Royal Holloway University of London

CS3003: IT Project Management

Assignment No 2 (20%)

Announced: Monday 25th October 2021

Due: Monday 08th November 2021, 4 p.m.

The assignment is inspired by a real case. It aims to:

- improve students' understanding and ability to apply some of the Project Initiation and Planning techniques (LO2)
- further develop skills in problem solving, analysis, critical thinking (S1), argumentation/decision making (S2) and presentation skills (S3).

Context: an IT Project Case Study (discussed in the module's first lecture)

Imagine you work as a Senior Project Manager in a bank named Bank XYZ. You have been assigned to lead the following large and critical project.

Bank XYZ is a large bank offering a variety of retail, corporate and investment banking services. The Bank aims to substitute the bank's existing cards front-end processing system (also known as "cards switching" system) with a modern system that provides equivalent functionality as well as several additional capabilities.

The old (existing) system has been supporting the Bank for more than 15 years and was licensed by a vendor called "C365". Several customizations were made to the old system over the years - many of such customizations should also be provided by the new system. Moreover, the system is very critical and is expected to have an availability of 24x7x365.

The new system will be based on an existing packaged software which is provided/licensed by a vendor called "Financial Innovation". The whole system, including applicable customizations, will be implemented by a 3rd party, i.e. a Systems Integrator company, namely "SoftPeaks", which is the primary contractor of the project and a business partner of "Financial Innovation". The contractor and the vendor were selected by the Bank following a relevant RFP/Bid process which was managed and coordinated by the Bank's Procurement department. The Bank's IT division will also substantially participate in the project, mainly in business/requirements analysis, H/W and S/W infrastructure setup, various forms of testing and post-rollout system operations. Overall, more than 150 staff from Bank XYZ, C365, SoftPeaks and Financial Innovation are expected to participate in the project.

The new system is C++ and Java-based, will be installed on a Unix environment, with an application server/transaction manager software component and a relational database. The system will be highly-available, designed to operate in a clustering configuration using a H/W load balancer. All SW and HW infrastructure elements/components will be acquired from the market and be installed/setup from the ground up. The system will also have a disaster recovery instance.

The Business Case of the project has mainly been based on significant TCO/financial savings expected due to the substitution of the existing system. The proposal for the project was jointly prepared by the Bank's CIO and the Head of the Procurement division and the Business Case was put forward for approval by the Bank's Chief Operating Officer (COO). The Business Case was subsequently approved and supported by the Bank's CEO and the Board of Directors.

