ARCHITECTING PROJECT MANAGEMENT

for Enterprise Agility…

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WBS - A strategic tool for managing projects & organizations

Theme: Organization Design for Enterprise Agility

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CONTENTS

ABSTRACT

The Work breakdown structure (WBS) is an established method and considered as one of fundamental building blocks for managing projects. Project management standards e.g. PMI consider it predominantly as a part of scope management. In practice organizations use it in different ways and purposes, some for managing scope, others for planning during scheduling, organization or resource management etc. Standards and literature have also specified the use of WBS as a foundation for techniques like Earned Value Management. Essentially, creating a WBS involves the process of decomposition based on phase (activity), product or location.

This paper will explore the concept and technique of WBS in applying it dynamically and how it can work when organizations have to be agile and are constantly changing with regard to strategy. Can the type and method of decomposition be done depending on the purpose for the project & organization, the project domain or sector, and phase of the project? How the connection between projects and strategy be better understood using WBS as a tool during implementation for organizations which have show agility in their approach. This aspect will be presented with regard to the current knowledge on the subject and research /surveys done by the author .A new suggested process of 'WBS Analysis' will be introduced as part of the PMBOK guide .

INTRODUCTION

A Work Breakdown Structure (WBS) for a project can be developed with a deliverable or product orientation or based on location or phase or activity or a combination of these. Project Management standards for example those from PMI (2), and others have defined that WBS should be developed as deliverable oriented or a product oriented structure and have specified it as a preferred approach. However, in practice the situation is often different. Standards do not generally prescribe the orientation that needs to be followed since it depends on the context of domain and type and complexity of the project .Some practitioners create the WBS with a mindset of schedule development while others have a cost focus or use scope as the purpose. Methods of decomposition vary and they could be based on activity (phase), geography / location or product/ deliverables. Further, a Top down or Bottom up approach or a combination could be followed. WBS is useful in a whole lot of situations - Scope or schedule management, controlling, cost management, estimating, risk management and communicating.

DETAILS OF THE PAPER

Structuring WBS - Challenges

Since specific guidelines are not prescribed by standards, practitioners do not follow a unified method or they do not understand the value of using a combination of methods to suit changing situations. A gap or disconnect exists between the methods mentioned in various standards and that practiced which could have the following reasons. (10)

a) The standards do not indicate tools/techniques which can be applied specifically for a domain or situation but are generalized with a lot of scope for improvisation to suit the context.

b) The knowledge and practice on this subject is still evolving.

c) There is still some confusion on its purpose and its area of use and the way it can be applied.

d) More effort is required through training sessions and workshops to help practitioners apply it in their work.

Current Status - Knowledge / Research / Practice

Considerable knowledge exists in terms of standards and literature .Some researchers have proposed newer ways of viewing and structuring WBS .Notwithstanding, there seems to be a gap between knowledge available and practice.

Standards specify the WBS to be a deliverable or product oriented structure .It is considered as part of knowledge area of scope management (2) .The WBS has shown to be interfacing with or part of other knowledge areas - Integration, Time, Cost, Quality, Risks Communication ,HR and Procurement (3)(4) .

A survey done with practitioners indicated that while they considered scope management as the main purpose for using a WBS they were also using it for scheduling , execution ,cost control and estimation .(10)

Reorienting the WBS in terms of deliverable /product, phase/activity, cost or by location/geography, resources become an easy and quick way of evaluating different scenarios suitable to the requirement or circumstance. This is possible since all the data is collected and available at the level of the Work Package or WBS dictionary which becomes the basic building block for analysis.

Alternative approaches

Scope Relationship diagram (5)

An interesting way of integrating the scope and schedule for creating a WBS is the 'Scope Relationship diagram' .which unifies two different knowledge areas. In this the activities have been considered and shown as nested within scope in a diagram and the same is used during the scope /schedule planning exercise.

3D WBS method (6)

Uses mainly PBS (Product Breakdown Structure) ABS (Activity Breakdown Structure) and ZBS (Zone Breakdown Structure). It incorporates OBS (Organization Breakdown Structure) as well .Each orientation can be projected on one axis and when considered together can be seen in the form of cube - can be a representation of OLAP (Online Analytical Processing) or A Rubik's cube .Different visions can be visualized at different phases of life cycle of project .This is considered more amenable for analysis of Earned Value Management. (6)

WBS Analysis (10)

The technique of 'WBS Analysis' could be considered as a 'tool and technique' for many of the project management processes. A suggested definition for this technique could be "Structuring and reclassifying WBS elements e.g. work packages in a work breakdown structure based on an objective of scope, cost, time, quality, risk etc or other organizational goals for initiating, planning, monitoring / controlling or closing a project". The purpose and use of this technique would vary for each process and accordingly it will be described differently for each knowledge area.

