ICBC Flex Work

External Design (Requirements)

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Document Information

Revision History

Date	Version	Status	Prepared by	Comments
2020.01.14	0.1	Done	Team Flex	First draft of External Design /Requirements Document
2020.04.11	0.2	Done	Team Flex	Final draft of External Design/Requirements Document. Fixed document title, added additional business constraints, removed unused business dependency to Outlook Mail API, clarified business assumptions, updated use-case-2 to reflect current functionality, updated RTM with testing and reference details, removed unused reference to Outlook Mail API

Document Control

Role	Name	E-mail	Telephone

Approval

Role	Name	Signature	Sign-off Date

Post Approval Distribution

Role	Name

Introduction

This External Design document will outline the high-level business requirements for Project Flex Work for the stakeholders. This Business Requirements Document will define what is to be built and will also illustrate which other systems or groups are impacted, business constraints, assumptions, and dependencies, functional requirements, and non-functional requirements.

Stakeholder (Signoff List)

Company: ICBC
Sponsor: Jaslyn Nguyen, Matt Dockerty

Business Requirement Summary/Scope

In terms of the business requirements, this software should be able to show the available offices with features and time range for reservations. The software is expected to have the ability to let participants manage offices (release and reserve) and an administrator can manage all the reservations and analyze them easily. A confirmation email should be sent once a booking is made . For the office update, a new office/ building can be added to the system upon request in the future.

Problem Statement/Project Description

ICBC is looking to improve its employee experience through flexible workspaces. Flexible workspaces have the benefits of increasing employee engagement, accessibility, diversity and inclusion and reducing commute times, which in turn supports the organization’s commitment towards safer roads.We are building a web-based solution that will allow ICBC employees to register and book workspaces to enable workspace sharing. This solution will also have an interface for administrators to make changes to locations and bookings.

Summary of Impacts

Impacts on Other Systems

Flex Work's development and operation will have minimal, if any, impact on existing ICBC systems.

During development

During development, there will be no interaction with ICBC systems at all.

Post-deployment

After deployment, for the Phase I solution, the only interaction with the existing ICBC system is an email confirmation, which requires communication with the ICBC email server.

After deployment, for the Phase II (stretch) solution, in addition, there will be Active Directory integration, and the additional reminder/mandatory confirmation email (48 hours before the event). The Active Directory integration will require interaction with the server.

The Phase II solution may be internally hosted on ICBC servers, and if so, the load on the servers (CPU time, persistent storage, web connections) will be minimal.

Therefore, in all cases, the cost of this interaction with existing ICBC systems during long-term operation is minimal. Interactions with existing ICBC systems will not require them to be changed in any way.

Impact on Groups and Individuals

During Development

UBC Team Flex

We, Team Flex will be responsible for all phases of developing Flex Work. Time and effort (approximately 70 work-hours per week) will be required from January – April 2020.

UBC Staff

During development, we will require the time and effort of two individuals of UBC.

The CPSC 319 Teaching Assistant, Asem Ghaleb, will serve as the main point of contact. We will require him to liaison communications with our project sponsors. He will also serve as our main advisor and give advice, suggestions and expertise.

The CPSC 319 Lecturer, Jerry Jim, will give Team Flex guidance, support, and industry expertise throughout the project as well.

ICBC Facility Administration

During development, we will not require anything of ICBC Facility Administration except for the ICBC Director, Facilities & Real Estate (Jaslyn Nguyen & Matt Dockerty), who serve as the project sponsors. We will require Jaslyn and Matt to give feedback and evaluation, mostly through our point of contact, but also on-site at various times, such as Feb 25 or 27, 2020. Jaslyn and Matt will also serve as the surrogates for the individual ICBC office administrators who will use Flex Work's admin features – we will not impact them.

ICBC Information and Technology (IT) Department

Flex Work will be developed independently from the ICBC IT Department, except for the ICBC Chief IT Officer (Gary Eastwood), who serves as one of the project sponsors. We will require Gary to give feedback, expertise, suggestions and evaluation, mostly through our point of contact, but also on-site at various times, such as Feb 25 or 27, 2020, especially when it comes to Phase II integration with existing ICBC systems.

Post-Deployment

Flex Work end users (ICBC employees in general)

Using Flex Work is optional for ICBC employees. They will not be impacted unless they voluntarily choose to use it, to give up their desk for a fellow employee, or making bookings themselves. We hope that it will positively impact the employees who choose to make use of Flex Work.

