Project initiation at ACL

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Jan 8th, 2021

Madhav Kumar, the CEO of A2Z Cinemas Limited (ACL), was shocked to see the estimated cost received from Aruna Hegde, the CIO, about implementing the functionality to introduce loyalty cards for their customers. Aruna briefed him yesterday about the complexities and challenges associated with the implementation due to the existing information and communications technology (ICT) infrastructure. Madhav is in a dilemma in choosing between continuing with the status quo and taking up a major transformation of the infrastructure. The latter choice has the potential to not only deal with the current challenges but also provide necessary agility in realizing his longer-term expansion plans. Since all the cinemas are closed due to Covid-19 lockdown since late March 2020, he is confident that his staff, especially the IT staff, can be asked to devote their time and effort on this transformation. Madhav has been worried - since he took over the position from his father - about the existing ICT infrastructure as it is limiting planned expansion capabilities. He recollects how the company, founded by his father Shyam Kumar, has expanded over the last 15 years.

1.1 Historical background

ACL was incorporated in 2005 in central Mumbai. Shyam Kumar founded the company with a small theatre complex consisting of five screens showing national, international and regional language movies. By 2010, ACL expanded to five multiplexes at prominent locations in Mumbai by acquiring and rebranding other not so profitable theatres and multiplexes. Tasting the success from these acquisitions and rebranding, ACL had further expanded its operations in 12 other cities in India, with another 20 multiplexes having a number of screens varying between 5 and 10, through several acquisitions during the next decade (Exhibit 1.1).

ACL was successful in turning the loss-making multiplexes into profitable ventures. Operations at each multiplex were being supported through a mix of computerized systems and applications that existed at the multiplex at the time of acquisition. Shyam Kumar – in consultation with the then IT manager Ramakant Desai - felt that using existing IT infrastructure will not only be cost-effective and less risky but also the existing staff at those multiplexes can be effectively employed without any retraining. Following the online ticket sales trend in India, the company established multiple links – due to differences in underlying technologies - for each multiplex with external systems such as BookMyShow and PayTM for online ticket sales.

