

# Supplier Relationship Management System for Brandix Essentials (Pvt) Ltd

A dissertation submitted for the Degree of Master of Information Technology

K. D. C. K. Prematilake

**University of Colombo School of Computing** 

2018



# Declaration

The thesis is my original work and has not been submitted previously for a degree at this or any other university/institute.

To the best of my knowledge it does not contain any material published or written by another person, except as acknowledged in the text.

Student Name: K. D. C. K. Prematilake

Registration Number: 2014MIT045

Index Number: 14550451

Signature:

Date: 14/07/2018

This is to certify that this thesis is based on the work of

Mr. K. D. C. K. Prematilake under my supervision. The thesis has been prepared according to the format stipulated and is of acceptable standard.

Certified by:

Supervisor Name: Mr. G. K. A. Dias

Signature:

Date:

# Abstract

Brandix Essentials (Pvt) Ltd, is in contracted manufacturing of apparel for world famous brands. It should deal with 150 suppliers for its business of US\$ 250 M per annum. The suppliers who supply Raw Material are critical to a flawless execution due to the very strict specification of the Raw Material and ever narrowing lead times. Hence it is of paramount importance to maintain a strong and active relationship with the suppliers in order to ensure proper delivery and fulfillment of Purchase Orders. The relationship is maintained by communicating and interaction via face to face meeting or phone calls.

The current problem supply chain team faces are that there is no system to track status, the above interactions and measure health of the relationship that is maintained with the suppliers.

The objective of the project is to develop a system that enables to build a database of contact relationship from both supplier and Brandix Essentials Supply Chain team. System should also be able to record the completion of each interaction and the outcome. So that at any given moment management team can assess the status/health of the relationship with the key suppliers.

Development of the system was done according to the agreed System Requirement Specification and testing. The system is implemented as a web based system running on IIS7 using DotNet while data will be maintained in a Microsoft Sequel Server database. Telerik controls were used in development framework for User Interfaces and reporting.

Overall a positive feedback is received and user have suggested couple of changes as well. Head of Supply Chain is now able to see how many interactions were planned per week per team member and the status of completion together with notes related to the interaction. A dashboard shows the health of the relationship of each contact point of each supplier. Hence it can be concluded that the objectives were achieved.

# Acknowledgements

First and foremost, my sincere gratitude is extended to Mr. G. K. A. Dias, Senior Lecturer of University of Colombo School of Computing, for the guidance provided in shaping up this project and taking time off from his busy schedule to clear the doubts that I came across in implementation of the project.

Secondly, I would like to thank the Project Coordinator for Master of Information Technology Dr. Mrs. Mindika Premachandra for the support extended in completing the project. Next, I would like to thank the academic and non-academic staff of UCSC for the guidance and support given throughout the past two years and making it a success for me and my colleagues. Thank you for your patience, support and guidance in making this program a successful one for me and my colleagues. I wish you all and at UCSC, all the very best to keep this program a success for future years to come.

Supply Chain team of Brandix Essentials (Pvt) Ltd for active participating in giving requirements and participating in testing and providing feedback.

My team member Gayanee Wijayasekara who played the supporting role in carrying out the user training.

# Table of Contents

Declaration
Abstracti
Acknowledgementsii
Гable of Contentsir
List of Figures
List of Tablesi
List of Abbreviations
Chapter: Introduction
1.1 Motivation
1.2 Aims and Objectives
1.3 Scope
1.4 Limitations
1.5 Structure of the Dissertation
2 Chapter: Background
2.1 Literature review
2.2 Similar Systems
2.3 Applicability
3 Chapter: Analysis & Design
3.1 Approach to analysis
3.1.1 Requirement gathering methods
3.2 Finalized requirements
3.2.1 Functional requirements
3.2.2 Non-functional requirements 1
3.3 Design

3.3.1 Software design	12
3.3.1.1 Use case diagrams	13
3.3.1.2 Activity diagrams	15
3.3.1.3 Sequence diagram	16
3.3.1.4 Class diagram	17
3.3.2 Database design	18
3.3.2 Database scripts	19
3.3.3 Features of the supplier relationship management system	22
3.3.4 Software Architecture	24
3.3.4.1User Interface design	25
3.3.4.1.2 Design decisions	25
3.3.4.2 Software Engineering Concepts	29
4 Chapter: Implementation	30
4.1 Technologies used	30
4.2 Structure of the software implementation	30
4.4 Use of existing tools/libraries	32
5 Chapter: User Evaluation and Testing Plan	34
5.1 Testing	34
5.1.1 Test Plan	34
5.1.2 Testing Levels	34
5.1.3 Test Cases	35
5.2 User evaluation	35
5.2.1 Final Score	36
5.2.2 Evaluation setup	37
5.2.3 Results of the evaluation	37
6 Chapter: Conclusions and future work	39

6.1 Lessons learnt	. 39
6.2 Future work	. 39
References	. 40
Appendices	. 41
Appendix – A	. 41
Appendix – B - Report - Active Interactions	. 43
Appendix – C – Report - Pending Tasks	. 44
Appendix – D User Manual of the Supplier Relationship Management System	. 45
Introduction	. 46
Getting Started	. 48
Step 1- Grant access to SRI	. 48
Step 2- Add supplier details	. 52
Step 3- Add Brandix teams	. 55
Step 4 - Add relationship	. 56
Using the system	. 58
Upcoming events	. 58
Notifications	. 59
To Do List – Updating Completed Tasks	. 61
Saved notes on tasks	. 63
Dashboards	. 63

# List of Figures

Figure 1 Rubberstamp Screen	6
Figure 2 High-level Requirement	12
Figure 3 Main use case	13
Figure 4 Activity diagram of relationship call with the supplier	15
Figure 5 Sequence diagram for User Login	16
Figure 6 Sequence diagram for report generation	. 17
Figure 7 Class diagram for interaction with a supplier	18
Figure 8 Entity Relationship Diagram	19
Figure 9 Script to create relationships table	20
Figure 10 Script to create table for notes	20
Figure 11 Script to create stored procedure for relationship status history	21
Figure 12 Script to create the view on pending interaction	21
Figure 13 Software Architecture	25
Figure 14 User Interface Mockup	26
Figure 15 Main Dashboard	27
Figure 16 Final User Interfaces - Upcoming events	27
Figure 17 My Task List User Interface	28
Figure 18 Administration Panel	28
Figure 19 Relationship Update Panel	29
Figure 20 Home Page Coding	32
Figure 21 Code to populate my task list	32
Figure 22 User Management	48
Figure 23 Find User	49
Figure 24 User Details	49
Figure 25 Find User from SRI to edit	50
Figure 26 User Priviledges Edit	50
Figure 27 User Deletion	51
Figure 28 User Deletion Confirmation	51
Figure 29 Supplier List	52
Figure 30 Supplier Details Entry	53
Figure 31 Supplier Details	53

Figure 32 Supplier Details Edit	54
Figure 33 Supplier Details Delete Button	55
Figure 34 Supplier Deletion Confirmation	55
Figure 35 Upcoming Events	58
Figure 36 7 Days prior Notification Email	59
Figure 37 1 Day prior Notification Email	60
Figure 38 Incomplete Task Notification	60
Figure 39 My Tasks View	61
Figure 40 Notes adding	61
Figure 41 Notes entry	62
Figure 42 Main Dashboard	63
Figure 43 Distribution of tasks BU wise	64

# List of Tables

Table 1 Pros and Cons of similar systems	7
Table 2 Pros and Cons of similar systems	8
Table 3 Register user case	14
Table 4 Call user case	14
Table 5 Face to face meeting	14
Table 6 Status e-mail	15
Table 7 Evaluation Results	37
Table 8 Contact Frequency Details	57
Table 9 Notification Matrix	59