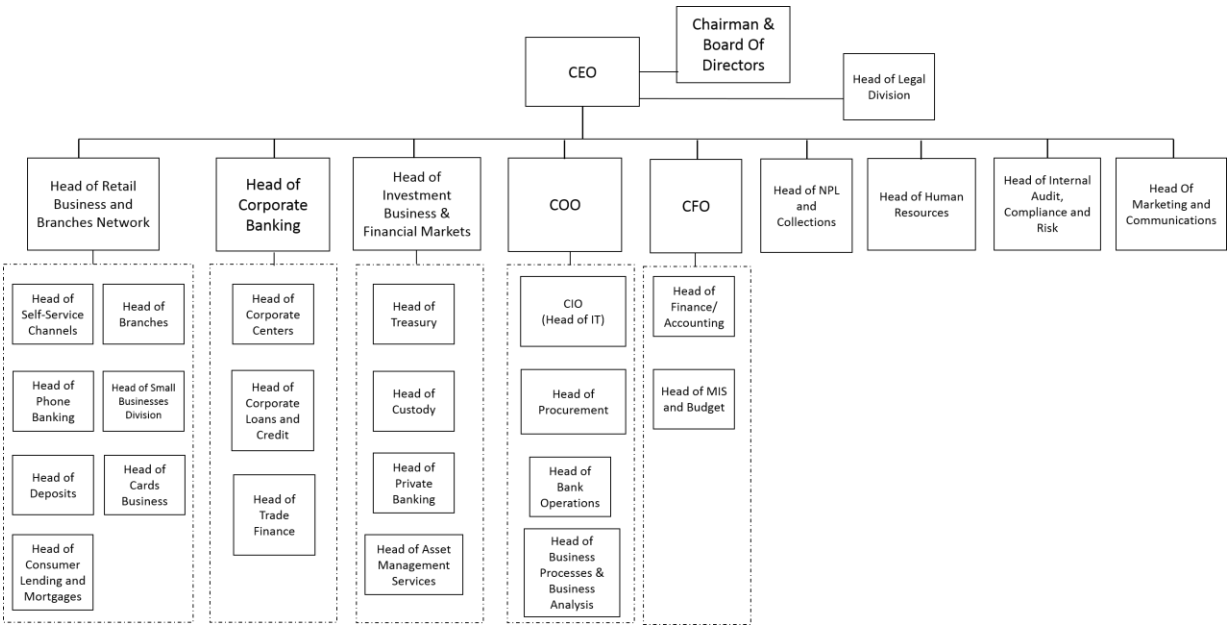
System Functionality

Functionally-wise, the system will mainly perform the following:

- Manage ("drive") the bank's ATM and POS (Point-of-Sale) fleet, e.g. manage the interaction and transactions of end-users/customers with the ATM's and POS machines of the bank.
- Communicate/Interface (2-way) with the systems of credit card companies (namely Visa, Mastercard) for credit cards transactions.
- Communicate/Interface(2-way) with the systems of the local (country) cards network operator to receive the debit card transactions performed in the ATM's of other banks and in the POS machines managed by other banks. In addition, it will interface with e-commerce sites to receive cards' transactions performed on the Web.
- Communicate/Interface (2-way) with the core banking system/cards management system of the bank to perform transactions' authorization (e.g. verify adequacy of account balances) as well as for transactions' clearing and settlement purposes. A special component/module will be used for such 2-way interfacing of the switching system to the core banking system.
- Communicate/Interface with a special purpose cryptographic H/W for cards' pin validation purposes.
- Communicate/Interface with the Bank's fraud detection and prevention system.
- It will be used by dozens of Bank's employees/personnel providing functionality such as product factory, ATM and POS fleet monitoring and management, information on transactions/consolidated operational reporting. It will also be used by the Bank's Call Center/Phone Banking division to deal with customer service requests (e.g. lost/stolen cards, PIN reset, transaction enquiries).