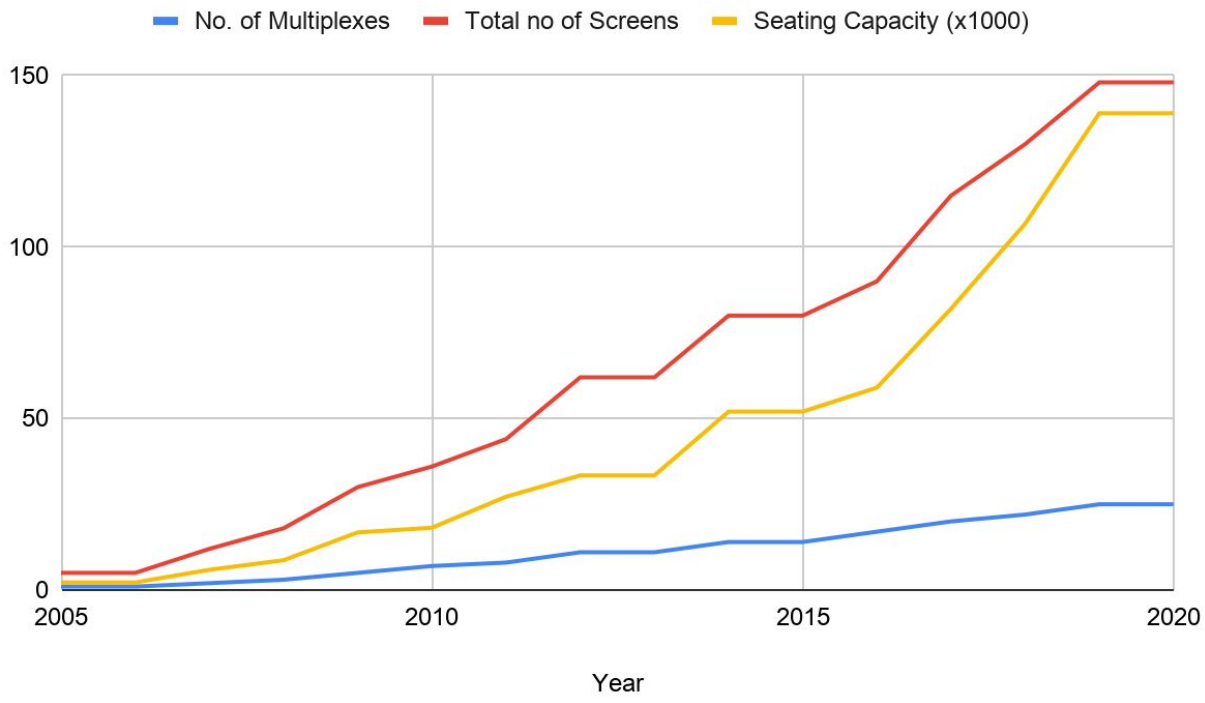

Exhibit 1.1 - ACL's growth since 2005

At the beginning of 2018, there was an anticipated change in top management. Madhav Kumar was given the position of CEO by his father who planned his retirement a few years ago. Madhav, having graduated with an MBA from a prestigious institution, has been planning on multiple initiatives to enhance efficiency and effectiveness of multiplex operations and decision-making activities throughout the company, and to increase revenues through improved customer service. He noticed that there are several drawbacks with respect to how information and communication technologies (ICT) are being utilized at various multiplexes of ACL. He is also aware of the inefficient or redundant processes, difficulties in obtaining and consolidating data from various multiplexes, and the high cost of maintaining the existing IT portfolio and its linkages with external systems.

Madhav, soon after taking the CEO position, reorganized the Head Office structure (see Exhibit 2). He started centralising several functions such as planning (identifying new movies and scheduling of shows), human resources, and finance & accounting functions. A key part of the operations related to screening of movies at all the digital screens of ACL was also centralised. Another part of the operations function is the sale of tickets and the online aspect of sales through partner websites is currently centralized. He has also created a CIO position to lead the 25 member IT group and to assist him in planning the ICT infrastructure required to support the long term plans and initiatives. Administration and operations at Individual multiplexes,

however, are mostly managed by local managers and supervisors. The support for the IT infrastructure at multiplexes is mostly managed remotely, by the IT group at the Head Office with occasional assistance from two to five part-time IT staff in each city having ACL multiplexes.

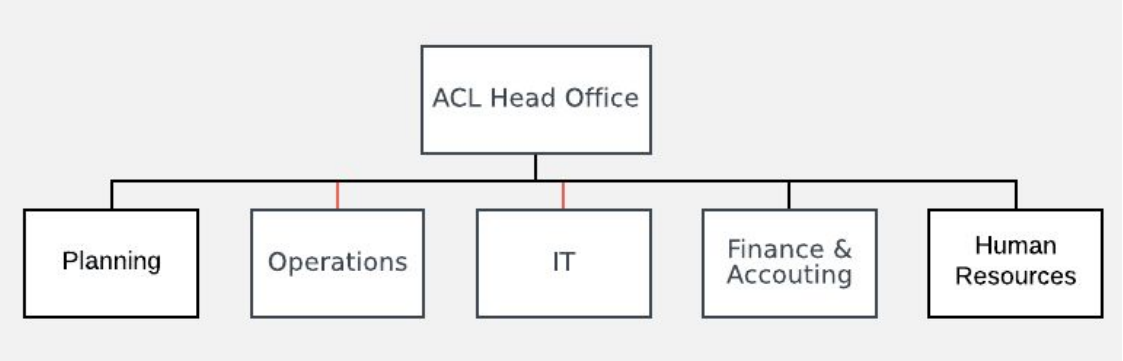

Exhibit 1.2 - Organization structure at ACL

As part of the centralization plan, ACL over the last couple of years has successfully implemented two important solutions related to movie booking & scheduling, and show management applications. These applications are primarily cloud-based solutions from popular international vendors. Madhav and his senior management have been quite happy with these implementations as they introduced state-of-the-art solutions for effective and efficient processes.