ICBC Facility Administrators

After deployment, ICBC facility administrators will have the additional role of overseeing bookings made by employees, deleting and modifying them as needed, through the Flex Work admin interface. Upon changes to office locations or additions of new office locations, facility administrators will be responsible for making the necessary updates to the Flex Work database of office locations and desks, again, through the Flex Work admin interface.

UBC Team Flex

During the warranty period, Team Flex will be responsible for maintaining Flex Work.

ICBC IT Department

After the warranty period, if ICBC chooses our implementation, the ICBC IT Department will be responsible for maintaining and extending Flex Work.

Business Constraints

1. The application should work on Internet Explorer 11, Microsoft Edge, and Firefox.
2. There are boundaries between admin users and normal users. Admin users have access to manage all current availabilities and reservations, offices and locations, and their associated information.
3. A user cannot book an office on a duplicate date

Business Assumptions

1. There is an implied honor system for Flex Work Phase I such that any employee will be able to register work spaces for booking or book available work spaces without any authentication or verification
2. An external table will be provided with a list of office workspaces, each having a unique identifier based on a numbering system

3. Single sign on will be implemented by ICBC and therefore, it will be assumed that the user is logged into the application during the first phase of the implementation of Project Flex Work. During the second phase of the implementation of Project Flex Work, Active Directory integration will be incorporated into the project.

Business Dependencies

For the minimum viable product, there are no dependencies with ICBC's internal system. However, the application will be integrated with Windows Active Directory for employee authentication.

Functional Requirements

Top Level Business Requirements

Making Office Available

As an ICBC Employee, I want to designate my permanent office as being available, for a specified date range.

Reservation

As an ICBC Employee, I want to reserve an available office, for a date range.

Search

As an ICBC Employee, I want to search for current availabilities and reservations, in a specified location and date range.

Cancel

As an ICBC Employee, I want to cancel an existing availability or reservation

Administration

As a Facility Admin, I want to manage all current availabilities and reservations, offices and locations, and their associated information.

Example Use Cases

Following are two example Use Cases. The Design Document will contain all Use Cases.

Definitions:

Availability - Represents an office being available, in a specified date range.

Example: NV4-04A, Jan 24-30, 2020.

Reservation - Represents a reservation on an available office, with an associated date range and employee ID. Two reservations on the same office cannot overlap. A reservation must be within the date range of an Availability on the same office.

Example: NV4-04A, Jan 24-30, 2020, Srijon123

(Office) Location - An ICBC branch location (not the location of a specific office/desk)

Example: North Vancouver

use-case-1: Create an Availability	
Description	An ICBC Employee knows they will be away from their permanent office for a date range and want to make it available for others to use.
Primary Actor	ICBC Employee (E)
Preconditions	- E is logged into the system (for example, by Windows Authentication/Active Directory) - E has a permanent office and knows their office location code or is able to find it from a map of their office location
Postconditions	- An Availability is created for E's office and date range - A confirmation email is sent to E - ICBC Employees can now find this availability when searching for this location and date range, and make reservations on it - E can cancel this Availability
Main Scenario	1. E selects "Create an Availability" 2. Flex Work displays a list of locations and a date range picker, which has a limit of 6 months. 3. E selects the office location that their permanent office is in 4. A Floor Plan button is displayed which, on click, shows the floor plan of the location selected, with desk IDs

	5. E sees and enters the desk ID corresponding to their desk 6. E selects the start and end dates for this Availability 7. Flex Work displays a submission button once an office location is entered and dates have been selected. E clicks this submission button. 8. Flex Work displays a confirmation screen, showing the office location, office ID, and selected date range 9. E confirms this is accurate and clicks a confirmation button 10. Flex Work saves this Availability in the database 11. Flex Work sends an email confirmation to E