# List of Abbreviations

- **BEL** Brandix Essentials (Pvt) Limited
- MS Microsoft Incorporated
- **SRI** Supplier Relationship Index
- SRMS Supplier Relationship Management System
- UCSC University of Colombo School of Computing
- UML Unified Modelling Language
- **VPN** Virtual Private Network

# 1 Chapter: Introduction

#### 1.1 Motivation

There are lot of Customer Relationship Management Systems available in the market but it is hard to find a system that supports Supplier Relationship Management. For an industry which is highly dependent on its supply chain, requires a system to manage its relationship with the suppliers. The apparel manufacturing business is heavily dependent on the supply chain that it is dealing with. In terms of value created to the customer 60% of such come from the Raw Material supply. Hence a mechanism to monitor the health of the relationship with the suppliers is of paramount importance. Brandix Essentials (Pvt) Ltd, is in contracted manufacturing of apparel for world famous brands. Its supply chain team has to deal with 150 suppliers for its business of US\$ 250M per annum. The suppliers who supply Raw Material are critical to a flawless execution due to the very strict specification of the Raw Material and ever tightening lead times. A strong relationship will help to accommodate the sudden changes that market/brands demand. A way of maintain/ build relationship is to update the Critical Suppliers about the Customer Order Book status, new trends in terms of products, so the suppliers could align their business strategy; also as a manufacturer Brandix could align their sourcing/procurement strategy. This communication interaction can be done via face to face meeting or phone call.

The current problem supply chain team faces is that there is no system to track of the status and health of the relationship that is maintained with the suppliers. My motivation is spurred by the pain that supply chain executives and the senior management have to engage last minute negotiations that they have to carry out in a difficult situation. This could have been avoided if a proper mechanism exists to keep a track of the relationship status of the key suppliers.

#### 1.2 Aims and Objectives

The Supply Chain Relationship Management System intends to provide a platform for supply chain team to maintain a proper repository of contact points of each key supplier. It will empower the team to deliberately maintain and interact with the important relationships as a routine and avoid taking actions in an ad hoc manner. This will provide a proper review mechanism to the management teams as well. Main objectives of Supplier Relationship Management System can be listed below.

1

- It should be a working tool (used day to day) to supply chain executives to act as an executive diary on periodic interactions with the suppliers (not day to day activities of purchase order raising and follow up). Therefore the follow up of the interactions and actions out of the meeting become system driven than ad hoc and manually triggered.
- 2. It should provide the data to senior management on the health of the relationship of each key supplier contact based on the feedback entered by each supply chain executive. This should provide clear snap shot of the relationship to trigger proper actions (actionable data) to capitalize on improve the current level of relationship.
- 3. Actual performance data from the On Time Delivery tracking system will be compared in order to see whether there is any correlation between performance of a particular supplier and the relationship that it has with Brandix supply chain team.
- 4. The relationship status straight from the system could be taken up with the periodic reviews happen with the respective suppliers. Specific actions could be strategized to improve any ailing relationships.

# 1.3 Scope

Scope of the project is to develop a tool to capture each planned interaction/event with suppliers. The system will be a web based hosted using IIS7 and data will be stored in a Microsoft SQL database. Telerik controls will be used to User Interface designing and report designing. Below will be activities that have to be engaged with in order to deliver the scope successfully.

#### 1.3.1 Identification of requirements

The information related to following requirements were obtained from the Senior Management and Supply Chain teams.

- Information tracked with regard to a supplier meeting
- Information shared in a supplier meeting
- Modes of interaction/meeting
- Way the rating should be entered & displayed
- Dashboard with which meeting calendar events are monitored

Supply Chain Executives will be spoken to in order to collect the below information;

- Interval and method of communication of alerts with regard to meetings
- Way the rating should be entered
- Way the notes related to the interaction should be captured
- 1.3.2 Designing of the system

Entity Relationship diagram was drawn in order to design the Database. Use cases, use case narratives, activity diagrams, sequence diagrams and class diagrams were drawn in order to clearly identify the functional requirement. A proper design will enable a good built quality and lesser change requests subsequently.

1.3.3 Building the system

Below mentioned technologies were used to build the system.

- Database Microsoft Sequel Server
- Web application .NET Framework (ASP.NET)
- Internet Information Server 7 Web server

Building of the system will comprise of building the database and coding of the system which is capable of preloading the contact points from both supplier side as well as Brandix Essential (Pvt) Limited side. Then facility make appointments in Microsoft Outlook calendar, make notes against each interaction and mark the health of the relationship based on the interactions.

1.3.4 Functionalities and features

Essentially the system will create an executive diary function for the supply chain executives so that when they attend work every day they know what are the future meetings scheduled with suppliers for periodic briefing to keep up the relationship. Periodic alerts will be generated on the upcoming tasks and tasks which were not completed.

Then the system will facilitate the recording of notes related to each meeting and schedule the same for next meeting.

With the replication of data from supplier performance system, the system would facilitate a view with a particular relationship and performance of the respective supplier.

The corresponding contacts of both the sides need to be maintained.

Each meeting will generate Calendar Request and email to the respective participants. Based on the same a time from their calendar will get allocated so the meeting/call will not get missed.

The relevant reports will be included according to the users' and senior management's requirement in order to monitor the health of the relationship with the suppliers.

#### 1.4 Limitations

Following limitations were encountered in the Supplier relationship management system.

- Notes against each interaction had to be entered manually and if a voice recording facility could have been more user friendly.

- Notes taking could have been integrated with Microsoft OneNote, which could have made the life easier to share the notes.

#### 1.5 Structure of the Dissertation

The dissertation is an implementation type of a project for Brandix Essentials (Pvt) Limited and will cover the below activities;

- **Chapter 2** includes an overview of the similar system like Customer Relationship Management Systems and critical comparison of the same and reasoning as to why it cannot be used to handle the functionality.
- **Chapter 3** includes detail overview of the functional and non-functional requirements with illustration of the requirements and details on the design of the database and system front end. These will be illustrated using entity relationship diagrams, use case diagrams, class diagrams. Further this chapter includes mockups of user interfaces, dashboards, etc.
- **Chapter 4** comprises of the details regarding technical background and implementation of the project. Sample code is also included in this section.
- **Chapter 5** details out the testing plan and test cases methodology of user evaluation and the results.
- Chapter 6 discusses the conclusions and the future framework.

# 2 Chapter: Background

Maintaining supplier relationship is becoming critical in the new age of business as emphasis on final product quality and tightening lead times improved and efficient sales channels. In order to handle the efficient supply of raw material there are numerous Supply Chain Management tools. But most of these are designed to manage "Procurement to Pay" life cycle of raw material supply.

Management of relationship in an orderly manner is not specifically looked into in these systems. Management of relationship is looked into by Customer Relationship Management systems in great detail. It focuses on management of sales leads, contacts, customer behavior and interactions.

#### 2.1 Literature review

Business to Business nature of the apparel industry and fashion triggered quick changes requires to respond to market needs in an expeditious manner. This requirement gets further intensive by the huge number of players in the manufacturing and market arena. Hence a relationship beyond the raw material purchase order become vital to react fast to grab the market opportunity. A system which tracks the lifecycle of the raw material purchase order will not be able to give a proper measurement of the relationship maintained with the supplier. Therefore a system with features that enable capturing of indicators of the relationship with the key suppliers and periodic review of the same.

#### 2.2 Similar Systems

#### 2.2.1 Supply Chain Management Systems

Below are few supply chain management systems which are widely used [1]. These cover the actions like raising a purchase order, inbound logistics management, work in progress tracking, shipment, tracking of goods in transit, receipt of raw material, quality inspection, put away and final payment settlement.

