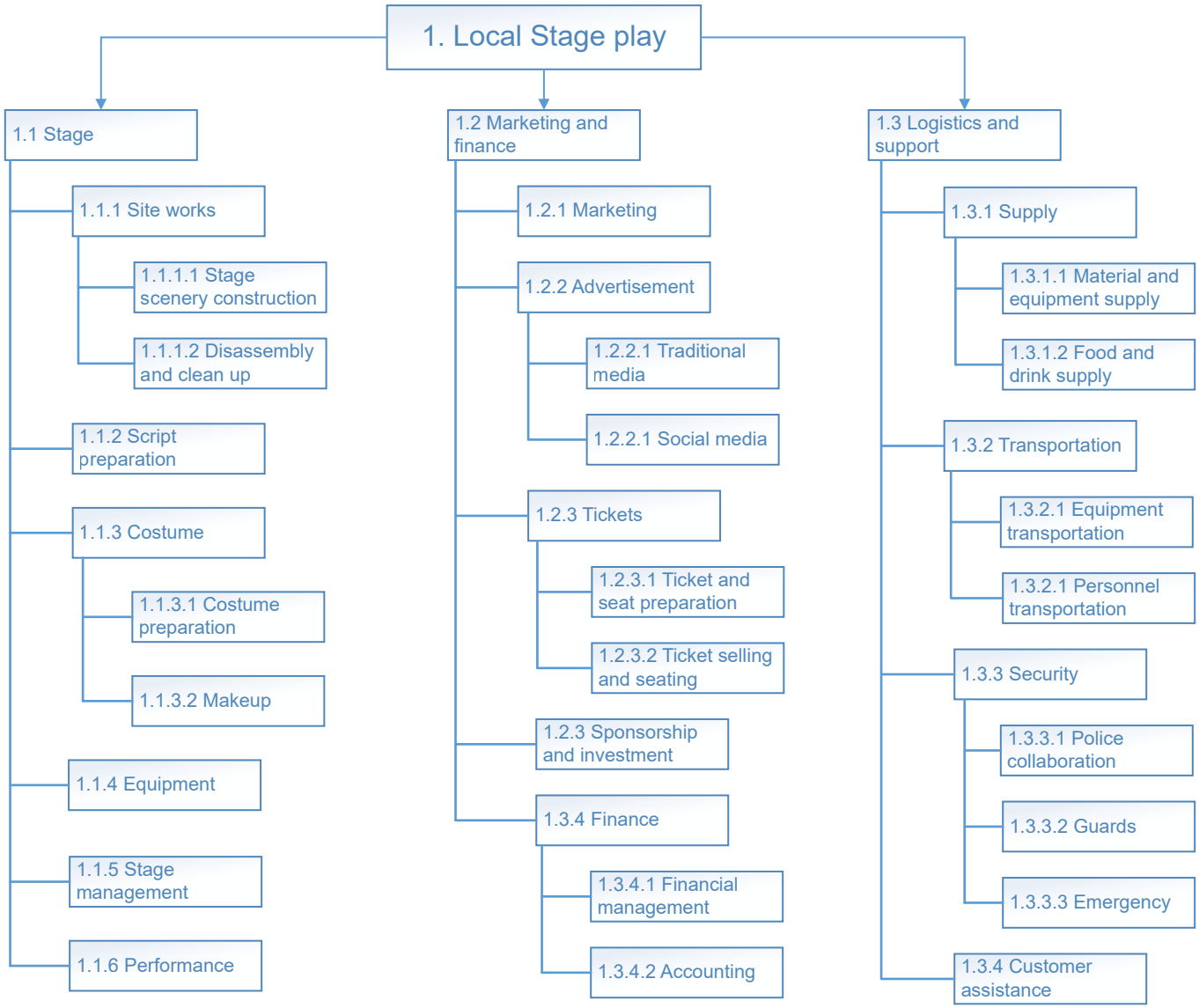


Figure 1: Work breakdown structure

The work breakdown structure is shown coded in a hierarchy.

We had some small controversy over the cleaning work. Our team members pointed out the cleaning involves a large proportion of routine work, but it is essential for the stage play, especially between shows when we would have to clean the stage and switch part of the scenery or background. However, we finally decided that it is not significant enough to be an individual work package, and we decided that it would be merged into site works to form the work package 1.1.1.2 Disassembly and clean up.

