Project Delivery Excellence – A Case study

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Leveraging project management for excellence, growth and transformation

Contents

1.1 Abstract

As the expectations from consumer community keeps increasing exponentially and as competition also keeps growing smarter in any business, it puts more pressure on businesses around the world to invest in innovations continuously to provide best-in-class products and services for the market. This naturally makes Project Management more and more indispensable in any business in turning innovative ideas into reality. With this being the case, Project Management also needs to nurture & deploy new trends in providing business results. Specifically, managing System Integration projects is a complex undertaking due to the large number of interdependent activities that need to be managed to successfully deliver the business objectives of the project. When these projects involve multiple third parties in the delivery, it increases the complexity multifold. Some of the recent successes of complex System Integration projects can be attributed to businesses taking help of System Integrators (SI). This paper presents a case study of Delivery Excellence achieved in a large complex System Integration Program implementation for a Telco through System Integrator led delivery model following some of the recent Project Management trends viz. Capability driven Project delivery, MoSCoW principles & Agile methodology combined with efficient usage of various Project Management tools and techniques. This successful implementation is a clear demonstration of following PMI's model with Process Groups and Knowledge Areas supported by most suitable Tools and Techniques, in few areas, tailored slightly to suit the client requirement.

1.2 Introduction

A Telecom company in UK, which specializes in offering high quality communications services such as IP, data, voice and hosting to large enterprise, reseller and carrier customers, wished to launch GSM based Fixed Mobile Convergence (FMC) services to Enterprise customers in UK with a very aggressive target timeline of 12 weeks.

Tata Consultancy Services (TCS), which has a strong base of Telecom domain experience within its IT & IT-enabled services portfolio, won the contract from this client amidst stiff competition taking the FMC challenge head-on. TCS, as the System Integrator (SI), was accountable for delivering the entire Program. Considering the context of the PMI conference 2010 and also to stress more on the System Integrator delivery model than TCS as a company, this white paper will refer TCS only as System Integrator (SI) in subsequent sections (except for Conclusion section at the last).

This white paper gives a brief overview of System Integration projects delivery process and explains, in specific, about challenges faced in delivering FMC Program. It also elicits the innovative delivery models and proactive Program Management practices followed by the team to overcome those challenges, eventually delivering the desired business results and making the Program highly successful. Some of these challenges are typical ones that are faced in any large System Integration Program and hence the objective of this white paper is to share the best practices followed by the team during delivery of this successful Program so that the same can be implemented as appropriate to similar Programs being delivered around globe.

1.3 System Integration Projects

System Integration projects deal with progressive linking and testing of system components, to merge their functional and technical characteristics into a comprehensive, interoperable system. These projects combine processes and procedures from systems engineering, systems management, and product development to develop large-scale complex systems thereby meeting specific business requirements. These complex systems may involve hardware and software and may be based on existing or legacy systems coupled with new requirements to add significant added functionality.

A typical System Integration project flow is represented in Figure 1. FMC Program also followed the model depicted in Figure1.