#### 1. Fishbowl Inventory

This is an inventory centric supply chain management system which focuses on Material Requirement Planning for generating of purchase orders and inventory transactions to integrate with production floor as well as accounting system like QuickBooks. In addition it has the capability of handling quotations as well. 2. Rubberstamp Software

Rubberstamp software too manages procure to pay process in a standalone web based system. They boast about handling procurement function across several business domains from pharmaceuticals to electronics. Since it is web based it can be accessed from anywhere and work on many platforms from Windows to Macintosh to Android.





But these do not talk about the function and features on management of relationship with suppliers [2].

2.2.2 There are several Customer Relationship Management systems available worldwide, which talks about functions of managing contacts, interactions, behavior of customers. The top three Customer Relationship Management systems are as follows; (according to [3]);

#### 2.2.2.1 Salesforce

Widely used customer relationship management system which is offered as a Software as a Service on the cloud. This comprises of managing contacts, sales deals, harvest leads and performance of the sales team.

#### 2.2.2.2 Pipedrive

This system mainly focuses on sales deals managements and easy to use application provides a mobile platform for sales teams who are roaming outside to interact with the system easily. Managing of sales pipeline is catered for by this application.

#### 2.2.2.2 Teamsupport

This system's main focus is business to business application which enables the collaboration of marketing/ customer support teams with customers. This fills the communication requirements of the interactions and provided instantaneous responses to customer issues.

But overall they are more geared to handle customer/client relationship and not the Supplier Relationship statuses and interactions. Marked differences would be as follows;

- Information shared with supplier will be different to that of information shared with customers. That is supplier information will be more specification related and technical oriented to gain a quality raw material. In detail level of information on requirements and problem solving is critical to the on time delivery of end products to reduce rejections from customers.
- 2. Most often there will be one marketing team dealing with an identified customer group but with one supplier there can be several supply chain teams work. Supplier related information sharing will lead to cordial relationship as one team could be having a positive relationship while other will not. It will be possible to identify how to handle supplier to gain maximum advantage by all teams instead of one team.

Hence there is a practical difficulty of using the Customer Relationship Management systems off the self as a Supplier Relationship Management system [3].

# 2.3 Applicability

Pros and cons of the other systems found in the market are listed below. The unsuitability to handle the requirement of Brandix Essentials Ltd is also mentioned in the table [1].

G .	D	G	XX71
System	Pros	Cons	Why it is not suitable
			for Brandix Essentials
1. Fishbowl	1.Covers the	1. Does not cover any	1. Current Enterprise
	functions from	other interaction with	Resource Planning
	Purchase Order to	the supplier other	system handles the
	Inventory	than the interaction	"Procure to Pay"
	transactions	related to Purchase	functions. Hence it
	2. Integrated with lot	Order	needs a system
	of related systems		specifically caters the

Table 1 Pros and Cons of similar systems	Table	1 Pros	and (	Cons	of s	imilar	systems
--	-------	--------	-------	------	------	--------	---------

	(e.g.: Enterprise Resource Planning, Accounting Systems)		management of relationship
2. Rubberstamp	1. Capable of handling from budgets to procurement and relevant reports	1. Functionality limited to Procurement from budget stage to delivery	1. Does not cover the requirement of relationship management
3. Salesforce	<ol> <li>Handles Sales leads, pipeline building to conversion</li> <li>Customer behavior monitoring and analytics</li> <li>Handles Customer Interactions/ relationships</li> </ol>	1. In a business to business scenario one customer account team will liaise only with one customer/brand.	<ol> <li>In a business to business canvas one supplier is dealt by several supply chain teams.</li> <li>Features and functions are not possible to configure in a reciprocate manner to support relationship interactions of a supplier.</li> </ol>
4. Pipedrive	<ol> <li>Caters to building sales pipeline and driving the achievement.</li> <li>Mobile capable</li> </ol>	1. Functionality limited to managing sales leads.	1. Does not support interactions related to relationship management.
5. Teamsupport	1. Caters to incident logging and interactions related to the same	1. Support the communication	1. Cannot be used as a planning to tool to pre-plan the interactions with the suppliers.

Table 2 Pros and Cons of similar systems

# 3 Chapter: Analysis & Design

# 3.1 Approach to analysis

A detailed requirement analysis was done in order to design the system as this system will automate and act in creating a data repository on relationship interactions. Eliciting of the requirement will be very crucial as difficulty in comprehending functions by the users which are currently handled manually in an unorganized manner.

# 3.1.1 Requirement gathering methods

Following methods were be used to gather the requirements.

- Interviews

Interviews were carried out with senior management including Chief Executive Officer and supply chain head in order to determine the way interactions with suppliers are to be structured. Further, they gave the insight on to how the dashboard and reporting to be structured together with the intervals of updating for reviews.

Supply chain managers and executives shared the types and volume of information shared in supplier interactions. The information that calendar request should contain and the features required in notes taking in relation to interactions were specified.

- Inspiration from similar systems

Best practices from the similar systems which were described in the literature review are analyzed in order to create some inspiration in designing features and functionality in the supplier relationship management system. Especially relationship functionalities of Salesforce.com were observed.

# 3.2 Finalized requirements

The requirements are listed below under functional and non-functional and the same have been illustrated in Figure 2.

# 3.2.1 Functional requirements

It was a quite a challenge to finalise the requirements especially due to the difficulty of elicitation the current practices of ad hoc and user centric relationship maintenance methods. Below functional requirements were finalized after carefully thinking through and brainstorming sessions done with the users.

- 1. To be able to view upcoming interactions categorized under primary and secondary contact points. That is Brandix team member must be able to view who is the supplier primary contact and secondary contact for future interactions.
- 2. Send e-mail notifications regularly for upcoming interactions. It will prevent scheduling of meetings at the same time and get prepared for meetings in advance.

- 3. Send e-mail notifications for incomplete interactions. Hence all details will be recorded prior to completing interactions and to determine whether new meetings will be required for the same topics which were under discussion
- 4. Capture the interactions to be completed and a mechanism to tick them off once the interactions are completed. It will be possible to attain list of completed interactions in a time period. It will constitute to analyzing interactions in quantitative context. That is based on frequency of communications.
- 5. To save notes on interactions to be completed and to share notes with associates if necessary. This will indirectly be a mechanism for knowledge sharing which will prevent duplicate topic meetings and time saving for team members. Notes can also be used to analyze quality of relationship which will be a quantitative factor of validation.
- 6. To be able to view the notes of previous interactions. To investigate the level of relationship and how to approach supplier. That is for example whether supplier is knowledgeable on a certain technical issue or same issues are reported to the supplier repeatedly where their level of dependability will be low. Basically characteristics, shortcomings and strength level of supplier can be determined by evaluating previous conversations.
- 7. To be able to view the interactions to be total vs incomplete interactions graphically. Graphical presentation depicts understanding of level of supplier relationship at a glance. That is it might seem that interactions are needed with supplier on large number of issues. It can be studied graphically to view whether it is upward trend or downward trend. But it is imperative to understand qualitative aspect also. For example Brandix might be solving issues and building a strong relationship with supplier. On the other hand low number of interactions could be due to nonexistence of issues due to a strong relationship.
- For a given task the required associates' calendars must be booked for four months in advance. It will provide a practical time framework to plan future activities and commitments with suppliers.
- 9. The Supplier relationship management system need to be developed as a web application as this needs to be accessed by many within the cluster. Team members might work from factors, head office, foreign assignment locations. Web application provides easy access

to all counter parties. Adequate security measures must be taken to assure data protection and user access.

