



## Adapting PMBoK to manage Digital Platform Projects

Capability Enhancement

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## CONTENTS

Abstract.....	3
Introduction .....	3
Digital Platform as IT project .....	5
Conclusion .....	11
References .....	11

## ABSTRACT

Digital transformation is disrupting established business eco systems in unprecedented ways and business houses are being forced to reinvent themselves like never before. A key element of digital transformation is digital platforms and platform revolution is the disruptor-in-chief of established businesses.

For instance, Auto manufacturer BMW is facing the highest threat not from competing auto manufacturers but from Uber who just owns a digital platform! How? Consumers have started to prefer travelling by cabs because of easy access rather than owning cars and going through the hassles of parking, maintenance etc. BMW had to respond to this threat by inventing their own

digital platform. There is now, an explosive growth of digital platforms, be it the retail segment with platforms such as Amazon or Flipkart, hotel platforms such as Oyo rooms or auto platforms such as Uber and Ola, name a business segment and there are digital platforms coming up.

Digital platforms, like any other product, have to be developed as projects and his paper closely examines management of digital platform projects. The paper outlines what constitutes digital platform projects and gets into details of how each knowledge area of PMBoK is applied to these projects. What would be typical WBS elements of platforms? How would the activity breakdown look like? What are the cost heads? What would be the activity breakdown and mile stone? What are the typical risks? In short, the paper illustrates with case studies, how every aspect of project management is applied to digital platform projects.

## INTRODUCTION

The question of how much domain expertise and technology expertise should a project manager possess for successful project delivery has always been an open ended question. Can for instance, a software project manager who is PMP certified directly walk in into the construction industry and start managing a construction project? The answer depends on the context. In rare circumstances where the team members are very senior and are seasoned professionals, a PM can, perhaps lead a project without adequate domain and technology awareness. But, in most practical circumstances, a PM need at least a basic awareness of domain and technology at least from a user's perspective. Specific to the above example, a software PM walking in to the construction industry will have to know what elements typically constitute the scope WBS, what tasks constitute the complete life cycle of a construction project, what are the typical risks and so on to be effective in construction project management.

Management of different types of projects have different idiosyncrasies that the PMs have to be aware of. Such a difference that caught the attention of the software industry in the '00s was the difference between managing software application development projects and software product development projects. However good a PM is, unless the PM understood the nuances of product development he wouldn't succeed in managing a product development project.

Like how, product development was a different paradigm compared to application development, there is a new paradigm looming in the horizon – platform development. From Amazon, Flipkart in retail segment to Uber and Ola

in the transport segment to Oyo in hotel segment, digital platforms are becoming ubiquitous. Like how the '90s saw mushrooming of software products, the late '10s and '20s will see mushrooming of platforms. The digital platform revenues in terms of B2B e-Commerce is expected to grow to USD 1.2 Trillion by 2021 according to a Forrester report [1].

It is digital platforms that are the biggest forces causing disruptions in the industry. Be it displacing existing players or creating new businesses and competition to existing businesses, digital platforms are causing disruptions in very unconventional ways. For instance, emergence of Android as a platform in the mobile industry threw out established players such as Black Berry. AirBnB created an altogether new industry segment in the form of home stays. In other cases, established players in the auto industry such as BMW are facing new threats not from other competing auto manufacturers but from transportation companies such as Uber. Ease of transportation offered by Uber is tempting enough to always use a cab rather than owning a car and going through the hassles of parking and maintenance. In response, BMW is investing in digital platforms too and in collaboration with Daimler, they are investing 1 Billion Euros on digital platforms [2].

And their impact is massive. Disruptions caused by digital platforms don't just change the players – but they change an entire eco system causing new rules of the game, new ways of marketing, new ways of looking at value, new competencies for success, new players and new relationships among the players and so on. For instance, disruption of auto industry by Uber is causing new rules of the game, emergence of new players and relationships for parking, relationship between parking space and car owners, lending of cars during idle time and so on.

Development of such digital platforms as IT projects involves a knowhow that is significantly different from managing application development projects. This paper briefly describes characteristics of digital platforms and lists challenges in developing and managing them as IT projects. The paper then takes a health care platform as a case study and illustrates the differences in managing a platform project as compared to regular software projects. The differences are illustrated mainly using the 10 knowledge areas of PMBoK and this paper is meant to expose a regular software project manager to the nuances of managing platforms as projects and also provide some insights so that their transition into a new role becomes smoother.