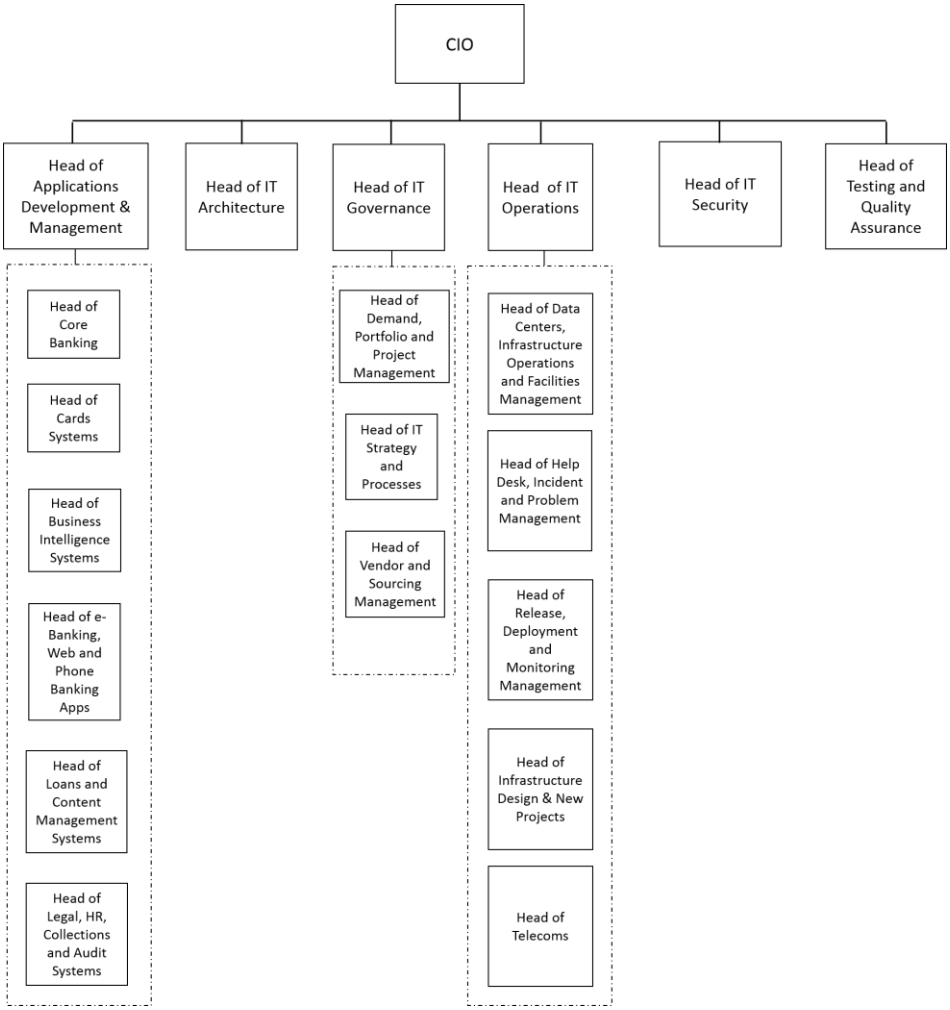
Bank XYZ Organizational Structure

A high-level part of Bank's XYZ overall organizational structure is provided in the picture below:



Acronyms: CEO: Chief Executive Officer; COO: Chief Operating Officer; CIO: Chief Information Officer; CFO: Chief Financial Officer; NPL: Non Performing Loans;

The Bank's IT division, headed by the Bank CIO, is organized according to the stucture below.



Notes on the Responsibilities of some of the IT units/divisions in the above chart (mainly the ones that are not self-explanatory). More details will be provided in the lecture the assigment will be discussed.

- "*Data Centers, Infrastructure Operations and Facilities Management*": Infrastructure managament concerns *the* Design, Implemention and Testing of Infrastructure-related assets (e.g. infrastructure for new applications/projects, infrastructure upgrades, capacity plans, availability and continuity management). Operations management typically refers to day-to-day tasks such as managing requests (e.g. installing a new workstation), jobs scheduling, backup-restore, infrastructure equipment routine maintenance). Facilities Management is mostly concerned with managing the physical environment of the organization infrastructure (e.g. data centers, cabling, power and cooling).
- "*Help Desk, Incident and Problem Manmagement*": IT Infrastructure monitoring, Help Desk, Infrastructure troobleshooting and problem resolution (at various levels of support) and Service Level Management (e.g service levels reporting)

- "*Release and Deployment Management*": responsible for Release and Configuration Management, including the management, validation and deployment of IT assets to the various operating "environments" (mainly the "production"/"live").

Project Sponsor

The Bank XYZ COO will be the Project Sponsor.

Key Business Stakeholders

Following a meeting with the Head of Business Processes & Business Analysis, a unit that will orgnaize and manage the projects requirements analysis phase, the following Bank's *business* units/divisions are identified as major stakeholders/users of the project.

- Cards Business;
- Self-Service Channels;
- Phone Banking;
- Branches;
- Bank Operations;
- Audit;
- Risk;
- Finance &Accounting;

Key Project Characteristics and Constraints

1. Based on the Business Case, the project should have been concluded, i.e. the new system will have to rollout/be available to all users/customers in the live environment, within 1 year from the project's kick-off meeting. This is an absolute, non-negotiable deadline for which no extension is possible.
2. It has been decided that the project will be based on a Waterfall methodology/approach consisting of the following high-level sequential phases: (i) Requirements Analysis (RA) (ii) Solution/System Design (SD) (iii) Development/Customizations (DEV) (iv) Testing (TEST) (Integration/System Testing and UAT Testing) and (v) Rollout. Moreover, the requirements analysis phase will be performed in four distinct streams, of one month each. Upon the completion/sign-off of each of such streams, relevant system developments and customizations will commence by "SoftPeaks" and "Financial Innovation" aiming to parallelize requirements analysis and development (essentially in order to achieve time gains).
3. Bank XYZ employees are very knowledgeable in the business domain and in the existing "C365" system, but have very limited knowledge of the new "Financial Innovation" system. On the other hand, "SoftPeak" employees have sufficient knowledge of the new system, but only superficial knowledge of the existing "C365" system.
4. There are two alternatives on the project rollout approach, namely:

   Big-Bang: the new system will go live, in its entirety, within a window of a few hours on a predetermined date (cutover date). Hence, the old system will cease to exist right after the rollout

has been successfully concluded and *all* Bank business units and customers will immediately use the new system.