- 10. The level of details displayed depends on the level of permission granted to the specific windows user login. Designation hierarchy related access level must be defined for each team member. Window level security access must be defined for user ID. Further team related users need to be grouped together where superior can access all information related to his or her team. Further in substitute team members in case of absence and designations with special access needs to be defined maintain efficient information flow within teams.
- 11. For authentication, the windows single sign in authentication method will be used. The same user cannot be logged into the same process more than once. As a result other users will not be able to use the log in for their usage. It will secure user trail of activities for which they will be accountable as individuals.

#### 3.2.2 Non-functional requirements

It was very important in identifying the non-functional requirements and finalization of the same since the system should be appealing and available so that management can easily enforce the usage and align users to reap the benefits of the system. In other words, this would enhance the "Change Management".

- 1. The system should be available at all the time. That is administration users must be allocated with specific roles to assure availability of system to all relevant users. Further any issues reported must be solved in target defined time frame which will be used to analyze efficiency of administration team. Relevant training must be provided to administration group to solve issues in a speedy manner. Further hardware and software analysis must be conducted to prevent any unforeseen issues as slowness, data protection and user access.
- 2. The look and feel should be streamlined with the Brandix Essentials Limited web applications interface design. The reason is users need to feel that new system is part of Brandix portfolio of system. Then they will feel that it is a mandatory requirement to use the system. Otherwise users might feel that this an extra manual work to enter notes as such. By having the same interface users should feel it will be a part of their daily routine.



#### Below figure illustrates the overall analysis of the system functionalities.

Figure 2 High-level Requirement

# 3.3 Design

At the design stage, senior management of the company wanted the name of the system to be changed as "Supplier Relationship Index" because it indicates the health of the key suppliers. So this should be one of the KPI indexes that would be reviewed periodically to see whether the organization is maintaining a healthy relationship with its key suppliers.

# 3.3.1 Software design

Prototype method was used in design and obtain feedback from the users because functions were currently carried out manually in a very informal manner. Based on the feedback designs were revised to arrive at the optimal design. Use cases and related diagrams were done in order to arrive at the system functionalities and features while entity relationship diagrams were done in order to design the database structure.

# 3.3.1.1 Use case diagrams

Figure 3 illustrates the main use case and the actors of the system.



Figure 3 Main use case

Below tables narrates few use cases.

User Case Name :	Register and Edit User Access
User Case ID :	01
Pre-Condition :	Should have admin access
Primary User :	Admin
Description :	Admin will create a new user using Add user
	option
	Admin will change user role
Trigger :	Click Register button
	Click Relevant User Role
Typical flow of events :	Admin will enter Username and Password
	Admin click Register button
	Admin click User Name
	Admin select New user Role
	Admin click Save Changes
Alternate Courses :	Nil
Post Condition	Nil

Table 3 Register user case

User Case Name :	Entering the details of the Call
User Case ID :	2
Pre-Condition :	Nil
Primary User :	Normal User\Admin
Description :	User will make a call
Trigger :	Receive a calendar note to alert to make call
Typical flow of events :	• Make the call
	• Enter notes based on the call
Alternate Courses :	Nil
Post Condition	Save notes entered on the call
	1

Table 4 Call user case

3
Nil
Normal User\Admin
User will attend face to face meeting
Receive a calendar note to alert to attend
meeting
<ul> <li>Attend Meeting</li> </ul>
<ul> <li>Enter notes based on the meeting</li> </ul>
Nil
Save notes entered on the meeting

Table 5 Face to face meeting

User Case Name :	Entering details related to Status E-Mail
User Case ID :	4
Pre-Condition :	Nil
Primary User :	Normal User\Admin
Description :	User will send status E-Mail
Trigger :	Receive a calendar note to alert to send E-Mail
Typical flow of events :	• Send E-Mail
	<ul> <li>Enter Status mail content</li> </ul>
Alternate Courses :	Nil
Post Condition	Save status E-Mail

Table 6 Status e-mail

### 3.3.1.2 Activity diagrams

Activity diagram depicts the flow of system functions. This graphically presents the step by step activities, iterations, parallel activities and decision making points. Activity diagrams of Unified Modelling Language, are intended to illustrate the business process as well as the system process. Below activity diagram illustrates the functional flow of the SRMS in scheduling a weekly call with a particular supplier for a foreseeable future and related activities of making notes against each interaction and update of the relationship status after the call.



Figure 4 Activity diagram of relationship call with the supplier

Above diagram (Figure 4) shows the below activities;

- Update of calls depending on the frequency (weekly/ twice a week/ monthly) with a supplier contact until a prescribed future date.
- Generation of calendar note and updating of the same in MS Outlook calendar.
- Per each call scheduled a unique interaction is created in the database of the system.

- At the point of call is taken supply chain executive makes notes in the system against that particular interaction.
- After the call based on the interaction he/she can record the status of the relationship with that particular supplier contact person.

# 3.3.1.3 Sequence diagram

Sequence diagram (Figure 5) depicts the interactions among the classes and messaging in the system. Further this shows the runtime scenarios of the system. First diagram illustrates the user login function and how classes in the programme and interact.



Figure 5 Sequence diagram for User Login

- A loginRequest() is initiated by the user which will be send over the login interface.
   Username and password will be passed by the user.
- After validating the interface parameter requirements, login details will send to the Login class.
- Then GetLogin () Database access function is called and Data will be requested based on the given SQL query.
- Data will be retrieved by the function and passed to login class where it will be validated against the users given credentials.

- Once the user details is validated and an acknowledgement message will be displayed to the user.

The sequence diagram (Figure 6) below illustrates the interaction among the classes when reports are generated.



Figure 6 Sequence diagram for report generation

- ReportGeneration() request is initiated by the user in order to get a Temperature vs Time report from the system
- Reports interface will be handling the request from the user and initiate the report generation function.
- Then GetTemp () Database access function is called and Data will be requested based on the given SQL query.
- Data will be retrieved by the function and passed to the user output interface.
- Finally data is represented on a report viewer interface for the user.

# 3.3.1.4 Class diagram

Below UML class diagram (Figure 7) depicts the how an interaction with a supplier is handled in the system.



Figure 7 Class diagram for interaction with a supplier

#### 3.3.2 Database design

Below will be the higher-level entity relationship design of the system, where Supply Chain Executive of Brandix Essentials will initiate an interaction over a face to face meeting or a phone call or an email. These interactions will be pre-defined base on the level of the authority of the person from both parties who joins the interaction. Each interaction will generate a calendar note as well as alerts. Follow-up notes will be generated base on the information shared during the interaction. Weekly performance of the suppliers will be related to each supplier. The table containing performance values from the Supplier Ontime Delivery system will be integrated with the Supplier Name key. Following illustration (Figure 8) will depict the Entity Relationship of the system.



Figure 8 Entity Relationship Diagram

### 3.3.2 Database scripts

Few excerpts from the scripts used for creating of the database are mentioned below. Below extract (Figure 9) shows the script used for creation of table to record the relationship with supplier contact persons and BEL supply chain team. This is the most important table in the system where most of the system functionalities will be around this table.

