

Effective and Efficient Project Management through Technology Leadership

Sub Theme - Project Management Leadership > In a Rapidly Changing World

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Abstract

Project Management has become more challenging lately as customers are ardent to bring great products to market to draw consumers ahead of competition. How projects were managed decades ago has changed radically now. Decisions need to be made quicker now a days with strong rationale behind to be successful. The role of management has now become crucial in bringing in the best in process and people with the inclusion of tools and automation in a swiftly changing environment.

Technology has picked up steam and is moving barriers beyond boundaries at an unimaginable pace. Many tools are now available to develop information easily and aid management in effective decision making process. Continuous Integration and Automated Tests are some of best practices when implemented using the tools can help greatly in reducing the cycle time. Tools are also being used across all phases of the projects by the team to support rapid delivery and also to increase productivity.

Digital Project Dashboards hosted on cloud can be used as an information radiators and can convey the status of the project to all stakeholders in a distributed environment. Team can now be more effective though not collocated by using the latest technologies like Augmented/Virtual Reality and through social networking tools. Intuitive mobile application can now help management with status using push notifications.

Project Management Leadership needs to create a sustainable ecosystem powered by tools and technologies thereby enabling the team to be effective and efficient.

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Introduction

Let's look at how projects were executed in the past (say decade ago) and how has it changed lately to understand in detail. To begin with, consumers were mostly interacting physical entities like Banks, Retailers and Healthcare Providers etc. for all of their needs. Projects executed during those days were mostly providing limited capabilities for the end users to avail benefits or rather not user centric.

The invention of smartphones and dotcom explosion are pivotal points in the history of information revolution. These inventions changed the behavior of consumers and catapulted to subsequent development of new types of projects (products). The changes in behaviors of the consumer's mandated different way of executing projects and also lot of new theories and practices emerged. How can project managers cope with the changes and challenges posed by the consumer behaviors and technologies and still provide leadership and growth?

The new age project manager should constantly seek or develop skillsets needed for managing different types of projects and also the effectively manage the millennial generation of workers. The advent of new tools and technologies will play a pivotal role going forward and also help ease the overhead on managing projects and people, so project managers can focus on the critical aspects of the projects.

Challenges

Traditional project management practices involve processes, manual intervention like reviews and stage gates, checkpoints at several stages of development. Projects managers are tasked with managing the delivery by implementing and overseeing these processes and practices as well as the keeping tabs on operational aspects. There were only limited tools like mentioned above (Gantt Charts or spreadsheets) at project manager's disposal to plan and track the project. These tools may be helpful in projects where the triple constraints are intact and don't scope any additional changes allow deviations (e.g. construction of dam, bridges etc.).

Organizations are sprinting to attract more consumers through their offerings by capitalizing on the internet and mobile markets. The following questions could pose challenges when faster time to market, frequently changing requirements and competition are becoming the driving factors while executing the projects.

- How the planning and tracking of projects can be made interactive and live?
- How can project managers empower the team to excel and go above and beyond call of duty by minimizing management overhead?
- How can release pipeline seamlessly accommodate changes?
- How can team be fostered innovatively for long term sustenance?
- How can an organization adapt to changing market conditions and promote sustainable growth and development?

Technology Leadership

Project Managers should constantly innovate to adapt to shifting needs of business as well as managing projects. More and more companies are now embracing latest technologies to power their businesses. Netflix and Amazon are doing continuous releases every hour to meet consumer demands. This was impossible decades ago where the production deployments were more structured and planned. There were more process built in place (stage gates, reviews etc.) to deliver the end product.

Project Managers did not have collaborative tools and technologies at their disposal (except for scheduling tool and spreadsheets) to measure the projects at different points in time. The traditional way of managing projects is slowly waning away as the new technologies take on aiding the project managers in the changing world.

Building Ecosystem

Projects have been evolving largely based on the market conditions, consumer habits, competition and regulatory requirements. To help deliver the project successfully, proper tools and technologies need to be provided to the team of developers. Developers should be given the independence to choose the technology of their choice (be it C#, Java, Python etc.) as long as it meets the business requirements or end result. Netflix uses home grown continuous integration platform to integrate all of programmer's business logic. It takes only **16 minutes for multi geographies deployment** from the moment the developer checks in the code. This is a great way of democratizing development.

The screenshot shows the JanitorMonkey dashboard. At the top, there's a navigation bar with 'SPINNAKER' and tabs for 'Applications', 'Infrastructure', and 'Data'. A search bar and 'What's New' notification are also present. The main header includes 'janitormonkey' and navigation links for 'PIPELINES', 'CLUSTERS', 'LOAD BALANCERS', 'SECURITY GROUPS', 'PROPERTIES', 'TASKS', and 'CONFIG'. On the left, there's a 'Filters' sidebar with sections for 'SEARCH', 'PIPELINES', and 'STATUS'. The main content area displays a pipeline named 'janitor triggered pipeline'. A specific build, 'BUILD #1465 TRIGGERED BUILD', is highlighted with a green progress bar and a 'Status: SUCCEEDED' label. Below this, a 'Multi-region Bake' step is shown with a progress bar and a 'Deploy' button. A 'MULTI-REGION BAKE DETAILS' section includes a table of steps and a 'BAKE IN US-EAST-1' configuration panel.