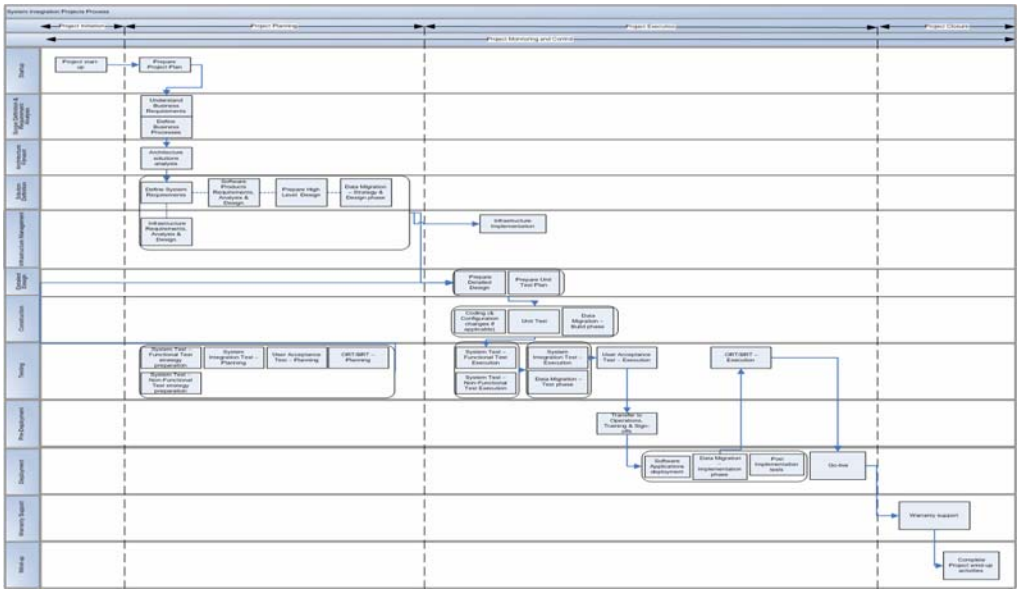

Figure 1 – System Integration project processes mapped to PMI Process Groups

The subsequent sections dive deep into different challenges faced by the Program team during delivery and how those were resolved.

1.4 Aggressive Time-to-market target

1.4.1 The Challenge:

This client aspired to develop IT processes and systems needed to launch the first-ever GSM based Fixed Mobile Convergence (FMC) services to Enterprise customers in UK with a very aggressive target timeline of 12 weeks. The scope for this FMC challenge involved the following at high level:

- Building the business workflows for the various FMC-related rollouts and activities.

- Provision of a self-care portal for customers to order FMC end-user Mobile service.
- Automation of the entire order flow using SOA based integration and web services on mainframes.
- Development of a Business to Business gateway to enable partners to receive/assign tickets.
- Development of a traffic monitoring solution to track traffic across mobile network elements.
- Automation of billing for Voice, SMS, GPRS and Blackberry services.
- Development of various Ordering/Assure and Billing Reports.
- Easy management of Mobile Core Network, FMC Access Network, Mobile Number and SIM Inventory.
- Compliance with various regulatory functions like Port In, Port Out, Repatriation and Re-routing.

1.4.2 The Solution:

1.4.3 MoSCoW Delivery

As SI, the first step undertaken after contract signature is a detailed review of Client-supplied product (Requirements database) and swift definition of high level business processes involved in delivering FMC service. As next step, the end-state IT architecture and detailed solution was developed, with details on how this solution will evolve through various waves (phases) of delivery across the Fulfillment, Assurance and Billing (FAB) domains. The Business Requirements and the extent of automation in each wave were determined based on MoSCoW technique. A common technique used for prioritization by most SIs is MoSCoW. This technique was first devised by Dai Clegg of Oracle UK's Consulting arm, the IPR of which were later donated to the Dynamic Systems Development Method (DSDM) Consortium. This is an extremely useful technique that classifies requirements into Must Haves (essential, can't do without), Should Haves (important, a workaround may suffice), Could Haves (ones that can be let go if we run into trouble), and Won't Haves (not now but later).

The first wave consisting of FMC solution was delivered in 12 weeks with a BPO supported model, which enabled the client to launch basic FMC service. The subsequent waves focused on automation on incremental basis resulting in fully automated solution in 9 months. The progression of the manual to automated journey is depicted in Figure 2. This strategy resulted in win-win situation for both client & SI as FMC service was launched on time as per client's target while SI got due time required for delivering a world class fully automated FMC service.