/****** Object: Table [dbo].[Relationships] Script Date: 3/6/2017 5:49:30 PM ******/	
SET ANSI_NULLS ON	
GO	
SET QUOTED_IDENTIFIER ON	
GO	
CREATE TABLE [dbo].[Relationships](	
[RelationshipId] [smallint] IDENTITY(1,1) NOT NULL,	
[BuyerId] [smallint] NULL,	
[PrimaryTeam] [smallint] NULL,	
[PrimaryTeamStreangth] [smallint] NULL,	
[PrimaryContactFrequencyType] [smallint] NULL,	
[PrimaryFrequency] [smallint] NULL,	
[PrimaryMode] [smallint] NULL,	
[PrimaryStartDate] [datetime] NULL,	
[PrimaryNextDueDate] [datetime] NULL,	
<pre>[PrimaryTime] [time](5) NULL,</pre>	
[PrimaryAppointmentSent] [bit] NULL,	
[PrimaryLastAppointmentDate] [datetime] NULL,	
[SecondaryTeam] [smallint] NULL,	
[SecondaryTeamStrength] [smallint] NULL,	
[SecondaryContactFrequencyType] [smallint] NULL,	
[SecondaryFrequency] [smallint] NULL,	
[SecondaryMode] [smallint] NULL,	
[SecondaryStartDate] [datetime] NULL,	
[SecondaryNextDueDate] [datetime] NULL,	
[SecondaryTime] [time](5) NULL,	
[SecondaryAppointmentSent] [bit] NULL,	
[SecondaryLastAppointment] [datetime] NULL,	
[CBU] [smallint] NULL,	
[Department] [smallint] NULL,	
[Account] [smallint] NULL,	
[LocationId] [smallint] NULL,	
[IsDeleted] [bit] NULL,	

Figure 9 Script to create relationships table

Below script (Figure 10) used to create the table to record tasks related tonotes on the interaction.

```
USE [SupplierRelationshipIndex]
60
/****** Object: Table [dbo].[NotesOnTasks] Script Date: 3/6/2017 5:50:55 PM ******/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
SET ANSI_PADDING ON
GO
CREATE TABLE [dbo].[NotesOnTasks](
[NoteId] [smallint] IDENTITY(1,1) NOT NULL,
    [Note] [varchar](max) NULL,
[TaskId] [int] NULL,
    [SharedWith] [varchar](250) NULL,
    [NoteBy] [varchar](20) NULL,
    [SavedDate] [datetime] NULL,
[externallyShared] [varchar](500) NULL,
 CONSTRAINT [PK_NotesOnTasks] PRIMARY KEY CLUSTERED
[NoteId] ASC
)WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF, IGNORE_DUP_KEY = OFF, ALLOW_ROW_LOCKS = ON, ALLOW_PAGE_LOCKS = ON) ON [PRIMARY]
) ON [PRIMARY] TEXTIMAGE_ON [PRIMARY]
GO
SET ANSI_PADDING OFF
GO
ALTER TABLE [dbo].[NotesOnTasks] WITH CHECK ADD CONSTRAINT [FK_NotesOnTasks_ContactsToBeCompleted] FOREIGN KEY([TaskId])
REFERENCES [dbo].[ContactsToBeCompleted] ([TaskId])
GO
ALTER TABLE [dbo]. [NotesOnTasks] CHECK CONSTRAINT [FK_NotesOnTasks_ContactsToBeCompleted]
GO
```

Figure 10 Script to create table for notes

Below is the script (Figure 11) to create a stored procedure to maintain the relationship history so that an analysis can be done the way relationship status has changed over time.



Figure 11 Script to create stored procedure for relationship status history

Figure 12 shows the extract of the database script is a view created to pull data on the "pending interactions".



Figure 12 Script to create the view on pending interaction

#### 3.3.3 Features of the supplier relationship management system

Below are the features that will be designed into the web interface of the Supplier Relationship Management System. That will enable the users to carry out update and management of relationship activities related to their suppliers.

1. Facility to bulk upload of data so that system can be deployed with a fair amount of data (Contacts, interactions, etc...) This is where the initial setup of data is carried out in the system.

1.1 Associates in the Active Directory are granted permission to the system

- 1.2 Supplier details are added
- 1.3 Brandix Supply Chain teams are created
- 1.4 Relationships are saved
- 1.5 Permission levels are defined
- 1.5.1 Setup level 1 permission (All, Customer Business Units)
- 1.5.2 Setup level 2 permission (All, Department)
- 1.5.3 Setup business unit details
- 1.5.4 Setup department functions

2. Portal for administration which will be used for user creation, granting of permission for specific user roles. Below are the capabilities of the feature.

- 2.1 Grant access to system
- 2.1.1 Search for users from Active Directory and add the specified user to the system
- 2.1.2 Edit saved user details
- 2.1.3 Delete users from the system
- 2.2 Add supplier details
- 2.2.1 Add supplier details to the system
- 2.2.2 Edit saved supplier details

- 2.2.3 Delete supplier details
- 2.3 Add Brandix supply chain teams
- 2.3.1 Create and save Brandix supply chain team for communication
- 2.3.2 Edit saved team
- 2.3.3 Delete teams
- 2.4 Add Relationship

2.4.1 Define the relationship and save it to the system.

2.4.2 Edit the relationship

2.4.3 Delete the relationship

3. Below are the features that will be available to a business user of the supplier relationship management system.

3.1 View details pertaining to below;

3.1.1 Display upcoming primary relationship details for a month according to the user level permission

3.1.2 Display upcoming secondary relationship details for a month according to the user level permission

3.2 Provision of functionality of an executive diary in terms of maintaining and strengthening relationship with the suppliers.

3.2.1 Display interactions to complete for a specific user according to the user login

3.2.2 Mark interactions that are completed

3.2.3 Save or share notes on interactions

3.2.3.1 Select the interaction to save a note on, and add notes

3.2.3.2 If needed to be shared with an associate, search for the associate and select the associate and save the note

3.3 Saved notes

3.3.1 Display notes according to the user level permission

3.4 Dashboard to view specific saved searches (as below) are available

3.4.1 Display current week's details for total vs incomplete interactions with drill down facility from Business Unit to associate level on page load

3.4.2 View details for a specific time period

4. Email notifications to prepare for specific interaction (call, meeting and status e-mail) are mentioned below.

4.1 7day prior alert

4.2 1day prior alert

4.3 Incomplete interaction alert

5. Send other notifications

5.1 Send outlook calendar bookings

#### 3.3.4 Software Architecture

As illustrated from the Figure 13, Software architecture is consisting of Web base browser for user interfacing and the underlying web application. The system is hosted in the company data center and user should be in the corporate network to access the system. So user can log from anywhere and with any device provided he/she has Virtual Private Network connection. Browser will facilitate single sign on hence when user logs in to his/her computer automatically application is authenticated with the same credentials. Web Application will facilitate authorization of activities pre assigned to the user role. Further it will validate the Inputs base on the validation parameters built into the code. Handling of exceptions also will be done by the web application will record the transactions and pass them onto the database. While database will control the certain access to the saved data base on the privileges provided to user roles.



Figure 13 Software Architecture

#### 3.3.4.1User Interface design

User Interface designs are done using a tool called "Pencil" [4]so that they can be shown to the users and obtain feedback. This allowed to incorporate those feedback when the actual interfaces are built. One such interface mockup of the "Upcoming Interactions" is shown here.

# 3.3.4.1.2 Design decisions

User interfaces were designed with the grids methodology as it was the most suitable methodology based on the type data that were presented to the user as shown in Figure 14. Grids are easy to refer by the users due to the way it is presented. Other alternative would be to use List view but after considering the type of data that were to be presented it was decided to use the grid. The grid controls were used from "Telerik Radgrid" [5]. Alternatively grid controls available from asp.net also could have been used. Telerik Radgrid controls is very easy to design and implement and provides "excel like" features for the users. Hence it is very user friendly for the users to filter, scroll and resize columns & rows. This controls supports on mhobile platform rendering as well.
Type         Function         Name         Notes         Supplier         Contact         Designation         Function         Mode         Due Da           Secondary         Business Unit         XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	Supp	lier Relationship	Management System		Upcon	Upcoming Interactions				
Secondary Business Unit XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	Туре	Function	Name	Notes	Supplier	Contact	Designation	Function	Mode	Due Date
	Secondary	Business Unit	XXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX		Fabric Supp	X00000X X00000X	Marketing Manager	Marketing	Call	15/01/201

Figure 14 User Interface Mockup

#### Main dashboard

This shows the overall status of supply chain team attending and completion of interactions with the supplier contacts. Rate of interaction completion as an overall company level to date, at customer business unit level, at individual level and overall monthly activity status are shown in this screen as per the below Figure 15.



