

# WBS-based Risk Identification for the Whole Process of Real Estate Project and Countermeasures

Lei SU

College of Economics and Management, Northeast Forestry University, Harbin, P.R. China

Email: sulei28@sohu.com

**Abstract**—The real estate industry is high-risk typically. Real estate project itself has the characteristics of large investment, long cycle, complicated construction technology and susceptible to environmental interference etc. Therefore it is a critical process to identify types and causes of risks, strengthen risk management of development projects to ensure the purpose and goals for enterprise to achieve the steady development. The paper used Work Breakdown Structure (WBS) approach. Made factor analysis, worked breakdown a project into four different stages respectively, the initiation stage, the design and planning stage, the implementation stage and the finishing stage. Quality managed all real estate project factors and identified the major existing risks to achieve risk management process control for real estate project.

**Keywords**—Real Estate Project; Whole Process; Work Breakdown Structure; Risk Identification

## I. The Principle and Application of WBS for the Whole Process of Real Estate Project Risk Identification

### A Definition of the Work Breakdown Structure

WBS, short form of Work Breakdown Structure, is an important method from the scope manages. WBS is a basic skill in project management activities of real estate project. A real estate project is refined into specific tasks, in short is dismembered a big task to the detail of the responsibility to the people. Only a WBS diagram can use project software task scheduling, financing and resource management etc. Using WBS break the project into project units according to some specific contract requirements. And these project units will be as project of a series of project manage work. By project manage will consolidate all project units as a whole process of a real estate project. It is to put the project in accordance with its inner structure or process in the sequence of layers.

### B Aims and Advantages of the Work Breakdown Structure

The aim of Work Breakdown Structure is to provide construction project cost determination and control, basis, scheduling and resource demand, to provide support and make it convenient for real estate project managers to distribute tasks and responsibilities.

WBS has four important purposes: At first, WBS is a planning and design tool, which describes train of thought. WBS can help the project managers and the project team to identify and manage effectively. Secondly, WBS is a structural design tool, which represents the relationship between the project units clearly. Once again, WBS is also a planning tool, which can show the complete project and detailed instructions for completing the project must be completed each unit work of the whole process of real estate project. At last, WBS is a project status report tool. WBS can define a milestone event, report project status to the senior managers and customers.

Project deliverables should be further decomposed into WBS in the real estate project, because WBS can prevent omission project deliverables and help the project managers pay attention on project objectives and clarify the duties, create a visualization project deliverables, as well as estimate workload and assign job. WBS can also help improve estimation accuracy of the time, the cost and the resource; help build project team and obtain project staffs' commitment. Define a reference for performance measurement and the control of the project. Communicate responsibilities clearly and build framework for other project planning. Most notably, WBS can help to analyze the project's initial risk.

### C Process of the Work Breakdown Structure

We can follow the following steps when using the Work Breakdown Structure:

(1) Define the major project tasks, and then decompose the tasks into sub tasks. In this step, we must know to achieve the task, what job need to finish? While these "job" are performed throughout the whole process of the real estate project.

(2) Identify each deliverable to the level of detail with the preparation of the budget and cost, and clear the required resources.

(3) Work packages: Make sure all work packages can be detected and allocated. The result quantified performance of the work packages can be tested. It is convenient for inspection.

(4) When appropriate and necessary inspection decomposition, that is, the bottom of the decomposition is appropriate and necessary.

---

Supported by the Fundamental Research Funds for the Central Universities Project(DL12BC05); Heilongjiang Province Education Bureau Humanities and Social Science Project(11544032).

## II. Application of WBS for the Whole Process of Real Estate Project Risk Identification

### A The Role of WBS in Real Estate Project Risk Identification

Establish of Work Breakdown Structure makes the work breakdown. It can make the sub task activities based on a consensus basis, make target and risk combination of target, risk goal more concise and easy operation, rectification of unqualified products timely, make risk management efficiently. So the real estate project risk control for the whole process with WBS is very necessary.