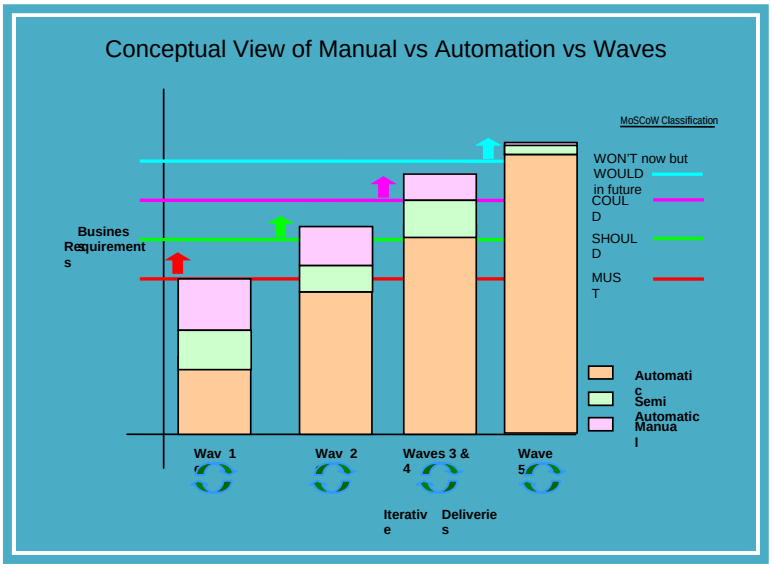

Figure 2 - Wave based Tactical to Strategic solution implementation

1.5 Capped Fixed Price Cost

1.5.1 The Challenge:

The client had awarded this FMC contract to SI under an agreement of a Capped Fixed price which included any costs involved in deliveries involving 3rd parties. This means the risk of any slippage in the Program, be it SI-inflicted or any 3rd party-inflicted, is with SI.

1.5.2 The Solution:

1.5.3 Finance dashboard:

The capped amount agreed as part of contract was apportioned between different waves that are agreed as part of the overall delivery. This included estimated share of cost for deliveries planned to be done by SI and also by 3rd party vendors in each wave. A finance dashboard was created by the Delivery owner and it was continuously updated and tracked with Program team in Finance review meetings. This helped in proactive Program resource planning within SI's organization and also helped in negotiation with 3rd party vendors on costs of their deliveries.

1.5.4 Capability matrix driven Time-boxed waves:

The most important part of the solution to this challenge was the time-boxed sub-phases called waves. A detailed Capability matrix was prepared and issued to the client in order to be clear on what functionalities are delivered as part of each wave. An overall E2E Program plan with detailed breakdown of activities, dependencies etc for each wave was developed. At the start of each wave, the time-boxed schedule of the entire wave with details on the scope being delivered, deadline for all dependencies including any client deliverable, vendor deliverable, etc were clearly published. This helped owners of each dependency to plan in advance and deliver on

time in order to keep the entire Program on track and thereby keeping costs also under control.

1.5.5 Statement of Work:

For any deliveries that are needed from SI or 3rd party vendors, a Statement of Work (SOW) is drafted with clear agreement of Scope, Schedule & Cost and agreed with client. These SOWs were signed on Fixed Price basis after creating competition between prospective suppliers. For SOWs involving 3rd parties, all negotiations with respect to scope, schedule, cost are done by SI and the client will accept any recommendation made by SI. Stringent vendor management governance meetings and reviews were put in place to monitor the deliveries made by vendors. More information on Vendor management practices are explained in a subsequent section in this document. If there were delays in the client dependencies which were out of SI's control, those were escalated to the client Senior Management in advance as risks and later were put into formal Change Control process.

1.6 Dynamic Requirements

1.6.1 The Challenge:

In few areas in the solution (eg Self-Care portal, with which end customer can directly order FMC service), the requirements were evolving as the solution & development progressed. While TCS was under pressure to deliver within time-boxed waves & capped cost, client's expectation was to improve upon user experience requirements as the solution & development progressed.

1.6.2 The Solution:

1.6.3 Agile-based delivery

Agile-based delivery involves iterations of short time frames (timeboxes) that typically last from one to four weeks. Each iteration involves a team working through a full software development cycle including planning, requirements analysis, design, coding, unit testing, and acceptance testing when a working product is demonstrated to stakeholders. This helps minimize overall risk, and lets the project adapt to changes quickly. Stakeholders produce documentation as required. An iteration may not add enough functionality to warrant a market release, but the goal is to have an available release at the end of each iteration. Multiple iterations may be required to release a product or new features.

Agile methods emphasize face-to-face communication over written documents when the team is all in the same location. When a team works in different locations, they maintain daily contact through videoconferencing, voice, e-mail, etc.