#### Figure 15 Main Dashboard

#### Upcoming events screen

This screen presents the data on the upcoming events (a call or a face to face meeting or a status e-mail) the particular user have to take part in order to complete the interaction in relation to the supplier contact relationships defined for him/her as shown on Figure 16.

Up Co	Coming ming Event	Events s for GayaneeW										
Туре	Brandix Function	Team	Notes	Supplier	Contact	Designation	Supplier Function	Mode	Frequency	SRI Strength	Change	Due Date
Primary	General Management	Kashyapa Dela		Naturub	Tissa Illeperuma	Managing Director	Marketing/Operation	Call	Once every Week			02/07/2017
Primary	BU Management	Anuradha Jayasinghe		Naturub	Prasanna Vipula	Sales Manager	Marketing	Call	Once every Week			02/07/2017
Primary	BU Management	Anuradha Jayasinghe		Naturub	Manjula Mannapperuma	Marketing Manager	Marketing	Call	Once every Week			02/07/2017
Primary	BU Management	Nalir Mohomed		OCL	Ruwan Mudalpath	Manager - Marketing	Marketing	Call	Once every Week			02/07/2017
Primary	BU Management	Sisira Kaluarachchi		AD	Akitha Bandara	Sales Manager	Marketing	Call	Once every Week			02/07/2017
Secondary	BU Management	Sisira Kaluarachchi , Nalir Mohomed , Anuradha Jayasinghe		PTL	Eric I	Account Manager	Marketing	Call	Once every Month			02/07/2017
Primary	General Management	Kashyapa Dela		ITL	Sumantha Fernando	CEO	Gerenal Management	Call	Once every Week			02/07/2017
Primary	BU Management	Anuradha Jayasinghe		OCI	Chamara Kotuwelle	Senior Manager - Merchandising	Marketing	Call	Once every Week			02/07/2017
Primary	BU Management	Sisira Kaluarachchi		Bright Sun	Teresa	Sales Manager	Marketing	Call	Once every Week			02/07/2017
Primary	General Management	Kashyapa Dela		OCL	Austin Au	Managing Director	Marketing/Operation	Call	Once every Week			02/08/2017
Primary	General Management	Kashyapa Dela		OCL	Andrew Claughton	Deputy General Manager	Marketing/Operation	Call	Once every Week			02/08/2017
Primary	BU Management	Anuradha Jayasinghe		OCL	Ruwan Mudalpath	Manager - Marketing	Marketing	Call	Once every Week			02/08/2017
Primary	BU Management	Nalir Mohomed		AD	Akitha Bandara	Sales Manager	Marketing	Call	Once every Week			02/08/2017

Figure 16 Final User Interfaces - Upcoming events

## My task

Figure 17 shows the status of the interaction pertaining to a single supplier contact.

Му Та	isk Lis	t										
Mv Tasks	5											
Add plus-task f	for existing co	ntact 🛖	Add ad-hoc task for	existing relationship 🗧	ŀ							
Туре	Status	Due Date	Primary Owner	Secondary Owner	Notes	Supplier	Contact	Designation	Mode	Frequency	SRI Strength	Action
Primary		02/09/2017	NalirM	GayaneeW		PTL	Alex Tai	Account Manager	Call	Once every Week		o 📕 📀
rimary	<u> </u>	02/02/2017	NalirM	GayaneeW		PTL	Alex Tai	Account Manager	Call	Once every Week		0 💻 📀
		01/26/2017	NalirM	GayaneeW		PTL	Alex Tai	Account Manager	Call	Once every Week		0 📕 📀
Primary	<u> </u>											
Primary Primary	<u> </u>	01/19/2017	NalirM	GayaneeW		PTL	Alex Tai	Account Manager	Call	Once every Week	-	🗢 📥 🖸



### SRI administrator panel

This screen provides the administrator to create and manage supplier contacts, relationships and interactions, user management, report management and etc; as depicted by Figure 18.





Relationship management

This screen allows the users to create and amend relationship interactions (Figure 19).

# Relationships Management

Sup	oplier F	lelationshi	ps										
Add n	ew relation	iship 🕂											
Edit	Delete	Supplier	Relation Type	Contact	Team Member	SRI Strength	Mode	Frequency	DueDate	Time	CBU	Department	Account
-	×	AandE	Primary	Sanjaya Chandrarathne	Kashyapa Dela		Call	Once every Week	02/12/2017	09:00:00	GM	General Management	LB
	×	AandE	Secondary	Sanjaya Chandrarathne	Sisira Kaluarachchi , Nalir Mohomed , Anuradha Jayasinghe		Call	Once every Month	03/01/2017	09:00:00	LB	BU Management	LB
-	×	AandE	Primary	Malcolm Peterson	Sisira Kaluarachchi		Call	Once every Week	02/12/2017	09:00:00	LB	BU Management	LB
*	×	AandE	Secondary	Malcolm Peterson	Mahesha Walpola , Indika Kumara , Udeshika Edirisinghe		Call	Once every 2 Weeks	02/12/2017	09:00:00	LB	Account Management	LB
• *	×	AandE	Primary	Malcolm Peterson	Anuradha Jayasinghe		Call	Once every Week	02/12/2017	09:00:00	US	BU Management	US
	×	AandE	Secondary	Malcolm Peterson	Mahesh De Silva , Nirosha Thilakaratna , Wimukthi Meegasdeniya		Call	Once every 2 Weeks	02/12/2017	09:00:00	US	Account Management	US

Figure 19 Relationship Update Panel

# 3.3.4.2 Software Engineering Concepts

It was identified that typical waterfall method won't be useful in the case Supplier Relationship Management System due to the nature of user that I had to work with. Hence it was decided to use an incremental model of development. This enable us to at each stage to approach the users and validate of the steps taken. If any correction is required in the development lifecycle we were able to adopt those changes without much of a rework. If we adopted the waterfall method after the completion of the development, we would have to carry out lot of changes as this business function is new to the team and in whatever the portion it was functioned it was very informal hence users will not be able to comprehend the requirement at once.

# 4 Chapter: Implementation

# 4.1 Technologies used

This system is hosted in the company data centre and can be only accessed when the user is connected to the corporate network either physically sitting at company premises or accessing through internet VPN tunnel when user is sitting outside company premises. Implementation technologies were selected based on the Brandix's corporate Information Technology stack which had to be adhered to due to the cross application integration capabilities and ease of maintenance. Hence below mentioned are the technologies used for Supplier Relationship Management System.

- 3 Web application hosted on IIS7
- 4 Developed using ASP.NET 4.0
- 5 Telerik Controls
- 6 Language: C#
- 7 Database: SQL 2012

# 4.2 Structure of the software implementation

The system has largely 4 modules namely;

1. Administration module

This looks after user and user role management.

2. Supplier contact module

This looks after add/amend of supplier contact details who deals with Brandix. Hierarchy of the contact person and corresponding contact point from Brandix also mapped in this module.

3. Supplier interaction/task module

This module handles the creation and amendment of the interaction with the relevant supplier contact. This is where the mode of interaction and frequency is defined. Notes related to an interaction is also handled under this module. 4. Supplier relationship status module

This handles the module where the status of the relationship with particular supplier contact point is recorded. This helps in pulling out reports to review the status of the supplier relationship.