### B Work Breakdown Structure Chart for Whole Process Risk Management of Real Estate Project

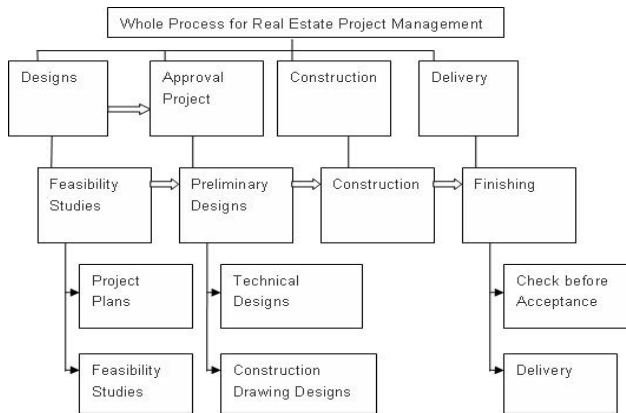


Chart 1. Work Breakdown Structure Chart for Whole Process Risk Management of Real Estate Project

## III. Implementation of WBS Risk Identification for the Whole Process of Real Estate Project

### A Risk Identification of the Initiation Stage

#### 1) Build Work Breakdown Structure Chart for Risk Identification of the Initiation Stage



Chart 2. Work Breakdown Structure Chart for Risk Identification of the Initiation Stage

#### 2) the Risk Response Measures for the Initiation Stage

Real estate project is likely to meet the change of national industry investment policies or some other relevant policies changes during the long cycle of the project. All these change will bring risks. Therefore, managers must have countermeasures plans, such as the possible risk prediction and

risk probability etc. The project managers should collect useful information as far as possible, do due diligence, market analysis, and assessment of financial and human conditions, project feasibility analysis and other preparatory work etc.

Risk identification is the premise of risk control for real estate project. Project managers should study the real estate project cycle deeply, study national policy and forecast what change trend the real estate policy will have in the period of the project cycle. Analyze the geographical conditions and natural factors, and predict the possible changes to the project site. Make close relationship with the planning department, the department of homeland and the electricity sector, and so on. Communicate the detailed information with these departments in time.

Real estate project managers are essential for risk identification. Managers themselves should have many high qualities, such as, professional skills, knowledge structure, strain capacity and some other aspects. Clear the duties, rights and obligations of project managers. At the same time, must have risk management measures for the managers as well. According to the project contract price extract a percentage works as venture funds. The specific proportion can be different according to the degree of difficulty of construction project, the construction period, the quality requirements, the scale of the project, the required construction technology and the risk adjustment etc.

### B Risk Identification of the Design and Planning stage

#### 1) Build Work Breakdown Structure chart for Risk Identification of the Design and Planning Stage



Chart 3. Work Breakdown Structure Chart for Risk Identification of the Design and Planning Stage

#### 2) the Risk Response Measures for the Design and Planning Stage

In the risk identification of the design and planning phase, should review the project design. Ensure that the design meets the design requirements, and in line with the national guidelines and policies of real estate construction at the same time.

Control the risk from the prospecting units and design units: audit the qualification certificate of the prospecting units and design units of annual inspection; review the main technical staff occupation qualification. In addition, check the management level of the prospecting units and design units match the qualification grade level.

Make sure finish the real estate project whole process not beyond the budget cycle and budget cost approved. Pay attention to the real estate project summary reports and project cost statistics etc. Improve quality of the budget and increase bid invitation scope as much as possible. Set up a scientific engineering cost analyzing system. Make project planning very well. Monitor and control the project cost as well.

Requisition of land may cause many legal difficulties and social difficulties. Therefore we should process the land requisition, demolition, relocation compensation and other relevant problems reasonable and carefully. Increase the contract consciousness; sign the transfer contract, demolition resettlement compensation contract in time, in order to avoid ambiguity and contract loophole. Try best to minimize the needless legal dispute and loss.

In addition, foster good relations with the local government, administration department and other agencies. When encounter problems, communicate with the government departments in timely. Obtain their support and help for the real estate project. Thus we can reduce the risk, get less loss and unnecessary troubles.