To support the client's need for progressive elaboration of requirements in this project, especially on Portal User interface, Agile-based delivery model was followed. The delivery plan proposed and agreed with all stakeholders of the Program is as depicted below. The delivery was based on Agile principles and was split into 5 drops with demos planned at the end of each drop. The feedback that came out of each demo was fed into the next drop provided it is not a new requirement and also it did not need enhancement effort more than few man days effort. This created a win-win scenario for both parties hence resulting in a delivery which met expectations of client.

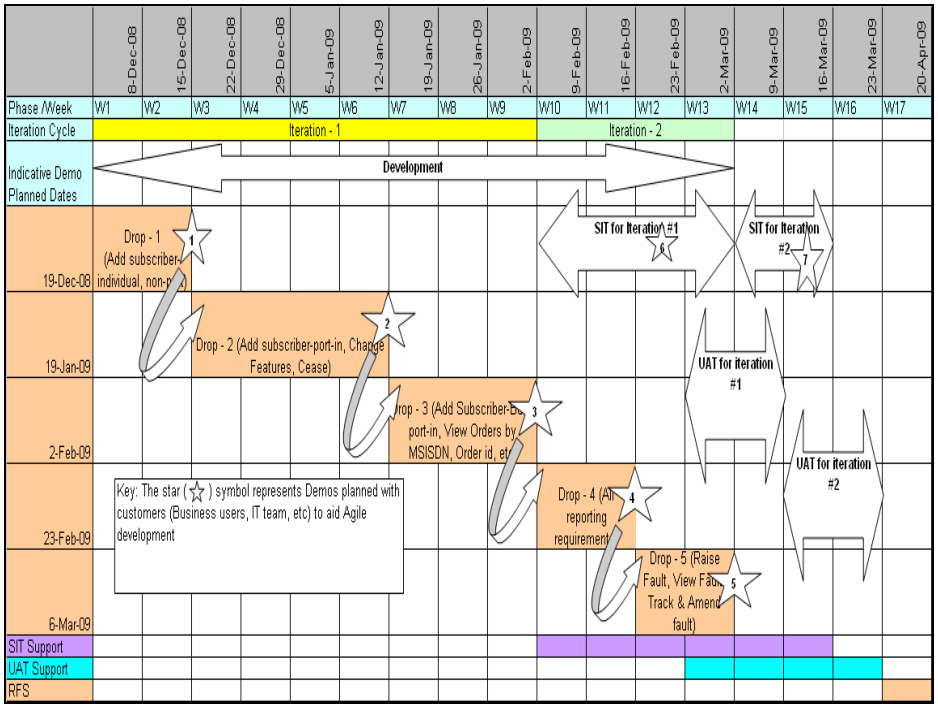

Figure 3 – Conceptual view of Agile-based Delivery model

1.7 Vendor Dependency

1.7.1 The Challenge:

FMC Program's scope included delivery from numerous 3rd party vendors. This introduced complexity in the Program delivery and hence warranted more caution in terms of managing vendor deliveries and in turn the entire delivery.

1.7.2 The Solution:

1.7.3 Robust Governance model

Robust Governance model involving 3rd party vendors (as shown in Figure 4) was established with client's help and this model helped in efficiently managing vendor deliveries. Frequent vendor delivery tracking meetings (daily, weekly as required based on scope of vendor delivery) helped in keeping up-to-date progress information handy and also in resolving any dependencies or issues on time.