Segregation of the system into above modules enabled more clear approach in coding and efficiency of coding.

## Data Layer

Data layer consists of the database which was implemented by creating tables based on the entity relationships identified and stored procedures and views created for data extraction to the business logic layer. Views will ensure security of the system as it will be a replication of the data in the main tables that will be used for data extraction.

#### Business logic layer

This is the layer where the coding is mostly done to create the business functions. Business logic layer executes the code in order to write data or extract the data to and from the data layer and bring it to the presentation layer.

#### Presentation layer

This where the coding is done in order to govern the way data is presented to the user. This is where the user interfaces play their role in presenting information in a useful way for users to take actions on.

### 4.3 Extracts of the code

Figure 20 shows the code for creation of the Home page.



Figure 20 Home Page Coding

Code behind My task list is shown in Figure 21.



Figure 21 Code to populate my task list

# 4.4 Use of existing tools/libraries

Based on the interactions/ meeting events created between the Brandix Essentials Supply Chain Executive and the contact person from the supplier, there was a need to get an overview of how much of supplier relationships Brandix Essentials maintains as an organization. Furthermore, the organizational hierarchy of the supplier needed to be identified so that Brandix Essentials can see where the relationships need further improvement or new supplier relationships need to be established. This required displaying an organizational hierarchy for both Brandix Essentials and the Suppliers; in order to achieve this "Basic Primitives JavaScript Component Library – Large Organizational Chart" [6]was used.

Additionally, considering both organization hierarchies it was required to map a web of influence to see whether the relevant person of the supplier team is interacted/met by the relevant hierarchical supply chain executive from Brandix. To develop this feature known as the web of influence another dynamic, browser based visualization library called VIS.JS [7] has been used. This JavaScript library enabled to display a composite view of the web of influence.

# 5 Chapter: User Evaluation and Testing Plan

# 5.1 Testing

To ensure the quality of the various types of system testing were carried out. Testing was intended to confirm meeting of business requirements set out at the beginning as well. Hence testing was done both by the developer as well as the users before the system went Live.

# 5.1.1 Test Plan

As described in the previous chapters the system was built in an incremental mechanism and was tested one function at a time before it was completely built and tested for full horizontal test. White box testing will be done in order to see whether specific code segment is giving intended results. Further it was used to see whether there are any unused codes, coding standard, code coverage and modularity of the system is intact.

Black box testing will be practiced by the Quality Assurance team. This enabled us to see when a valid Input is given whether the system facilitates the operation and passes a valid output as well as error catching functions when an invalid input is given.

# 5.1.2 Testing Levels

In the implementation of the project the system was tested at various levels in order avoid identification of errors at later stage, which can be costly to fix. The levels of testing carried out are as below;

# Unit Testing

These tests were carried out to find out any errors in the small code segments.

# **Integration Testing**

Testing targeted to find out whether there are any faults after integration of segments. This will test the integration with other systems as well.

# Validation Testing

Ability to create incorrect data and validation to avoid the same will be tested under validation.

Acceptance Testing

Finally, users will carry out testing on the system to find out whether the business requirements have been met. End user feedback will be collected on functionality at the completion of each module as well; so the readjustment can be done in order to avoid big changes later stages.

# 5.1.3 Test Cases

The test cases were determined according to the functionality of each modules and after reviewing the various data that needs to be entered in each screen. The testing requirements were documents as scenarios so it is easily understandable to end users. The test cases used and the relevant results are mentioned in the appendix.

# 5.2 User evaluation

This is the first time that Supply Chain team at Brandix uses a system to record their interactions with suppliers and mark the health of the relationship that is to be used for management review and take necessary action. Hence an evaluation definitely will help to identify whether the system has met the expectations in terms of performance and business requirement.

Since majority of the participants of the evaluation are going to be non-technical business users it was decided to use a questionnaire to obtain feedback as it will provide a proper guidance for a meaningful evaluation. The questionnaire will be given to all the types of users of the Supplier Relationship Management System at Brandix Essentials (Pvt) Ltd.

Questionnaire on SRMS				
General				
1. Name				
2. Type of user				
3. Frequency of usage	Daily	Weekly	Monthly	Quarterly
Ease of use				
1. Colour scheme of the	Too dark	Too light	Moderate	Remarks:
UI				
2. Page loading speed	Too Slow	Medium	Fast	Remarks:
3. Form layout	Cluttered	Space underutilized	Balanced	Remarks:

Suggested questionnaire is as follows.

4.	Navigation of the system	Messy	Moderate	Easy Remarks:
5.	Response after data commit	Too Slow	Medium	Fast   Remarks:     Image: Construction of the second sec
<b>F</b> (				
<u>Funct</u> 1.	Does it help to make the calendar reservation of the Supplier meeting?	Yes	No 🗖	Remarks:
2.	Is it helpful to make the notes against each meeting?	Yes	No	Remarks:
3.	Are the reminders about next meetings helpful?	Yes	No	Remarks:
4.	Do the reports retrieve data fast?	Yes 🗌	No 🗌	Remarks:
5.	Do the reports contain required information?	Yes	No	Remarks:
6.	Are the reports easy to interpret?	Yes 🗌	No	Remarks:

# 5.2.1 Final Score

# 5.2.1.1 Weightage

The frequency of usage will determine the weightage of the individual score should carry. Then the individual score against each questioned will accumulated and adjusted by the weightage. Weightages based on the frequency of usage will be as follows;

- 1. Daily 100%
- 2. Weekly 75%

- 3. Monthly 50%
- 4. Quarterly 25%

# 5.2.1.2 Score for ease of use

The score for each of the questions in the "ease of use" section will be 5,7 and 10 respectively for the responses from left to right (adverse to favorable). If all answers are favorable in the section it will accumulate a score of 50.

# 5.2.1.3 Score for functionality

The score for functionality will get accumulated as 10 per each response as "Yes" and 1 per each response as "No". Hence if all answers are "Yes" then the section will have accumulated score of 60.

# 5.2.1.4 Final score

Final score will be reached after adding the score in both the section and multiplied by the weightage. If the average score is above 55 (50% of the total score) then this system deemed to be a value adding system to the business.

# 5.2.2 Evaluation setup

Before the evaluation all the potential users of the system will be gathered to a meeting room. Then a detailed demonstration of the system will be carried out and followed by a Question and Answer session. Additionally, a detailed user manual with illustrations will be provided for further reference. The system will be loaded with certain pilot set of data relevant to the selected set of users across all the user roles. Then the system will avail for a stipulated period of time to use and provide the feedback.

# 5.2.3 Results of the evaluation

The evaluation was done among 15 users covering all the types of users and the results of the evaluation are tabulated below.

Criterion	No of users given a score above 50%
Ease of use	10
Functionality	9
Final Score	8

Table 7 Evaluation Results

Since most of the users have rated the system above 50% of the score given for evaluation, it is evident that users are satisfied with the system and fit to go Live.

# 6 Chapter: Conclusions and future work

#### 6.1 Lessons learnt

Even though the manipulation of underlying data was performed through data access classes in the web application, it was noted that the usage of the Entity Framework would have made the data manipulations more structured and convenient. The Entity Framework provides features for reducing code by creating a model instead of creating classes to access data, easy and fast functionality provided for select, insert, update, delete and other Create, Read, Update and Delete operations, easy management of relationship between tables, and is a fast development approach than ADO.NET. Therefore, by using the Entity Framework [8] the data access code would be much neater and maintainable.