OBS

Initially some of our team members set up an OBS containing a large number of separate departments. However, during the attempt of intersecting the OBS to the WBS, we realized that too many organizational hierarchies would cause a mess, and since we are dealing with a small budget stage play, these “departments” when over broken up, would contain only 1 or 2 persons each, or would even be held concurrently by other departments.

Therefore, we decided to keep the OBS list simple, by dividing it into:

- **Administration**
- **Support/logistics**
- **Marketing**
- **Stage performance**

In addition, we had more candidates to include in the list:

- **HR**, separated from Administration
- **Design**, separated from Support/logistics
- **Technical**, separated from Support/logistics
- **Finance**, separated from Support/logistics
- **Accounting**, separated from Support/logistics
- **Health, safety and environment**, separated from Support/logistics

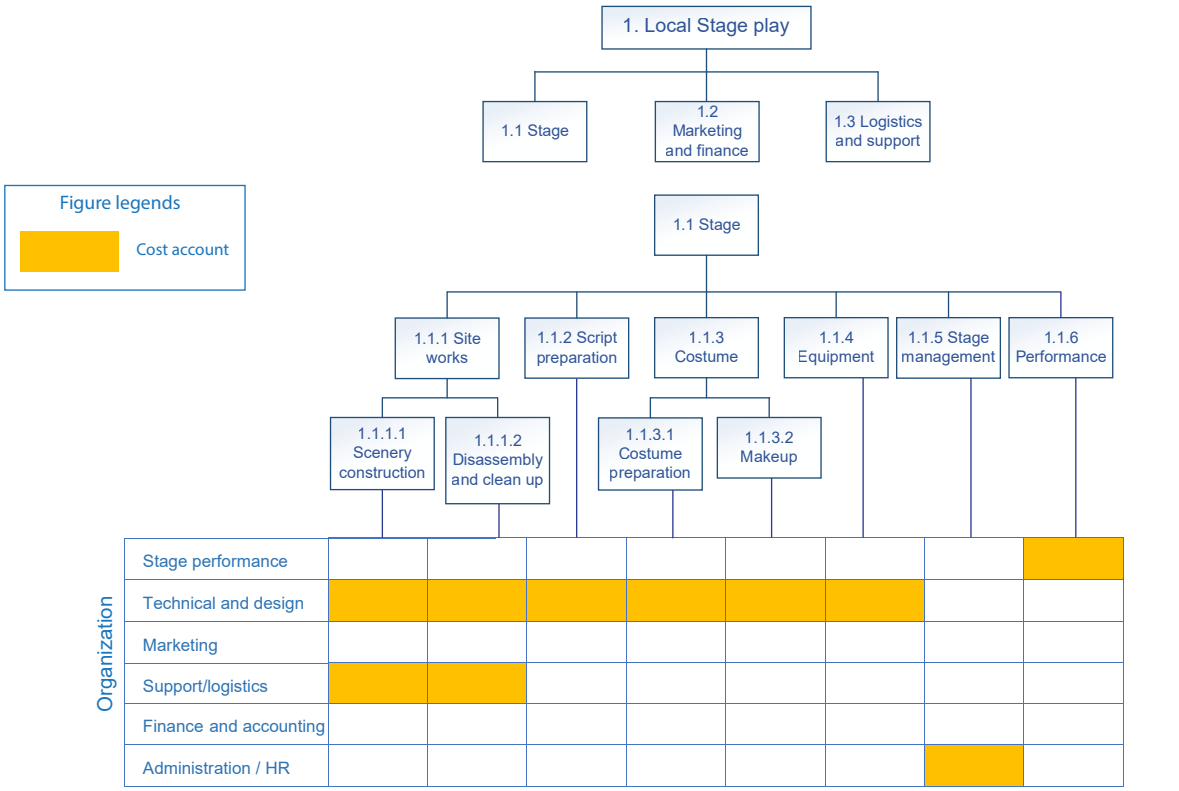
Through further discussion, we agreed that since this is a small company, HR would be concurrently held by senior managers or team leaders, and would not make a separate department. The technicians and designers, on the other hand, are highly specialized work which requires dedicated professionals. Also, costume and make up are also part of the broader technical and design range. Therefore, technical and design can be a separate department. We had no further dispute that accounting should be part of finance, and finance should be a separate department, since the nature of their work is very different from the general support and logistics. The