Step	Started	Duration	Status
Bake in us-east-1	2016-02-22 17:46:59 PST	07:36	SUCCEEDED
Bake in us-west-1	2016-02-22 17:46:59 PST	05:33	SUCCEEDED
Bake in us-west-2	2016-02-22 17:46:59 PST	06:04	SUCCEEDED
Bake in eu-west-1	2016-02-22 17:46:59 PST	06:37	SUCCEEDED

Sample Netflix Deployment Pipeline

The continuous integration server can host “n” number of test cases depending on the project needs and test the programs for robustness and extreme conditions as well. The code quality can also be measured through number of open source tools like SONARQUBE and other propriety tools. The ecosystem also need to cater to changing project needs. New features or scope should be easily built into the system by building loosely coupled architecture or through micro services. This helps largely in democratizing the development where anyone with knowledge and skills can contribute to the project.

Digital Dashboards that displays information on code deployment, failures can be used to monitor the effectiveness of the project delivery. The dashboards can also track the number of customer requirements waiting for deployment. This can be similar to Kanban chart to display information to large audience. The dashboard can be hosted on cloud to monitor the progress of the project 24/7. Proactive alert mechanisms can also be built for critical failures or major issues and can be sent as push notifications to mobiles to management for taking appropriate actions.

Managing Ecosystem

It is not only great to build an ecosystem to democratize development but also the ecosystem should be maintained effectively and has to be efficient to avoid becoming a bottleneck for the team. Project managers can induct architects or infrastructure specialists who can maintain the ecosystem and can aid the development efforts greatly. The ecosystem need to be conducive and easy for the developers to contribute. Health of the ecosystem like 24/7 availability and performance can be achieved through cloud hosting. More open source tools can be made accessible on cloud to help developers do their work efficiently. The environment also can be constantly modernized for newer technology adoption.

Ecosystem also involves people that needs to be regularly motivated to achieve the project goals. Employing different techniques like pair programming defined in XP practices, Test First Development can improve the quality of the product to great extent and also help to think from customer perspective. Agile emphasizes to build projects around motivated individuals. It's at the end of the day, humans who code and deliver. (*Microsoft has done some breakthrough research and developed an algorithm called DEEPCODER that does programming by itself, but it is bit far from realization*). It's more important that the team stay inspired and encouraged for the project to be successful and reap benefits eventually.

"Results are gained by exploiting opportunities, not by solving problems" – Peter Drucker

It's like Apple's Appstore or Google's Playstore where the whole world dives into endless possibilities of creating greater customer experiences through apps (*of course by agreeing to certain terms and conditions*). It is evident that there is a fundamental shift in how the projects are being executed and project manager needs to adapt to these changes quickly and enable in creating such environment for greater realization.

Nurturing Talent

The millennial generation is inspired through openness and transparency. Team should be fortified to challenge the status quo and come up with compelling solutions to address business problems. Social collaboration tools play a great role in understanding the team's behavior. (*Starbucks uses Facebook Workplace to broadcast weekly live videos from CEO and for managers to interact with staff members*). Analytics on social data can help in understanding the motivation and other behaviors of the team members and action plans can be tailored effectively to address people challenges.

"Dreamers come first, builders come second" – Jeff Bezos

Developing a competitive atmosphere can boost the team to think out of the box and spark new ideas. It can help the team to get a break the regular project activities to experiment and learn new things. Contests like hackathons and innovation jams can be held regularly to expand collaboration among teams and also to bring out the best of breed talent.

Augmented and Virtual Reality can now play a bigger part in learning and development too. Team can participate in trainings virtually from anywhere to enhance their technical and soft skills. New technologies are emerging sooner than expected and staying abreast and adopting best suited for projects largely defines the success for any organization. Duration between the release of Angular JS3 and Angular JS4

is more or less just a year. Project Managers need to stay on top of the technological advancements unlike yesteryears and recommend team members to do POCs on latest technology stacks for project adoption.

A P&G executive explained in one of the leadership stories *“The global organization could be reconstructed in 10 years if all the bricks & mortar vanished overnight. However, if their people disappeared, the business would be history in an instant”*. It is also essential to have intrapreneur skills for inspiring and molding young talents to become the next generation technology leaders.

Abraham Lincoln said in his First Annual Message to Congress, December 3, 1861, *“Labor is prior to, and independent of, capital. Capital is the fruit of labor and could not exist if labor had not first existed. Labor is the superior of capital and deserves much the higher consideration”*. Study from Cascio says organizations that adopts the business strategy around highly engaging workforce rather than focusing on costs and margin optimization outperforms their peers.