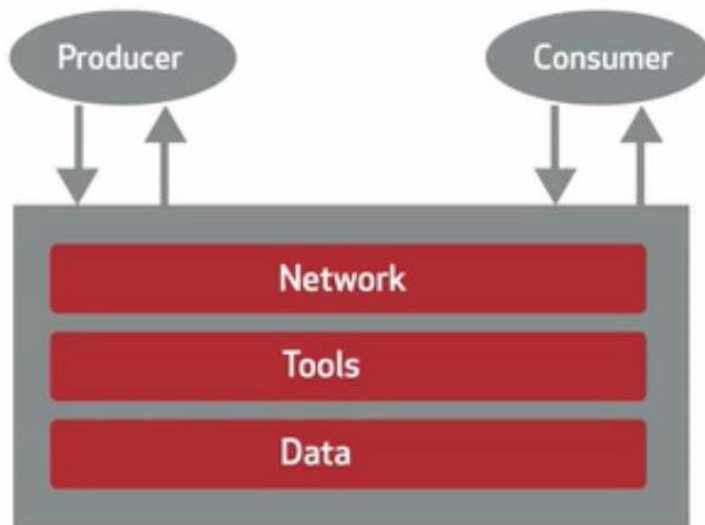
## DIGITAL PLATFORM AS IT PROJECT

### CHARACTERISTICS OF A DIGITAL PLATFORM

By definition, a digital platform is a governed technology infrastructure and is a market place connecting suppliers and consumers. On a digital platform, the suppliers and the platform owners earn revenues. Platforms are typically classified as:

- One sided: The consumers don't purchase any goods on the platform but the suppliers pay the platform to reach the consumers and the business is carried out outside the platform. Google for instance, is a single sided platform.
- Two sided: Uber is an example of two-sided platform where consumers and service providers transact through the platform. Travellers pay for Taxi service and make payments to the platform and the platform in turn makes payments to drivers.
- Multi sided: There are multiple types of consumers and suppliers on a multi sided platform. LinkedIn for instance, has job seekers, trainees, job providers, content providers, service providers and service consumers.

The architecture of a digital platform is typically as shown in the diagram:



*Diagram 1: Structure of a digital platform*

Fundamental to a digital platform is the data that is created by subscriptions or membership or simply usage. This data is then processed through tools to facilitate networking and then business transactions between the producers and consumers through the network. Distinguishing features of a digital platform are:

- **Value:** The reason why consumers want to become part of the platform. For instance, ease of travel is the value that a Uber traveller looks for and opportunity to earn money is why a service provider (Driver / car owner) wants to become a part of this platform.

- **Network effects:** Interaction among consumers influencing their buying decisions.
- **Rating systems:** Recommendation systems to reward or punish the suppliers for the quality of goods and services
- **Monetization schemes:** How the platform owners earn revenue
- **Security:** Data security, privacy, role based access permissions
- **Platform administration and governance:** Technical maintenance and monitoring of ethical usage according to terms and conditions
- **Legal feasibility specific to countries**

## MANAGEMENT OF DIGITAL PLATFORM PROJECTS

Building a digital platform and maintaining it is essentially an IT project and with the mushrooming of platforms, a software project manager stands a good chance that he or she may land up managing one. Managing platform development projects carries its idiosyncrasies in much the same way product development was different from application development even though the differences in platform management are larger. The key challenge to PMs in managing platforms is that they don't have much precedence and they may not be aware of nuances. And the biggest risk is that if they try to manage a platform just like any other IT project, then chances of failure will be much higher. This is what happened with product development couple of decades back. Project managers were approaching product development in much the same way as application development and ran into problems. There were many initial hiccups. It is only after many post mortems and exchange of lessons learnt that product management was recognized as a sub field by itself, different from application development management. Now, the situation is similar in platform management and the purpose of this paper is to provide the PM, a look ahead and early warnings about the pitfalls involved in platform management so that they can plan accordingly and increase the probability of success.

The uniqueness of platform project management is illustrated through the 10 knowledge areas of the Project Management Body of Knowledge (PMBok). While the description of Risk Management knowledge area brings about an awareness of possible pit falls, the other knowledge areas provide a glimpse of what to expect in a platform management. And we use a case study of a healthcare platform to illustrate these idiosyncrasies.

### *The case study:*

The case study is that of a two-sided platform in the healthcare segment. There is a significant value in traditional ancient wisdom about herbs, special food items to take care of health and heal illness. This wisdom exists across the world wherever there has been an ancient civilization and the wisdom exists very richly in India. This wisdom is being lost as we progress from generation to generation due to lack of adequate communication between generations. A solution to overcome this problem is to create a network of health conscious people who are the consumers and doctors and healthcare consultants as the service providers.