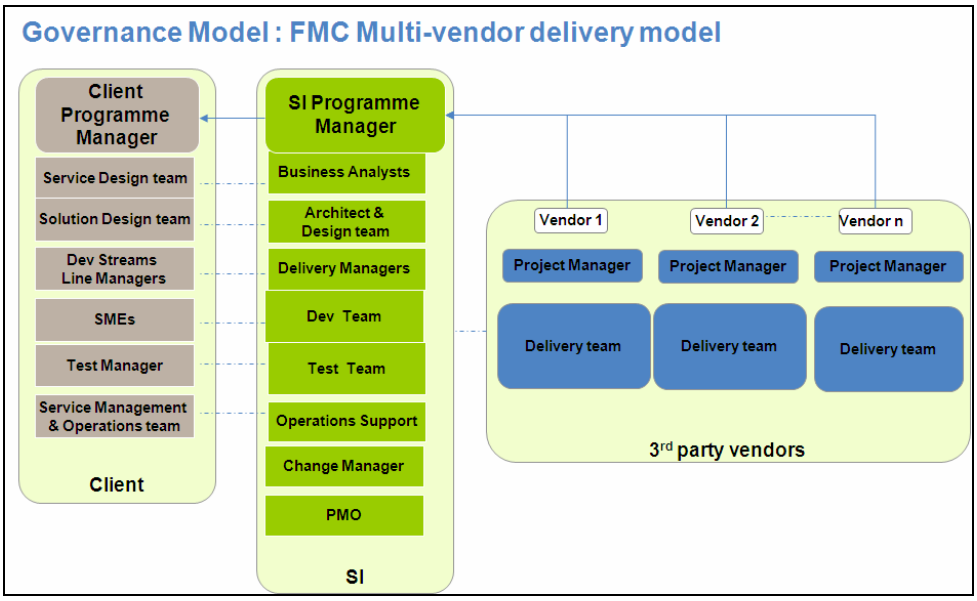

Figure 4 – Conceptual view of Governance model involving SI, client & vendor

1.7.4 Statement of Work (SOW)

A Statement of Work (SOW) is prepared with the following key information and agreed with vendors formally:

Scope – Clear documentation of In-scope & Out-of-Scope items

Deliverables list

Project plan with detailed schedule

Commercials - Fixed price cost

Acceptance criteria

Payment terms

Dependencies

Assumptions

While most of the vendors offered a Fixed price cost only for development of software, negotiations were carried out with vendors to include the following services also in the Fixed price.

Environment support (build and maintenance)

SIT, UAT & Go-live support (including deployment)

Defect Management (Attending Defect hit meetings, Fixing, releasing patches & Closing defects)

Knowledge Transfer to Operations team

Warranty support for 4 weeks after Go-live

1.8 Conflicting Business & IT priorities

1.8.1 The Challenge:

While the Business priority was to launch FMC service as soon as possible, IT's priority was to launch the solution in strategic stack. The strategic stack in subject here was evolved after the contract for FMC was signed with SI and hence the original scope in contract was to deliver FMC in the stack that existed then. The conflict here is if the solution needs to be built on strategic stack, it is a change to the agreed scope, will be more complex (though achievable) and will take more time to launch the service to market.

1.8.2 The Solution:

IT's request for developing the solution in the Strategic stack was negotiated to be raised as a Change Request. After careful deliberations, the impacts to the cost and schedule due to the new direction were discussed with both IT & Business stakeholders and an amicable decision was taken in order for the delivery to satisfy both sides of the stakeholders.

1.9 Adhoc Changes

1.9.1 The Challenge:

While the Agile methodology delivery brings in lots of advantages in terms of progressive elaboration of requirements as we progress through the Program, it also needs to be handled very cautiously from ad-hoc changes being pushed into the Program. Various Program stakeholders used to bring in new requests to be implemented as part of the Program. Since the stakeholders had access to Program resources at all levels from Program manager to the designers and also the developers, Program team faced continuous risks in changes creeping into the Program at different levels. The default expectation from those who raise these requests was for the Program team to accept those as requirement evolution as part of Agile & implement those as part of the scope. This, not only posed a risk to committed Program schedule, but also on Program capped FP cost.

1.9.2 The Solution:

A strong Governance board to manage new changes into the Program was established. The Change Control Board (CCB) as described below in the diagram helped in establishing a process for managing any new requests. The CCB process was discussed and agreed at all levels right from CIO to the developer / tester level in the Executive / Program teams.