The situation, however, with respect to the administration and sales is quite the opposite. The applications that are being used are quite different not only in supporting the processes but also with respect to the underlying infrastructure (see Exhibit 1.3). In addition, due to the shift pattern of customers buying tickets online a good percentage of sales revenue was being lost because of the commissions paid to partners for online ticket sales since 2011 (Exhibit 1.4).

1.2 Large scale transformation

In mid-2018, Madhav - in consultation with the newly appointed CTO Aruna Hegde and other senior executives in the company - planned and implemented two centralized solutions for movie booking and scheduling and screen management. These solutions were purchased from an established vendor in this field and customized to meet the needs of ACL. The first of these targeted to select old and new movies from various distributors and schedule those movies across various multiplexes of ACL. The screen management solution takes care of the actual playing of the movies on various screens as per the prepared schedule. The managers at multiplexes can request schedule changes via email if necessary.

Multiplexes	System environment	Applications
M01, M02, M05	Windows-based	In-house developed application for admin and ticketing
M03, M04	Windows-based ticketing application	Local vendor developed application for ticketing; Vendor went out of business, but third party support is available in a limited form; Administration is primarily done using Excel sheets
M06, M07 and M10	Unix-based	Contracted development to a local software house
M08, M11 and M12	Unix-based	In-house developed application for admin and ticketing
M09, M13 to M19	Unix-based	In-house developed application for admin and ticketing
M20, M22 and M24	Unix-based and Windows-based	In-house developed application for admin and Window-based ticketing application
M21, M23 and M25	Windows-based	In-house developed application for admin and ticketing

Note: *Although different multiplexes use similar system environments, different rows in the above table indicate different applications*

Exhibit 1.3 - ACL's existing ICT infrastructure related administration and sales

Following the successful implementation, Madhav wanted to initiate a large-scale transformation program in early 2020 immediately after the hectic holiday season. He recollected the IT strategy course he studied and especially the effect of selecting an operating model in transforming the enterprise architecture of an organization (Ross and Taylor, 2004). Accordingly, Madhav has narrowed down to the unification and replication operating models which emphasize on implementing highly standardized processes across the organization. The difference however is with respect to the deployment of the standardized solutions as centralized in the unification model and or distributed in the replication model.

Between these two options, Madhav preferred - after a few rounds of discussions with Aruna - the unification model especially due to the flexibility and lower costs involved by taking advantage of a selective mix of centralized and decentralized operations supported by cloud-based software solutions. This, the large scale transformation plan included replacement of existing ICT with a set of standardized and integrated application systems for supporting standardized processes with the goal of achieving increased operational efficiency, effective decision making, and increased revenues through better customer service and online ticket sales.

Year	No. of Multiplexes	Total no of Screens	Seating Capacity	Seating Capacity (x1000)	Avg ticket price	Perc seats sold	Revenue (x1000)	Partner sales perc	Partner % comm	Comm paid
2005	1	5	2200	2.2	142	78	244	0	0	0
2006	1	5	2200	2.2	152	67	224	0	0	0
2007	2	12	5900	5.9	161	76	722	0	0	0
2008	3	18	8680	8.68	160	56	778	0	0	0
2009	5	30	16800	16.8	140	53	1247	0	0	0
2010	7	36	18160	18.16	132	58	1390	0	0	0
2011	8	44	27200	27.2	145	60	2366	6	10	14198
2012	11	62	33400	33.4	156	67	3491	7	9	21993
2013	11	62	33400	33.4	157	77	4038	9	8	29072
2014	14	80	52000	52	155	78	6287	12	8	60353
2015	14	80	52000	52	156	76	6165	15	8	73981
2016	17	90	59000	59	160	75	7080	18	8	101952
2017	20	115	82000	82	172	74	10437	25	8	208739
2018	22	130	106800	106.8	180	73	14034	33	8	370485
2019	25	148	139000	139	185	76	19543	36	8	562850
2020	25	148	139000	139	190	26	6867	31	8	170292

Exhibit 1.4 - Sales growth and commissions paid to partners for online tickets

As part of this transformation, the top management has identified several projects for implementation over the next five years under the operational efficiency improvement program. From those projects, they selected a high priority project named Mux-Core first to support other multiplex operations such as multiplex administration, ticket sales at its counters, and then to implement online (web and mobile) applications to facilitate online ticket sales to its customers. Their long term plans included the implementation of generic applications such as finance and human resources, and specialized applications such as marketing and promotion systems, and business analytics for decision making based on a company-wide data warehouse.