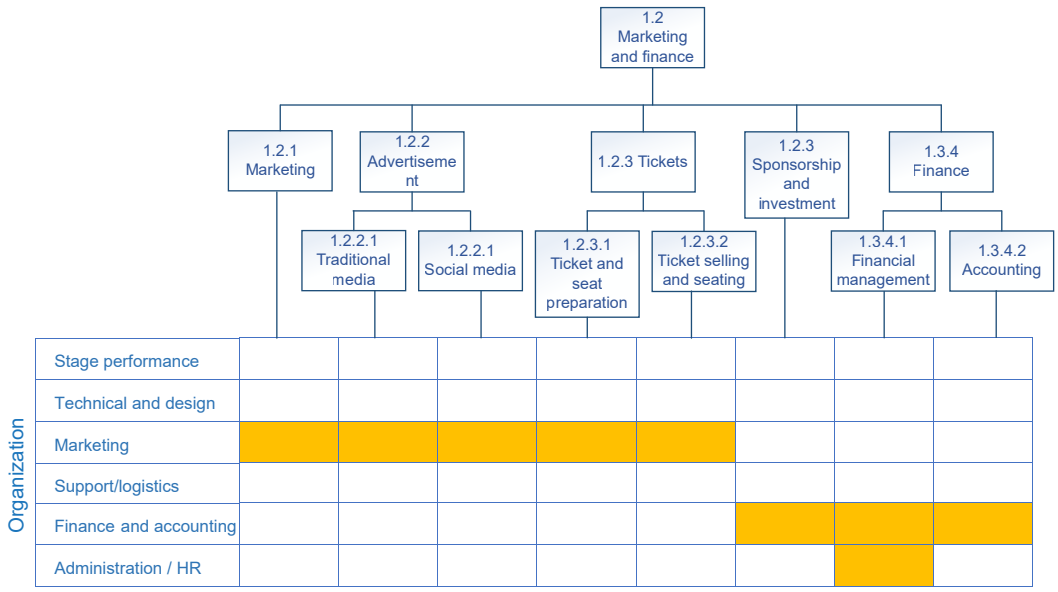
majority of us agreed that the nature of health, safety and environment is not highly distinguishable with the support and logistics, and they will not be a separate department when we do not have a large company.

The agreed OBS by our team is:

- **Administration/HR**
- **Support/logistics**
- **Technical and design**
- **Marketing**
- **Finance and accounting**
- **Stage performance**

The structure of WBS intersected with OBS is shown as Figure 2.


1. Local Stage play
1.1 Stage
1.2 Marketing and finance
1.3 Logistics and support
Figure legends
Cost account
1.1 Stage
1.1.1 Site works
1.1.2 Script preparation
1.1.3 Costume
1.1.4 Equipment
1.1.5 Stage management
1.1.6 Performance
1.1.1.1 Scenery construction
1.1.1.2 Disassembly and clean up
1.1.3.1 Costume preparation
1.1.3.2 Makeup
Organization
Stage performance
Technical and design
Marketing
Support/logistics
Finance and accounting
Administration / HR


1.2 Marketing and finance
1.2.1 Marketing
1.2.2 Advertisement
1.2.3 Tickets
1.2.3 Sponsorship and investment
1.3.4 Finance
1.2.2.1 Traditional media
1.2.2.1 Social media
1.2.3.1 Ticket and seat preparation
1.2.3.2 Ticket selling and seating
1.3.4.1 Financial management
1.3.4.2 Accounting
Organization
Stage performance
Technical and design
Marketing
Support/logistics
Finance and accounting
Administration / HR