Phased-rollout: the new system will gradually rollout to the live environment over a period of time (e.g. 1 month). In each rollout increment/phase, a set of functional modules/parts will become "available/"live". The modules/parts that are included in each rollout phase should provide a meaningful functionality to the Bank's Users/Business Units and Customers. For instance, a first phase may be the rollout of the Bank's ATM fleet to the new system, with the rest of the overall functionality continuing in the old system. Hence, the old and the new system will co-exist (i.e. an interface will exist between the two) during the rollout period until all functional modules/parts of the new system substitute in the live environment the (corresponding ones) of the old.

5. There are 6 environments that have to be setup for the implementation and rollout of the new system, namely:

   - a Development Environment, in which all development will take place (e.g. customizations).
   - an Integration/System Test Environment, in which initial testing and integration testing of the system as a whole is going to take place. Integration testing is expected to be performed after the system development/customizations have been concluded and before the system will be released for users' acceptance testing.
   - a User Acceptance Testing (UAT) environment, in which end-users (e.g. representatives of the various Bank's business units that are the project stakeholders) will perform testing of the finalized system. Upon satisfactory execution of UAT, Business Units will "sign-off" their consent for the new system to become available in the live environment.
   - a Quality Assurance (Q&A) environment, which is a replica of the Production/Live environment, with a lower H/W capacity. The existence of the Q&A environment allows to perform a proper "readiness test" to ensure that the new system (in whole or parts, depending on the rollout approach) is adequately configured and appropriately functioning before it is deployed to the live environment.
   - the Production/Live environment.
   - the Disaster Recovery environment, which is an exact replica of the Production environment (both in SW and HW).

   All such environments should interface to the corresponding environments of other systems that the switching system will have to interface/communicate with. Moreover, a number of other projects are taking place, in parallel. Hence the Development, Integration and UAT environments of these systems are also used by a number of other units (Business and IT) of the Bank. The H/W capacity of all these environments is lower to the one of the Production/Live environment.

6. At a suitable stage before the rollout of the system, a stress/performance test should be performed in order to determine the system's stability, identify possible modes of failure, evaluate acceptable behavior (e.g. appropriate response times/transactions' throughput). For this purpose, an existing toolset to perform such tests will have to be setup/interface the new system. The toolset will simulate a significant load to the system (i.e. a number of simultaneous fictitious transactions), in gradually increasing steps, until the point that the system reaches its performance limits and becomes unresponsive. Results will be captured in order to evaluate the system's behavior. It is estimated that the execution of a stress/performance test will take place for 2 weeks, preferably consecutive, and will last 6-8 of hours per day. If the results of such tests are not satisfactory,

system' design adjustments (in SW implementation and/or SW/HW setup) will have to be made and the performance tests will be repeated.

Project Schedule

Several of the project team members propose the adoption of the following high-level schedule for the project:

Phase	Duration	Notes
Requirements Analysis (RA)	4 months	Requirements analysis will be performed in four distinct streams, of one month each. Upon the completion/sign-off of each of the streams, relevant system developments and customizations will commence by "SoftPeaks" and "Financial Innovation" aiming to parallelize requirements analysis and development (essentially aiming to achieve time gains).
Solution/System Design	1 month	Will be performed in parallel to RA. Will commence 0.5 months after the initiation of the RA phase.
Development/Customizations	4 months in total	See relevant Note in RA phase. Additionally, each development/customization stream will have a duration of 1 month.
Environments Setup	10 days per environment	The initial, "plain vanilla" Development environment setup will commence in parallel to the RA phase and will be concluded before development starts. It will subsequently be adapted/finalized a few days after the Solution/System Design has been concluded. The Integration Test environment setup should have been concluded before Integration test starts. Assume it may commence at some point before the end of development. The UAT and QA Test environments setup should be concluded before the start of the UAT test phase. The Live/Production and Disaster environments setup should be concluded 2 months before the end of the UAT test phase
Testing	7 months in total	Integration Test duration (2 months). UAT test and Certifications with Credit Card Networks (e.g. Visa, MC) and Local Cards Network Operator). UAT and Certifications testing will commence after Integration Testing has been concluded. Duration: 5 months in total. Stress testing will be performed and be concluded in parallel to UAT/Certifications tests. Stress tests will be performed in the Live/Production environment.