1.3 Mux-core project overview

The Mux-Core project aims at implementing standardized operations across all the multiplexes of ACL using a couple of integrated application systems for administration and sales:

Mux-Admin - This application system helps managers and supervisors in running the operations such as preparation of weekly duty roster for staff for ticket sales and housekeeping, and supporting other administration tasks such as admitting customers into the theaters and housekeeping activities. This application also facilitates the managers and supervisors with detailed reports such as staff productivity so that they can take appropriate actions by comparing the performance with other multiplexes within the state and the entire country.

Mux-Sales – This application system focuses on counter ticket sales and online sales (web and to the customers through their mobile and web applications directly competing with several partner sales channels such as BookMyShow and PayTM. Though the online sales operations are centrally managed from the head office, the managers at each multiplex are responsible for certain local operations such as blocking certain sections of shows for counter sales and setting promotional ticket prices for selected shows to attract more customers. This system also offers loyalty card functionality through which customers can accumulate points based on their purchases - both online and counter sales - that can be used towards buying tickets at any of the multiplexes of ACL. The managers and supervisors can also obtain reports on sales performance across different sales channels.

1.4 Establishing the Project Team

Aruna, after thoroughly assessing available resources in the company, selected Suresh Kumar as the project manager - with a team of ten software engineers in Hyderabad - for the development and implementation of Mux-Admin and Mux-Sales systems at ACL. Aruna was well aware of the extent of failures (had personal experience as well) of software development projects and wanted to make sure that this project is well-managed.

She discusses with Suresh the management decision about the project and its assignment and asks him to come up with a high-level plan including tentative release dates and resource requirements. Suresh has successfully completed a couple of software development and implementation projects recently. He has always been very enthusiastic about learning new trends and applying relevant ones in software development and project management. Exhibit 1.5 presents a summary of the experiences, skills, and personal details of his team members. Except for a new recruit, all the team members are experienced with agile methods (Scrum/XP) and they were good at JavaScript and experienced in either Java or C++.

	Experience/skills	Personal details
Suresh	PMP certified project manager with 15 years of experience in the IT industry. He has been managing projects for the last four years (less familiar with present development tools).	Married and has two young children attending a primary school near his apartment complex. Is a fitness enthusiast and works out daily in the morning.
Vijay	Good at UI/UX design; Highly experienced in frontend development; recently attended a 5-day training on React – Javascript Library	Engaged recently; to be married in six months; enjoys different cuisines; good team player
Krishna	Very good at database design (both SQL and NOSQL) and backend application development	Bachelor lives with parents; travel time between home and office can be up to two hours each way; plays tennis regularly on weekends; likes to work alone
Rahul	Experienced with MEAN stack (Mongodb, Express, Angular and Nodejs); Good at architecture and design	Bachelor lives with friends; extrovert; likes partying a lot; spends a couple of days every month on social service (teaching adults)
Rekha	Worked recently on a cloud-based software development project; good experience with testing and deployment on cloud environments	Twins born last year; husband frequently travels on work; frequently thinks out-of-box and comes up with new ideas
Madhu	A certified Scrum Master; good at connecting and/or integrating different part of development environments	Both his parents are aged and not that healthy; extremely caring and hardworking; rarely misses any deadlines
Vishal	Has excellent knowledge of business operations; Very good at requirements gathering, analysis and modeling	Pursuing a part-time MBA; may make a career move after graduation; does not like coding
Deepti	Worked on front-end application development in several projects; enthusiastic in learning the backend development as well	Recently married to one of her undergrad classmates who is working as a web application developer; loves watching movies
Manoj	Experienced with MERN stack; Good at architecture and design	Bachelor lives with friends; enjoys playing tennis during weekends
Aparna	Worked on UNIX-based software development project (Java); good experience with testing environments	Two young children; husband - also a software developer - works from home
Priya	Worked on a mobile ticketing project during her studies; has good experience with full-stack mobile application development	Recently graduated from a top institute; interested in pursuing higher studies abroad