Alternate Scenarios	- (2) E knows their office ID already, and enters it directly.
	  - Steps 3-4 are skipped
	- (4) E clicked on the wrong office location, and clicks a button to go back to Step 3
	- (8) E realized they made a mistake and clicks a button to go back to Step 3.
	  - The current information is automatically entered for them, so E only needs to change what is not accurate (for example, changing the end date)

use-case-2: Rescind (Remove/Delete) an Availability	
Description	An ICBC Employee no longer can or wants to make their desk available and want to remove the Availability.
Primary Actor	ICBC Employee (E)
Preconditions	- E is logged into the system (for example, by Windows Authentication/Active Directory) - E has a permanent office and knows their office location code or is able to find it from a map of their office location - E has an Availability in the system they would like to remove
Postconditions	- E's Availability is removed from the system - The Reservations associated with the Availability are removed from the system - A notification email is sent to the owners of the reservations
Main Scenario	1. E selects "Manage Bookings and Lendings" 2. Flex Work displays a table of lendings and a table of bookings 3. E finds the lending they want to delete in the lendings table 4. From this table, E deletes the availability 5. Flex Work displays a confirmation screen, showing the office

	location, office ID, and selected date range 6. E confirms this is accurate and clicks a confirmation button 7. Flex Work removes this Availability from the database and its associated Reservations 8. Flex Work sends an email notification to the owners of these Reservations
Alternate Scenarios	- (4) E clicked on the wrong office location, and clicks a button to go back to Step 3 - (9) E realized they made a mistake, and clicks a button to go back to Step 3.

Requirement Traceability Matrix (RTM)

Priority: 1 is highest, 5 is lowest

REQ No.	Reference	Requirement Description	Type	Prior-ity	MVP (Y/N)	Related Test Case	Test Status	Comments
1.0.0	use-case-1	Add Availability for ICBC Employee for their permanent office for others to book, up to 6 months in advance, by specifying office location and date range using appropriate visual tools	Functional	1	y	Manual	Done	From briefing
1.0.1	use-case-1	Send confirmation email upon adding availability	Functional	2	y	Manual	Done	From briefing
1.1.0	use-case-2	Remove Availability for ICBC Employee for an existing Availability	Functional	2	y	Manual	Done	From briefing
1.1.1	use-case-2	Send notification email to those who got their Reservations removed because of a removed Availability	Functional	2	y	Manual	Done	From meeting
2.0.0	1.1-1.3 Internal Design Document Appendix I	Add Reservation for ICBC Employees, to book an office at any location, for some date range, given that it's available	Functional	1	y	Manual	Done	From briefing
2.0.1	1.8 Internal Design Document Appendix I	Remove Reservation for ICBC Employees, to cancel a reservation previously made	Functional	2	y	Manual	Done	From briefing
3.0.0	2.7-2.12 Internal	Add/Delete/Modify Availability and Reservations for Facility Admin	Functional	1	y	Manual	Done	From briefing

	Design Document Appendix I							
3.0.1	2.4-2.7 Internal Design Document Appendix I	Add/Delete/Modify Office and Office Location Information for Facility Admin	Functional	1	y	Manual	Done	From briefing
4.0.0	NA	Application should work on IE11	Non-Functional	1	y	Manual	Done	From briefing
5.0.0	NA	System should handle 1000 bookings	Non-Functional	2	y	Automated	Done	From briefing
5.0.1	NA	System should handle 5000 bookings	Non-Functional	3	n	Automated	Done	From briefing
6.0.0	NA	Integrate with Active Directory	Non-Functional	4	n	Manual	Done	From meeting
8.0.0	NA	48 hour confirmation email sent to owner of Reservation, and mandatory confirmation link	Functional	4	n	Manual	Done	From briefing

Non-Functional Requirements

Backup Needs

Since this application is used to schedule flexible working space, the system backup period is set to once a week. The database backup period is once a day. We will deploy our system on AWS server, so we will use AWS automatic backup plan to backup our system. We will write the script to automatically backup the database everyday. To save space, we will keep up to 7 database backups in our server.

Security Needs

This application should be running inside ICBC Intranet so that access to the website is within the corporate firewall. Since we assume there is an honour system where everyone can withdraw their office request without an identity verification, we will use the email address to identify each user. The administrator interface will have a simple password verification.

Capacity needs

The main capacity need anticipated is SQL database storage. However, we are anticipating each booking, user, and office to each take maximum capacity of the order of tens of bytes.

With thousands of entries on each category, the maximum storage anticipated will be in the order of tens of kilobytes. With said small database capacity, transmission and performance capacity is not a concern at the moment.

Cost Parameters/Constraints

At this point, there is no expected cost associated with the project. Any anticipated costs associated with needed applications will be covered by free or trial accounts. The cost constraints therefore will be set at zero.

References

[1] AWS backup developer's guide
https://docs.aws.amazon.com/aws-backup/latest/devguide/whatisbackup.html