Questions

1. Identify and briefly discuss **3 factors** that could had been crucial in the decision of adopting a Waterfall approach for the project. For instance, one such factor could be the lack of knowledge and past experience of Bank XYZ and Vendors in Agile methodologies.

   Mark: 15%

2. The high-level project schedule above that senior team members proposed is inappropriate due to a number of factors and fallacies. For instance, it ignores the need to perform a Disaster Testing. Hence, a more appopriate project schedule should be devised and defined. Based on the facts that are provided above (not merely the ones on the project schedule section), identify and discuss **4 additional factors/fallacies that support the argument that the schedule is inappropriate**. Note: the fact that software development will be performed in parallel to requirements analysis is not a factor that makes the schedule inappropriate.

   Mark: 20%

3. The project's Kick-Off meeting is scheduled in five days. As the Project Manager you have to prepare a presentation to be used as a basis for discussion in the meeting. The presentation should be based on the facts given to you above.

   Your presentation should consist of the following content items/slides:

   Item 1. *The high-level scope of the Project* (max 1 slide)

   Item 2. *Propose an adaquate Governace structure for the project (i.e. the Steering Committee members, the Project Sponsor and key members of the project team) and present it in a graphical/chart form* (max 1 slide)

   Item 3. *A <u>suitably revised</u> version of the Project Schedule (in a chart form depicting critical/important tasks and milestones). The revision of the schedule should take into account the factors you have identified in Q2. The chart should <u>not be a detailed</u> Gantt or Network diagram. You are free to make assumptions (e.g. revise durations) in revisisng the schedule.* (max 1 slide)

   Item 4. *List of five immediate steps/actions that the project will take following the SC meeting* (max 1 slide)

   Item 5. *A closing slide* (which is not assessed)

   Mark: 65%

Deliverables/Moodle-Turnitin submission

A **single .pdf** file which contains:

- A report, in which you provide answers to questions 1 and 2.
- The Kick-Off meeting presentation/set of slides. Is is expected that, *per content item*, you briefly discuss the underlying rationale for the choice of content presented, making appropriate references to the case study facts, and, *optionally*, the course theory or any applicable bibliography. You may refer to these in a different section of the report (not in the slides)

Notes: You are free to make any reasonable assumptions. Please explain all assumptions made in the aforementioned report/deliverable. Morover, the module leader will act as your "Line Manager" and subject matter expert. Thus, you have the opprtunity to ask questions so that to have a degree of guidance in preparing your presentation.

Marking Scheme and Criteria

Questions	%	Criteria
Q1	15%	5 marks per factor that makes sense and is appropriately discussed. 3 marks per factor that makes sense without a solid explanation.
Q2	20%	5 marks per factor that makes sense and is appropriately discussed. 2 marks for factor that makes sense without a solid explanation.
Q5	65%	*Item 1: 5 marks* *Item 2: 10 marks* *Item 3: 20 marks* *Item 4: 5 marks* *Presentation Report*: 10 marks in total for adequate discussion of the rationale for the slides' choice of content, including relevant references to the case study's facts, the course theory and applicable bibliography. *Presentation Design Elements*: 15 marks for appropriate language and terminology, consistency, legibility, professionalism in choice of layouts, colors and fonts, inter-alia.

Note on Plagiarism

All work submitted by students as part of the requirements for any examination or other assessment must be expressed in their own words and incorporate their own ideas and judgments. Plagiarism that is, the presentation of another persons thoughts or words as though they were one's own must be avoided, with particular care in coursework and essays and reports written in students own time. Deliberate plagiarism in coursework is as serious as deliberate cheating in an examination. Failure to observe these rules may result in an allegation of cheating. Students should therefore consult their tutor or course director if they are in any doubt about what is permissible.