The platform facilitates both the consumers and producers to upload specific cures in the form of audios, videos, documents, and images. Doctors and healthcare consultants can verify themselves through certification. The practices and cures uploaded can be rated by co-consumers and endorsed by authenticated doctors. Platform monetization is through advertisements and transactions between producers and consumers take place outside the platform.

### *The PMBoK:*

A primary body of knowledge published by the Project Management Institute (PMI) is the PMBoK and consists of 10 knowledge areas [3] as follows:

1. Integration Management
2. Scope Management
3. Schedule Management
4. Cost Management
5. Quality Management
6. Resource Management
7. Communication Management
8. Risk Management
9. Procurement Management and
10. Stakeholder Management.

## THE HEALTHCARE PLATFORM THROUGH PMBOK LENSE

### INTEGRATION MANAGEMENT

The integration management knowledge area predominantly involves keeping the project objective in mind while executing, monitoring and controlling the project. When there are variances in the project, controlling decisions are taken based on the project objective in mind. In this sense, a platform development project will have a level 4 success as an objective compared to level 3 success of products and level 2 or 1 success of application development. Project success can be defined using multiple parameters and Nagaraja [4] and Howasawi [5] consolidate the success parameters by categorizing them into 4 hierarchical levels as illustrated in Table 1.

Project success level	Description	Implication
<b>Level 1: Deliverable quality</b>	If a project is considered successful if deliverables meet quality specifications	Typical application development projects delivered under Time and Material contracts generally have level 1 success as the target. There will be emphasis on schedule but a PM may not have ultimate accountability for schedule and budget.
<b>Level 2: Project management parameters such as Schedule and Budget</b>	A project is considered successful if it is delivered in conformance with project management parameters such as schedule and cost variances and customer satisfaction ratings.	Typical application development projects delivered under Fixed Price contracts generally have level 1 and level 2 successes as target.
<b>Level 3: Impact on business / organization</b>	If the organizational goals are met by the project, such as revenue, profits etc., the project is successful at level 3	Software product management will typically have level 1, 2 and 3 successes as project objective. Unlike applications which serve a specific purpose, a product has to be a commercial success too!
<b>Level 4: Impact on social context</b>	A project is considered successful if it changes the habits of society or a social segment. A metro train project will be considered successful only if it reduces traffic on the arterial roads.	Success at level 4 is a must for a platform and a platform project will have all 4 levels of success as objective. Unless there are changes in the consumer habits of the target social segment, the platform will not be successful.



Table 1: Project success framework

SCOPE MANAGEMENT

It will be useful to know before hand, what will be the typical components of a scope WBS for a platform project so that the PM can take them into account for planning requirement elicitation and documenting scope. This helps in ensuring clear and complete requirements and avoid unnecessary requirement changes subsequently (Although the necessary requirement changes will anyway be there in any IT project).

A possible scope WBS for platform projects:

**Value:** Consumers come to the platform for availability of effective cures, proactive health boosters. But, how to model and structure them involves significant work. Hence, this is a separate module by itself.

All the other elements of WBS are fairly self explanatory.

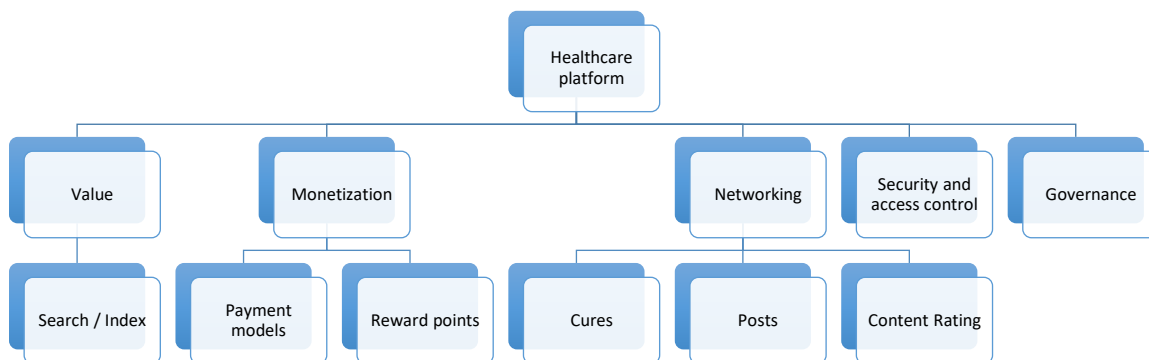


Diagram 2: Scope WBS for healthcare platform

While the diagram illustrates a specific WBS, except for the item “Cures”, all other items are generic and can be applicable to any platform.