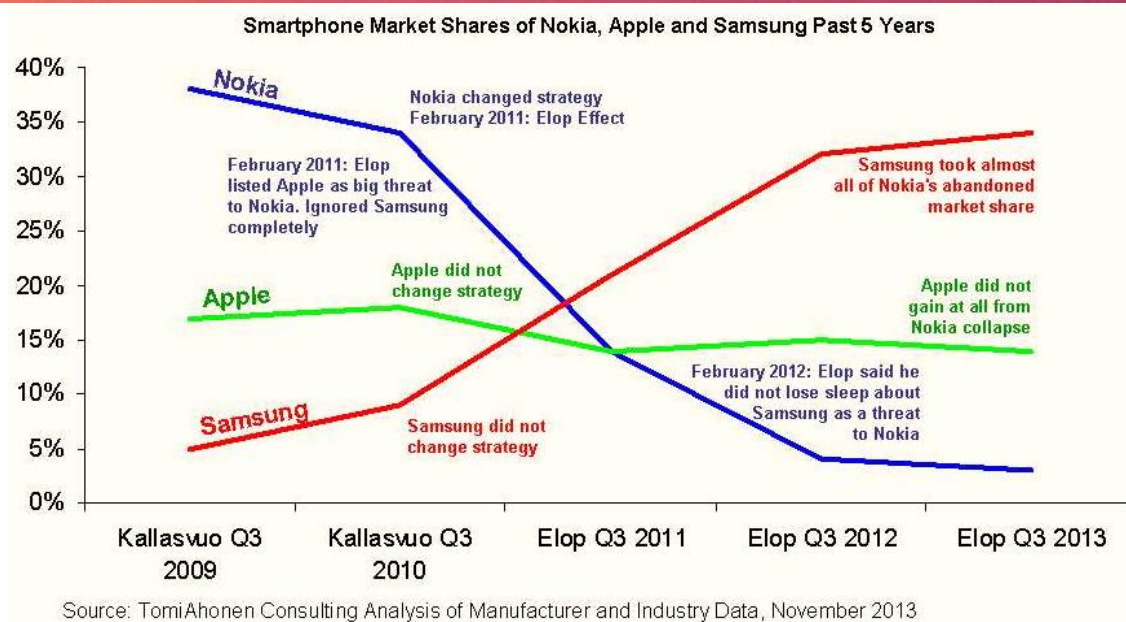
Sustaining Growth

“Capital isn’t scarce. Vision is”. “There is only one boss. The customer. And he can fire everybody in the company from the chairman on down, simply by spending his/her money somewhere else”. – Sam Walton

Projects are now a days being measured based on the value being delivered. Though the cost, schedule and quality factors play key roles, if there is no value in the end product consumers are going to be unhappy and may not use the product or service at all. Organizations may lose revenue and also fail to retain customer’s good will (*tangible and intangible benefits*). Empathy and customer journey are critical success factors and play an important role in project success. Project Manager needs to communicate the vision of the organization to all of the project teams to stay focused on the delighting the customers. Team must be aligned to the vision and work towards collaboratively towards a common goal for greater realization.

Investments on automation will pay off to a larger extent for organizations to reduce costs and make the organizations nimble. Developing talents and right skill based on the market demands can help organizations during economic downturn and fuel growth in new direction.

Nokia CEO ended his speech when Nokia’s smartphone division being acquired by Microsoft saying this *“We didn’t do anything wrong, but somehow, we lost”*. Nokia did not do anything wrong, but the world around them changed too swiftly and Nokia had failed to learn and adapt hastily and also missed out the opportunity to capitalize, eventually lost their chance of survival.



Management should take cues from the markets conditions, consumer trends and economic developments to adjust its focus and the vision to sustain in the long run. Every industry like Banking, Healthcare, Retail, Life Sciences, and Manufacturing undergoes paradigm shift due to the advancement of technologies almost every decade or less. The future is arriving faster than expected as the new technologies emerge and displace existing ones.

Costco's CEO Jim Sinegal underlines the focus: *"On Wall Street they're in the business of making money between now and next Thursday. I don't say that with any bitterness, but we can't take that view. We want to build a company that will still be here 50 and 60 years from now".*

Conclusion

The key take aways for sustainable growth and development in managing projects through rapidly changing environments while maintaining balance between revenue and cost lies in how well the organization and its management adapts to the shift in the global trends in technology. Continuous reskilling and up skilling of its employees based on the industry trends will enable the organizations to be successful and get ahead of the curve.

Management / Project Managers should constantly seek to innovate, build environments for the team to thrive and eventually delight end customers. Technology focus and realignment based on consumer demands should be a prime focus in managing projects for all organizations else they will left behind and eventually will perish.

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