Exhibit 1.5 - Project team profile

1.5 Planning of the next steps

Suresh and senior members of the project team analyzed the high-level system requirements and found that most of the requirements - related to ticketing - are well understood. They, however, felt that due to varying possibilities in providing staff scheduling and loyalty card functionality it would be better to employ the Scrum framework for the project. Furthermore, they have expressed that their experience with the Scrum framework can be an advantage.

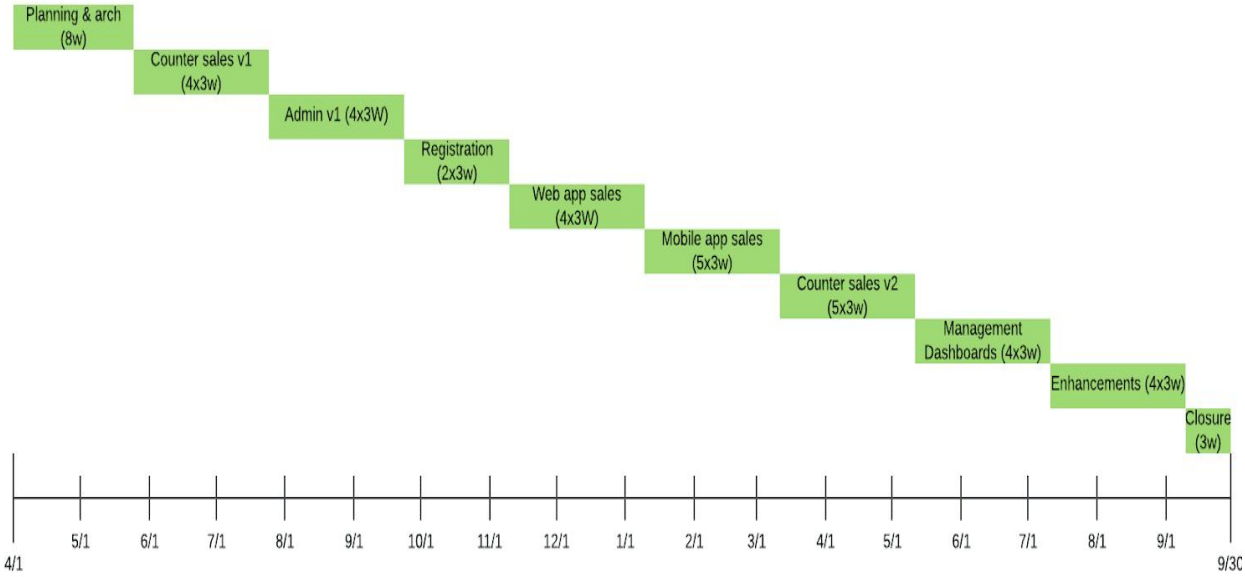

Exhibit 1.6 - Initial plan for development and implementation

Suresh, after discussing with his team, prepared an initial plan (Exhibit 1.6) for the development and implementation with major activities and duration in weeks. The first activity is expected to be completed before starting the work on the first sprint. This plan also indicates sprints of three-week duration and a closure activity of a three-week duration after the last sprint.

The overall approach proposed by the project team - based on the general directions set by the CIO - including use of the Unified Modeling Language (UML) for capturing and documenting key structural and behavioral aspects of the systems, and employing modern software practices for building and deploying cloud-based applications with greater emphasis on flexible design in addition to making use of appropriate devops tools. In addition, the team identified a UI/UX methodology as well to ensure that the developed applications match the user profiles and requirements. As part of the planning and architecture activity, the team planned to complete the work system snapshots, user profiles and personas, system specifications, and high-level architecture.