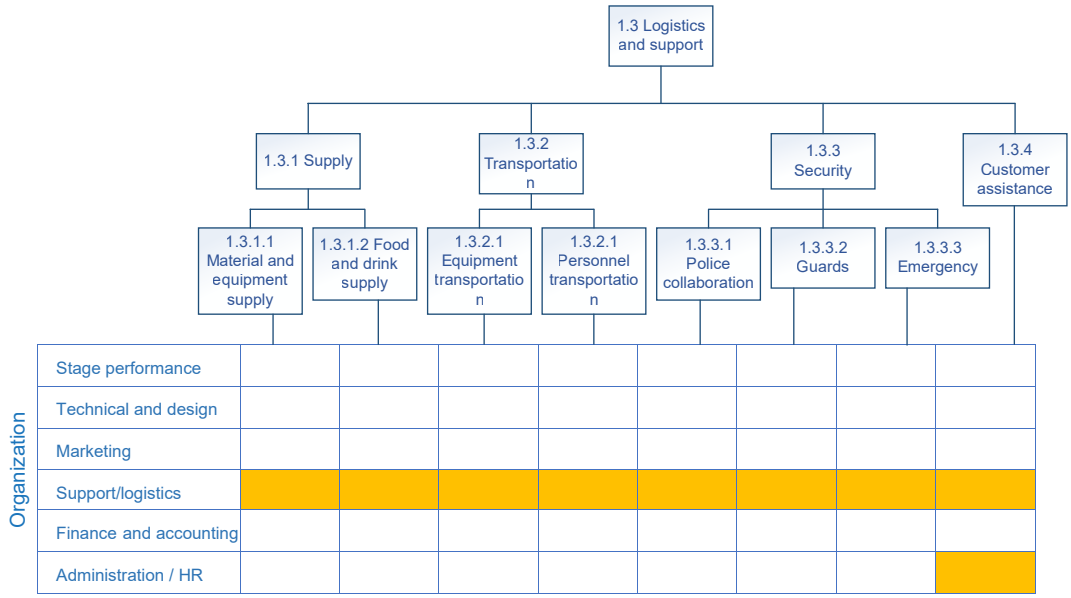

1.3 Logistics and support
1.3.1 Supply
1.3.2 Transportation
1.3.3 Security
1.3.4 Customer assistance
1.3.1.1 Material and equipment supply
1.3.1.2 Food and drink supply
1.3.2.1 Equipment transportation
1.3.2.1 Personnel transportation
1.3.3.1 Police collaboration
1.3.3.2 Guards
1.3.3.3 Emergency
Organization
Stage performance
Technical and design
Marketing
Support/logistics
Finance and accounting
Administration / HR

Figure 2: Organizational breakdown structure

The work breakdown structure was intersected with the organization breakdown structure and the hierarchy is shown with responsible organizational departments.

Sample work package

After discussion, we decided that we will use1.3.2.1 Equipment transportation as the sample work package, because this a relatively more familiar area for us engineering students, in comparison to finance, marketing, stage performance, etc. Equipment transportation was separated from personnel transportation, since a work package is the smallest deliverable for a project, and transportation of equipment is highly distinctive from personnel in terms of vehicle type, transportation capability, and methods of loading/unloading.

The work package was presented as Table 1.

Activity	Transportation of materials, equipment, clothing to the site before the play and bringing them back after the play.
Responsible people	The support/logistics team
Accountable to	PM
Resource requirement	1 medium rigid truck for 2 trips
Material	fuel
Time	1 day before the performance, 1 day after the performance
Labor	2 x general labor for loading and unloading. 2 trips x 4 hours including road time and loading, unloading. Driver cost is included in vehicle rental.
Output deliverable	1.3.2.1 Equipment transportation
Budget	Delivery van rental $200 x 2 trips, fuel $40. Total $440

Table 1: A sample work package

The work package 1.3.2.1 Equipment transportation is presented in details as a sample work package.

CONCLUSION

In this project, by teamwork, we defined the scope of a local stage play, and determined its deliverables, WBS, OBS, and a work package. Before each item of the project, each of our team presented our own designs and then discussed about them. The discussion effectively exchanged our ideas, and by expressing our opinions, we successfully persuaded each other and reach agreements in time.

During our project, our PM's successfully managed the progress of the project, and our team members kept pace with the timetable of the project plan. Everyone participated in all the topics equally, and by this way, the WBS, OBS and work package were generated within scheduled time frames.

LESSONS LEARNT

By working on this project, we have gained actual experience on planning of projects. Through this mimic project, we have gained first-hand experience on how scheduling a project is like, and by working on the scope, the deliverables, the WBS and OBS, we have applied our knowledge learnt from the lectures, combined with practice knowledge. This piece of experience will be useful in the future when we step into engineering projects in the real-world scenario.

In addition, when we worked on the project, we further enhanced our teamwork skills. This project, with 7 topics in 2 weeks, has a rather intensive time frame. What adds to the difficulty was that the deliverables of this meta-project depend on each other, e.g. without reaching an agreement on deliverables, the WBS could not be established, and without an agreed WBS, we would not be able to work on an OBS accordingly. Our PMs successfully managed the discussion following critical milestones determined in the plan, and finalized each topic by summarizing it. Our team members happily accepted the team agreement after discussion, and all agree to proceed based on a uniformed ground into the next stage. By doing this, we avoided the case when controversies stack up as we generate increasing discrepancies through more topics. This allowed us to reach a final agreement efficiently.

Scoring of group members:

Wei	9
Danish	8
Jinpeng	8
Yubo	7