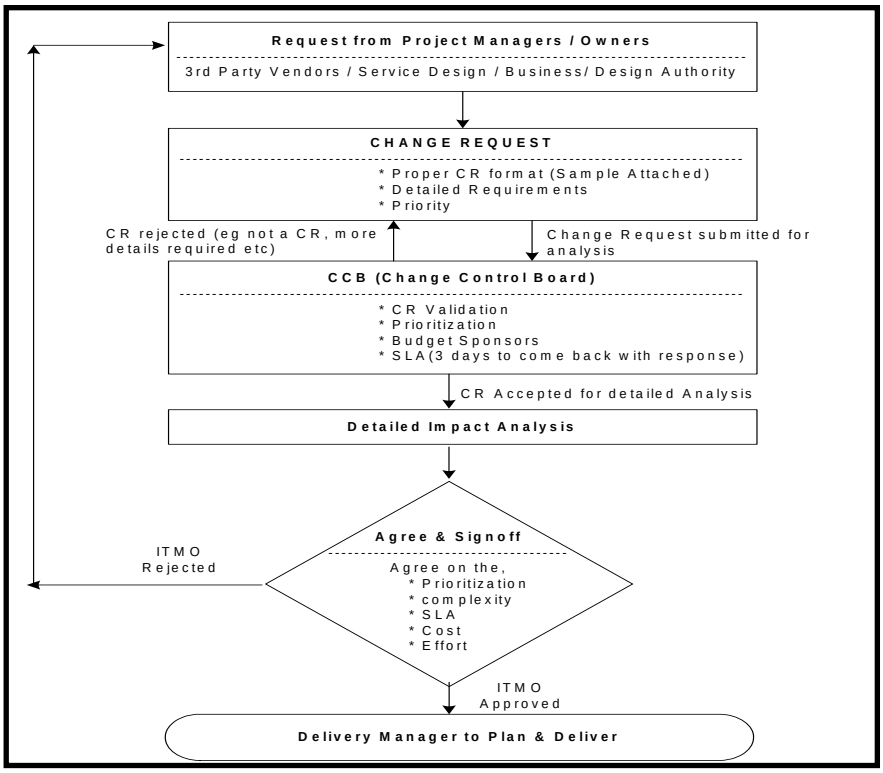

Figure 5 – Conceptual view of FMC Change Control Board

1.10 Managing delays from Client-side

1.10.1 The Challenge:

In spite of the fact that Program team published E2E milestone plan for delivery with clear details on client dependencies with details on target dates of resolution, there were many instances when client was not able to fulfill the dependencies within the requested target dates. This posed a severe risk to both the very aggressive schedule and also to the capped fixed price cost.

1.10.2 The Solution:

1.10.3 Negotiations through Change Control Board

Though a little flexibility was shown by SI for accommodating client delays, when it posed a risk to the baselined cost and schedule, appropriate escalations were done and those cases were referred to the Change Control Board. This helped in opening a negotiation platform and resulted in proposing a staggered delivery pattern as depicted in Figure 6. While the initial agreement was to deliver fully strategic solution in Wave3, due to the fact that client was not able to meet few dependencies for SI, the whole strategic solution delivery was rebaselined to be delivered in three Waves viz Wave3, 4 & 5. After several deliberations, client provided approval for additional budget also to cover the extra time taken for these deliveries due to client-side delays.