SCHEDULE MANAGEMENT

While it is beyond the scope of a paper to present an entire activity breakdown of a platform project, the important differentiators are highlighted in this section. While, the overall project flow would be more or less similar to that of any IT project, it is in the concept design / solution design that the activity breakdown is very specific to platform projects. The high level activity breakdown (Task breakdown at first level) for solution design phase of healthcare platform is listed below:



- Conceptualize value (Note: whether it will be one unstructured body of content or will there be sub structures? For instance, in the health care project, for each cure, will there be by category, applicability to regions, age groups, specific disease category etc should be part of the cure structure).
- Search and Indexing scheme (Note: How will the consumers search for cures? What will be the filters?)
- Model the monetization (Note: Will there be a premium membership against fee? Will there be advertisement revenue? Will there be reward points? How will payment be handled? How will billing be done?)
- Design networking relationships (Note: How will the consumers relate to each other? Like friends on FB? Or like followers on twitters? Will there be multiple levels maintained as on LinkedIn? What are the implications of a relationship?)
- Subscription / registration model (Note: How will the subscribers join the platform? For instance, in the healthcare platform, there is option for doctors and consultants such as weight reduction or yoga consultants to get authenticated and the platform software has to support all these processes).
- Obtain legal clearance
- Design governance policies
- Work flow design to enforce governance policies
- Design matrix for Role based access
- Design content rating mechanism

## COST MANAGEMENT

The typical cost heads involved in a platform development would be:

- Human Resource
  - Domain experts
  - Admin staff for governance
  - Software development and maintenance
  - IT infrastructure staff
- Hardware Resources
- Hosting
- Software Resources
- Consultancy charges
  - Legal
  - Security and privacy
- Real estate and office infrastructure cost

## QUALITY MANAGEMENT

Among the key quality parameters to be tracked, the biggest would be intuitiveness and ease of use of the platform. A typical list of quality parameters typical to platforms is given below:

- Intuitiveness and ease of use
- Software quality in terms of being defect free
- Response time adherence

## RESOURCE MANAGEMENT

Key skills required for platform management are:

- Data sciences: Platforms churn massive volumes of data and it needs deep expertise in data sciences to manage big data efficiently and effectively.
- AI and Machine learning: Machine learning skills are needed to increase the intelligence of the platforms in tendering all services to both producers and consumers. Other AI techniques are also needed to reduce people power needed to govern the platform. In the case study, AI algorithms can take care of initial screening of cures and posts for adherence to platform ethical norms.
- Domain knowledge: In the case study, some knowledge of healthcare will be needed to model and structure the content.
- Database design and administration skills
- IT infrastructure set up and administration skills
- Software development
- Knowledge of agile methodologies including Dev Ops
- Security
- IOT if a specific platform involves multiple devices

## COMMUNICATION MANAGEMENT

Communication is already emphasized adequately in agile methodologies and Dev Ops. In platform development, what is to be noted is that there is a more diverse group among whom communication exchange has to happen and a common understanding to be established.

## RISK MANAGEMENT

The common risks in a platform development project are:

- Security breach
- Privacy compromise
- Server breakdown because of data volume
- Inability to get legal clearance
- Seeding the platform may not happen (Acquiring the initial threshold volume of memberships to ensure that the platform grows on its own).

## PROCUREMENT MANAGEMENT

Help of external consultants may be sought for the following skills as they are not likely to be available abundantly in the industry:

- Interface design (A supreme level expertise is what is sought here and hence likely to be unavailable for recruitment. Average level skills in interface design may be available in the industry)
- Security audits
- Obtaining legal clearance

## STAKEHOLDER MANAGEMENT

Because of social impact, the list of stakeholders in a platform project is likely to be not only larger but also more diverse. Some of the important stakeholders are listed below:

- Consumer and producer representative groups
- Government departments
  - IT ministry – To keep them satisfied about data security and privacy policies
  - Health ministry for this case study as the exchange of health care ideas should not violate any healthcare related policies of the government
- Lawyers or other legal intermediaries
- Domain experts
- Technical staff of all h/w and s/w departments
- Sponsor
- Sales staff
- Marketing staff

## CONCLUSION

Digital platforms are on the rise and are key contributors to disruptions in the industry. Like how product development was significantly different from application development in the earlier era, platform development and management is a paradigm shift in IT project management. If PMs step into this arena without adequate preparation, they are likely to face stumbling blocks that reduce the probability of project success.

This paper tries to alleviate this problem by providing a glimpse of elements of platform development and management through illustration of the 10 knowledge areas of PMBoK as applicable to platform projects. It also highlights some of the possible pit falls and a PM equipped with this awareness is better equipped to handle platform development and management projects. The PM knows what to expect in a platform project and can gear up himself / herself and the staff accordingly and also avoid the pitfalls to significantly increase the probability of project success.

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