C Risk Identification of the Implementation Stage

1) Build Work Breakdown Structure chart for Risk Identification of the Implementation Stage



Chart 4. Breakdown Structure chart for Risk Identification of the Implementation Stage

2) the Risk Response Measures for the Implementation Stage

In the project implementation process, we need sign quite a lot of necessary contracts, such as, contracts for the supply of materials. If execution of the contract is not strict, it will cause a contract dispute. All these will influence the real estate project. Therefore, the contract documents should be designated safekeeping. Realize that the key data of the contract quick retrieval and summarization function is also very important.

Always emphasize the importance of safety construction of the whole process of real estate project. Strictly instill safety consciousness to the construction personnel. Make sure safety of all personnel who enter the construction site. Strictly comply with the rules of construction and monitor it. Develop safety management system and implement it strictly. Take measures to prevent people falling, and prevent high altitude lost hurt somebody as well. Carry out law education, against the theft, illegal acts such as be forgetful of one's duties etc.

In the implementation phase, each tache will lead to the

schedule delay or make the quality of the real estate project is not up to the requirements. Therefore, control each link which affects the duration and quality of the project. Establish evaluation and supervision system, and provide quality management basis.

With the wide application of computer tools, project schedule management entered a new stage. Information technology in these aspects has extraordinary performance. It provides a simple and convenient optimization schedule management method. Real estate project managers can handle changes efficiently; and reduce repetitive work of the planning review staffs greatly. Shorten the construction period effectively as well.

D Risk Identification of the Finishing Stage

1) Build Work Breakdown Structure Chart for Risk Identification of the Finishing Stage



Chart 5. Work Breakdown Structure Chart for Risk Identification of the Finishing Stage

2) the Risk Response Measures for the Finishing Stage

In the finishing stage, check whether the real estate project meets the design requirements. At the same time, check whether each completed process during the project construction phases accord with the design requirement once more.

We advocate early introduction of the Property Management Company strongly. This can make it from the point of view of the property management to supervise the real estate project. The Property Management Company can assist in the quality control of project construction and equipment installation, effectively avoid quite a lot of troubles in usage and management after the completion of real estate project, which can improve the property management and reduce the management cost. While when choose the Property Management Company, we must make a detailed and comprehensive investigation, make sure that the selected Property Management Company can supply high quality services. The high quality Property Management Company can attract more buyers or renters for the real estate project and is conducive to the latter sales part of the real estate project.

In the finishing stage, improve the speed of housing sales and housing account receivable is very important. Real Estate Development Company should formulate a detailed marketing plan and financial plan.

IV. Conclusions

Work Breakdown Structure is applied to the real estate

project risk management for the whole process. The whole process is divided into many manageable stages. Therefore each stage of the task is much more intuitive. And the risk of the real estate project is much easier for project managers to identify control.

### References

- [1] Jiangao Deng, Yijie Bian. Constructing a risk management mechanism model of ERP project implementation[C]. 2008 International Conference on Information Management, Innovation Management and Industrial Engineering. 2008,2:72-77.
- [2] Kim Hiang Liow, James R. Webb. Common factors in international securitized real estate markets[J]. Review of Financial Economics, 2009, 18(4): 80-89.
- [3] A. Kaklauskas, L. Kelpsiene, E.K. Zavadskas, D. Bardauskiene, G. Kaklauskas, M. Urbonas, V. Sorakas. Crisis management in construction and real estate: Conceptual modeling at the micro-, meso- and macro-levels[J]. Land Use Policy, 2011, 28(1): 280-293.
- [4] Cheng Zhihao, Ma Rengen, Lei Xunping. Study of real estate supply chain[J]. China Logistics & Purchasing, 2008, (11): 56-57.
- [5] Laarni Bulan, Christopher Mayer, C. Tsurriel Somerville, Irreversible investment, real options, and competition: Evidence from real estate development[J]. Journal of Urban Economics, 2009, 65(3): 237-251.
- [6] Wang Yan, Liu Yongsheng. A review on supply chain risk management[J]. Logistics Technology, 2008,27,(8): 138-141.
- [7] Yijian Sun, Rufu Huang, Dailin Chen, Hongnan Li, Fuzzy Set-Based Risk Evaluation Model for Real Estate Projects[J], Tsinghua Science & Technology, 2008(13): 158-164.