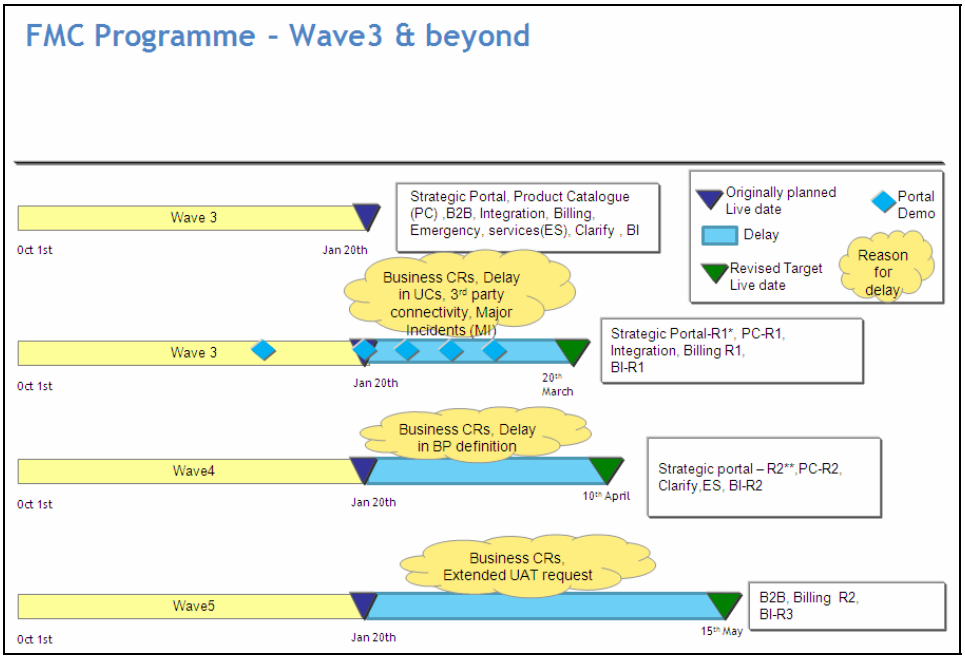

Figure 6 – Conceptual view of Program Re-baseline exercise

1.10.4 RAID register

The negotiation mentioned above might not have been possible if the Program team had not tracked Program Risks, Assumptions, Issues & Dependencies meticulously. All dependencies and Assumptions were consolidated in the RAID register and the key ones were highlighted in various reports that were sent to the client. If a risk of client not meeting those dependencies is foreseen by the SI team, those were highlighted to clients well in advance. Any existing risks and issues were also highlighted in reports. So the client was kept well informed in all means on their dependencies and when any client dependency was not met even after the above proactive steps, we referred the case to Change Control Board where it was negotiated for a CR rebaselining Cost, Schedule and in some cases Scope also.

1.11 Stakeholders' Management

1.11.1 The Challenge:

Most important part of Program management in complex projects is to make sure there is meticulous monitoring and tracking mechanisms in place and appropriate stakeholders are kept informed of progress promptly. In this program, the accountability of stakeholders management lied with SI and hence setting up appropriate Governance mechanism with relevant meetings was a challenge.

1.11.2 The Solution:

1.11.3 Program Reviews - Monitoring & Tracking:

In FMC Program, several governance meetings (right from operational to executive level) were formulated and conducted involving appropriate stakeholders based on

scope and objectives of the meeting. Various reports (Daily, Weekly, Fortnightly, Monthly) were also produced to cover different kind of stakeholders involved in this Program. Details of various meetings and reports which helped in keeping the Program stakeholders informed and in keeping the Program on track are provided below.

1.11.4 Daily Scrum calls (Chair: SI Program Manager)

This Scrum meeting series was scheduled in order to help in driving the entire Program on day-to-day basis. This brought all key stakeholders into a daily call every first half-hour of the day and the agenda was primarily to review status of key activities / deliverables, to share updates between various design / delivery teams and agree on priority actions. This helped in setting (and when required resetting) focus to the entire team based on Program progress and helped in avoiding conflicts between teams.

1.11.5 Monthly/Fortnightly Program status update meeting (Chair: SI Program Manager)

This meeting is to share updates about Programs with client senior management including CIO. This helped in keeping the Program status transparent and also in highlighting any key dependencies, risks and issues that need senior management's intervention/support. This also served as platform to escalate any issue pertaining to vendor commitment or delivery.

1.11.6 Fortnightly Executive level 121 meeting (Chair: SI Organization's Head of Telecom Unit)

This high profile Program had high visibility both in SI's organization and client side. Hence, a fortnightly Tele-conference was scheduled between SI organization's Head of Telecom Unit & client CIO. This helped in establishing and maintaining connects at Executive level so that genuine requests and issues from Program get due attention swiftly at executive level, which resulted in quicker resolutions.

1.11.7 Focus Program Management Reviews (Chair: SI Delivery Owner)

This is an internal SI Program management review (PMR) meeting where key Program delivery milestones and various associated metrics parameters are presented to SI organization's senior management. These reviews helped Program team in keeping SI organization's senior management informed about the progress and also in obtaining appropriate help from various SI-internal support teams viz Telecom Practice, PEG, etc for the Program.

1.11.8 Architecture Review Boards (Chair: Client Head of Solution Design)

As the Program progressed through various Waves (Wave1 being BPO based tactical solution and subsequent waves 2,3,4 & 5 being staggered delivery of fully automated solution), there were several instances where the architectural priorities kept evolving and hence giving challenge to delivery team. This meeting was organized to discuss Architecture roadmap in general or any proposed changes to the existing Architecture in specific. Representatives from SI Program team attended this meeting in order to share their views and also to highlight any possible impacts within Program due to any such new proposals or changes.