The technique of WBS Analysis will have the following steps. ( )

1) Stating the project objective.

2) Understanding what is being analyzed.

3) Re-organizing / Re-classifying the WBS components (e.g. Work packages) to suit the parameter being analyzed and the project objective.

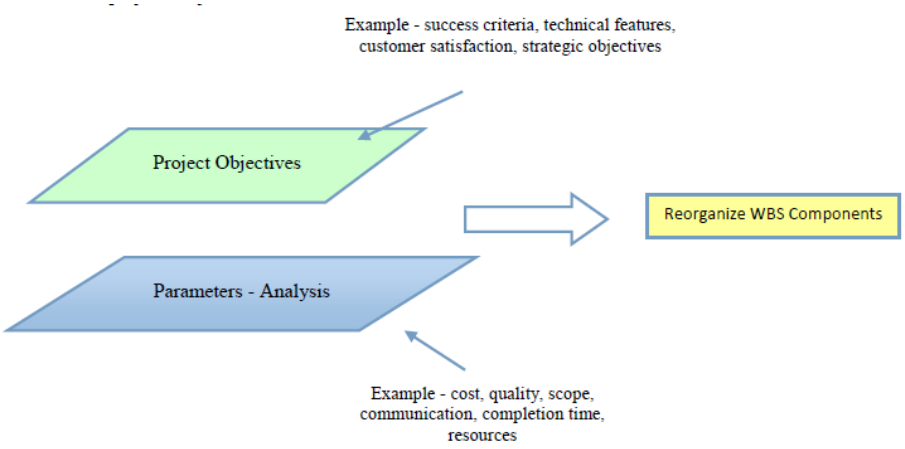

Figure (1) WBS Analysis - Method (10)

The alternative approaches mentioned do not seem to have been implemented in practice and are still in the realm of ideas or thoughts and current research .They are however a welcome step in considering a unified way of approaching the planning and control of projects and it will be interesting to observe how practitioners apply them .

WBS and Project Strategy

Project Strategy

*Project strategy is the definition of position, the means, and the guidelines of what to do and how to do it, to achieve highest competitive advantage and the best value from the project. (*11)

One dimension of measuring the effectiveness of projects is by doing so at the tactical level and these measures will include those related to **scope, time, cost (including resources)** and **quality** which are based on the concept of triple constraints .Though this is very relevant and important it is not discussed here as the focus of this paper is on the strategic connect.

Project strategy involves creating competitive advantage with the project result. Four generic project strategies are considered three of them similar to Porter's generic strategies (9) and fourth being time which is unique to projects. These are **cost advantage, time advantage, product advantage** and **customer focus**. (11)The structuring and orientation of WBS can be visualized through a strategic perspective by using the four project strategies as described in Table (1) and elaborated as follows.

Cost Advantage or Disadvantage

The project could be for developing a product or for delivering a service or result for an external customer. There could be a cost advantage because of use of low cost resources or components. There could also be a disadvantage because of cost over run on the project or late start or cost increase due to raw materials / labour rates as a result of market or statutory conditions .In all these cases ,WBS could be structured based on orientation of cost or a Cost Breakdown Structure for different work packages .Structuring the WBS based on deliverables (as suggested by standards) would be an added advantage as check points can be introduced within phases which will help control the project from a cost perspective.

Strategy	Features of Strategy	Action using WBS
Cost advantage (or disadvantage)	Low cost project or product , cost overruns ,	Deliverable / product orientation at level 1 and Cost orientation at level 2. Provide check points (gates) within phases at level 3
Time advantage (or disadvantage)	First time advantage for product - time to market, schedule slippage, project late start	Phase /activity orientation at level 1 .Overlapping of phases or activities Product / deliverables at level 2
Product advantage	Superior product features / quality , new technology ,	Deliverable / product orientation at level 1.Further breakdown on product /

		deliverable could be done at level 2
Customer focus	Understanding customer needs , Involving customers in project processes	Option 1 Deliverable / product orientation at level 1 Option 2 Phase /activity orientation at level 1.

Table (1) - WBS and Project Strategy

Time Advantage or Disadvantage

A time advantage would typically occur when the product is first in the market or when a project for an external customer is completed ahead of time and could take advantage of a bonus clause in the contract. A disadvantage is a situation when a project is behind schedule or has a late start. Time becomes a focus point and delays become unacceptable .Resources and cost do not become a constraint. In such cases, WBS could be structured based on Phase or Activity with subsequent levels based on product / deliverables. Overlap of phases or activities may also be considered.