1.11.9 Weekly Change Control Board meeting (Chair: SI Change Control Manager/SI Program Manager)

These meetings fully focused on Change Management. It addressed formal new changes initiated by client, any conflicts in Change agreement, delays that are escalated as Changes and so on. This laid a platform for various stakeholders to express their views and finally arrive at a decision on Change Requests. Once the agreement is reached on Change Requests, those are routed to delivery teams for estimation & delivery.

1.11.10 Program Status Reporting:

1.11.11 Daily Status Emails (SI Program Manager)

These emails served as great tool in sending Program updates on daily basis. Since the Program had very aggressive timescales, a Daily status email was necessary to grab attention of key stakeholders in order to swiftly resolve dependencies, risks or issues.

1.11.12 Weekly Status report presentations (SI Program Manager)

Weekly status report containing the overall Program summary status, detailed status on each wave and associated Risks, Issues, Dependencies was sent to all key stakeholders in the Program.

1.11.13 Vendor Status reports (Responsibility: SI Program Manager)

All third party vendors involved in major deliveries in the Program, were asked to send a detailed weekly status report. This helped in formally documenting and reviewing vendor delivery status frequently.

1.12 Conclusion

As a result of innovative delivery models and Proactive Program Management practices followed very meticulously in the delivery life cycle, the Program delivered the desired business results. Client has launched FMC service to one of the largest grocery retailer in UK, who is already its IP VPN customer, as part of a £100 million contract. Client has also signed FMC deals with few other Enterprises and has aggressive growth plans.

FMC as a product offers the following benefits to Enterprise customers:

Reduce total cost of ownership (TCO) for telephony: FMC solution is integrated in the core so no need to maintain or deploy PBXs. FMC doesn't need a LAN so it's cheaper and simpler to install and run.

Reduce the cost of calls from both mobiles and fixed lines: Inter-company calls from fixed or mobile phones are free. Calls from mobiles are at fixed rates.

Inherent resilience and improved coverage to protect business critical voice: Enhanced in-building coverage and macro network provides resilient service in case of a site failure.

Seamless dial plan across both mobile and fixed devices: Ability to maintain and integrate mobiles with any corporate dial plan already owned by user. Advanced features like hunt groups can be implemented across any device no matter where your end users are.

Operational simplicity: Device and platform convergence means one supplier and less devices to manage and fewer single points of failure.

Increase employee productivity: One mobile device per employee with one voicemail means employees are always contactable.

Simple service migration: Just pop the SIM in an unlocked device and service starts.

Client Programme manager commented as below in appreciation to the SI Program team which delivered this highly strategic Program on time.

"A huge thank you to TCS for their continued perseverance, support, creative approach, and ongoing flexibility in helping me drive FMC to completion"

In further recognition to the enormous effort SI team put in to deliver this and also to share their satisfaction to the wider community, Client has approved caselet of this Program to be published in SI organization's website. This caselet is available in the following link.

http://www.tcs.com/resources/case_studies/Pages/CW-Fixed-Mobile-Convergence-Solution.aspx

This White paper is an attempt to elicit a strong case study of a complex Program and to demonstrate that Project Management is an indispensible skillset in achieving Delivery Excellence. This Program is also a demonstration of the value PMI certified Project Management Professionals can bring into complex deliveries, as all the key Program Leads at Onsite and Offshore involved in this delivery were PMI certified Project Managers and had religiously followed PMI principles and methodologies to achieve this success.

1.13 References

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1.14 Author’s profile

A PMI certified Project Management Professional since Jan 2002, Krishnakumar Kanniappan is a seasoned Program Management Consultant specialized in System Integrator delivery model. He currently works as Consultant in Tata Consultancy Services, performing Relationship & Delivery Head role (Customer Experience portfolio) for one of its Telecom client in UK. Prior to this role, he led the Fixed Mobile Convergence (FMC) Program for a Telco in UK as SI Program Manager, successfully delivering the fully automated strategic FMC solution. He is the lead author of 'System Integration Projects - process manual' submitted for reviews currently within TCS.

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