Product Advantage

This would occur with a product which has superior features or quality or when a project of mission critical nature which cannot compromise on the same. Cost and time become subsidiary factors. In such cases, WBS could be structured based on product or deliverable orientation. Further breakdown on product or deliverables will be advantageous. This would provide an opportunity to review periodically product features and quality and improve on them.

Customer focus

This would be a situation when customer orientation becomes the driving factor for the product or project. The involvement of the customer can be at the front end of the project, during requirements gathering, design or testing. There could also be specific time /delivery requirements from the customer for components / work packages or phases. WBS would be structured based on product / deliverables as this would aid customer focus on features and quality. An alternate orientation would be phase/activity wise as this would be advantageous when customer involvement in various phases is a requirement.

Organizational Agility

PMI's Pulse of Profession Report 2015 (7) specifies the Foundational Practices and Framework for Organizational Agility Figure (2) and Figure (3). The process of WBS Analysis which is at the tactical level can be related to the practices at the strategic level.

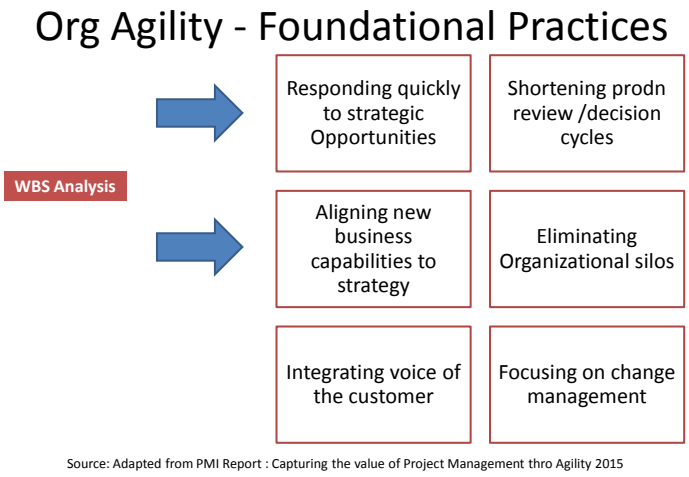

Figure (2) WBS & Organizational Agility – Foundational Practices (7)

Three ways have been quoted for improving Organizational Agility (8)

1. Implement change management best practices
2. Implement risk management best practices
3. Standardize portfolio, program and project management practices

Connecting WBS to strategy as described in this paper can be categorized as part of the third method.

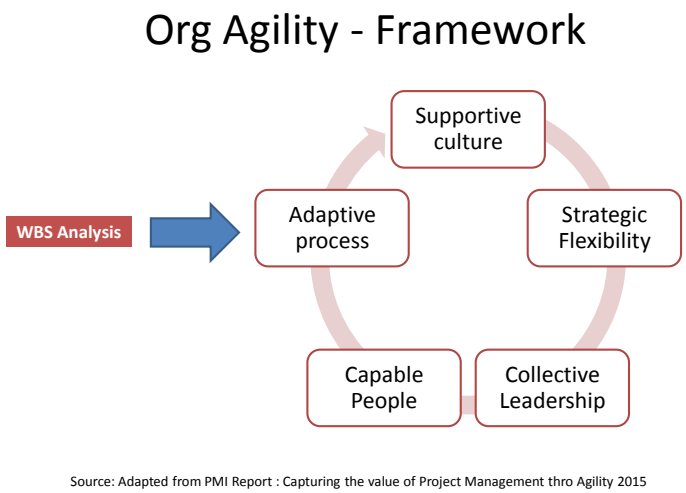

Figure (3) WBS & Organizational Agility - Framework (7)

Adaptive Process

Research reports (7) show that following standardized project management processes is the base for having adaptive processes and agility .The key is to adapt project management approaches of waterfall, agile and extreme methods and create a combination or hybrid management models that fit their unique organizational cultures. Two areas are crucial to foster agility - change management & risk management. (8) Relating WBS to strategy as described in this paper supports this effort.

CONCLUSION

- There is sufficient knowledge in standards and in literature to suggest the use of WBS as a tool not just for scope or time management but also in terms of orientation or categorizing as cost, resources, location, product etc.
- The use of WBS as a strategic tool needs more exploration. The concept has to be tested in practice especially in the light of many ideas and methods being brought out in the last few years in using it with a holistic approach.
- There is still a gap existing between knowledge and practice in the use of WBS as a tool. More awareness, education/training is required particularly through seminars, workshops and mentoring. There is a need for more research into the practice of project scope management including tools and software

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