The system faced challenges in displaying in varying devices as devices used across the business user were not the same. To overcome this challenge, the usage of the Bootstrap framework which is a responsive, mobile-first and front-end framework, which is developed along with Cascading Style Sheet, JavaScript, and Hyper Text Marked Language is suggested as it provides responsiveness, consistency, customizability and speed of development.

Hence use of the entity framework could have improved the security of the system by maintaining the integrity of the underlying data and increase the efficiency in development of the data access components of the system. Furthermore, if Bootstrap was used, cross device display compatibility could have been easily achieved along with maintaining consistency in presentation across the pages easily.

#### 6.2 Future work

Brandix Lanka Limited is a conglomerate and consists of three more apparel clusters of similar size and their teams to deal with Suppliers whom are very critical to the success of their respective operations. Hence one huge future task would be how the system could be implemented across the group and how the consolidated view of common suppliers be displayed and used in supply chain performance reviews.

Introduction of more sophisticated analytic capabilities to slice and dice the information on the dashboards itself will provide a window for fruitful review of the suppliers and performance of the supply chain executives as well. The user himself will be able to carry out the analysis by changing parameters by him/herself.

# References

- [1] "Softaware Advice," [Online]. Available: http://www.softwareadvice.com/scm/supplier-relationshipmanagement-software-comparison/. [Accessed 10 November 2016].
- [2] "Rubberstamp Supply Chain Management System," 17 January 2017. [Online]. Available: https://www.rubberstamp.io/.
- [3] Software Advice, "Software Advice Compare CRM Software," [Online]. Available: http://www.softwareadvice.com/crm/. [Accessed 15 January 2017].
- [4] "Pencil Screen Mockup Tool," [Online]. Available: http://pencil.evolus.vn/. [Accessed 20 August 2016].
- [5] "Telerik Controls for aspnet-ajax," [Online]. Available: http://demos.telerik.com/aspnetajax/grid/examples/overview/defaultcs.aspx. [Accessed 20 October 2016].
- [6] "Basic Primitives Javascript Component Library," [Online]. Available: http://www.basicprimitives.com/. [Accessed 15 October 2016].
- [7] "VIS.JS," [Online]. Available: http://visjs.org/. [Accessed 12 Novemeber 2016].
- [8] "Entity Framework," Microsoft Inc, [Online]. Available: https://msdn.microsoft.com/enus/library/aa937723(v=vs.113).aspx. [Accessed 15 January 2017].

# Appendices

# Appendix – A

# Test Cases

ID	Test Scenario	Test Steps	Test Data	Expected Results	Actual Results	Pass/F ail
TC 01	Users who have permission to view the Supplier Relationship Index should be able to access the system	1. Go to http://belwebsite/SRI/ home.aspx	Windows Account = KaushalaP	User should be able to view the home page of the supplier relationshi p index	The home page was loaded	Pass
TC 02	Users who do not have permission to view the Supplier Relationship Index should not be able to access the system	1. Go to http://belwebsite/SRI/ home.aspx	Windows Account = HemindaJ	User should not be able to view the home page of the supplier relationshi p index	Redirect ed to SRI_Res tricted.as px page	Pass
TC 03	Updating tasks for a supplier relationship interface should only display the tasks assigned to the logged in user - When the logged in user is either the primary or the secondary contact	1. Go to http://belwebsite/SRI/ MyTaskList.aspx	Windows Account = KaushalaP	The task list displays the SRI tasks where the logged in user is either a primary contact or a secondary contact	As expected	Pass
TC 04	Updating tasks for a supplier relationship interface should only display the tasks assigned to the logged in user - When the	1. Go to http://belwebsite/SRI/ MyTaskList.aspx	Windows Account = HemindaJ	The task list should appear empty	As expected	Pass

	logged in user is not either the primary or the secondary contact					
TC 05	All primary contacts should get a notification from the system 7 days prior to the task due date	1. Save supplier relationships so that the primary task due date is t+7, where t is today 2. Run the email generator program	SRI ID = 243 Primary Next Due Date = 16/2/2017 Primary Contact = Kashyapa D	KashyapaD should get a 7 day prior email notification from the SRI	As expected	Pass
TC 06	All primary contacts should get a notification from the system 1 day prior to the task due date	1. Save supplier relationships so that the primary task due date is t+1, where t is today 2. Run the email generator program	SRI ID = 200 Primary Next Due Date = 10/2/2017 Primary Contact = NalirM	NalirM should get a 1 day prior email notification from the SRI	As expected	Pass
TC 07	A reminder for the pending tasks should be circulated to users once the task due date has passed	1. Add a task with the staus = Pending to the system where the task due date < today 2.Run the email generator program for pending tasks	Task ID = 25 Task Due Date = 7/2/2017 Task Owner = KaushalaP	KaushalaP should get an email from SRI stating that he has 1 pending task	As expected	Pass

Relationshi	CBU	Supplier	Contact Person	Designation	Brandix Team	Relationship	Mode	Frequency	Due Date
Primary	EU	OCL	Kapila Elvitigala	Sales Manager	Disna Karawita	Good	Call	Weekly	2/12/2017
Primary	EU	AandE	Malcolm Peterson	Sales Manager	Nalir Mohomed	Excellent	Call	Weekly	2/12/2017
Primary	EU	AD	Akitha Bandara	Sales Manager	Nalir Mohomed	Good	Call	Weekly	2/15/2017
Primary	EU	Coats	Charitha Liyanagoda	Account Manager	Nalir Mohomed	Good	Call	Weekly	2/13/2017
Primary	EU	OCI	Chamara Kotuwelle	Senior Manager -	Nalir Mohomed	Excellent	Call	Weekly	2/12/2017
Primary	EU	OCL	Ruwan Mudalpath	Manager -	Nalir Mohomed	Good	Call	Weekly	2/14/2017
Primary	EU	PEI	Jacky Chan	Marketing Manager	Nalir Mohomed	Excellent	Call	Weekly	2/13/2017
Primary	EU	PTL	Alex Tai	Account Manager	Nalir Mohomed	Excellent	Call	Weekly	2/16/2017
Primary	EU	Shore to Shore	Kenedy Machado	General Manager -	Nalir Mohomed	Good	Call	Weekly	2/10/2017
Primary	EU	Shore to Shore	Nath Kottegoda	Director- Operations	Nalir Mohomed	Excellent	Call	Weekly	2/10/2017
Primary	EU	TJ	Lashma Dissanayake	Account Manager	Nalir Mohomed	Excellent	Call	Weekly	2/11/2017
Primary	GM	Coats	Jagath Liyanage	Head of Sales and	Kashyapa Dela	Excellent	Call	Weekly	2/13/2017
Primary	GM	OCL	Andrew Claughton	Deputy General	Kashyapa Dela	Good	Call	Weekly	2/15/2017
Primary	GM	PTL	Eric I	Account Manager	Kashyapa Dela	Moderate	Call	Weekly	2/11/2017
Primary	GM	Shore to Shore	Beauno Fernando	Chairman	Kashyapa Dela	Excellent	Call	Weekly	2/13/2017
Primary	GM	TJ/OCI	Rodney Arland	COO - Marketing	Kashyapa Dela	Excellent	Call	Weekly	2/15/2017
Primary	GM	TJ/OCI	Sriyan De Silva	CEO	Kashyapa Dela	Excellent	Call	Weekly	2/15/2017
Primary	GM	AandE	Sanjaya	Marketing Director	Kashyapa Dela	Good	Call	Weekly	2/12/2017
Primary	GM	AD	Lakshitha	Director - Marketing	Kashyapa Dela	Good	Call	Weekly	2/10/2017
Primary	GM	ITL	Sumantha Fernando	CEO	Kashyapa Dela	Good	Call	Weekly	2/14/2017
Primary	GM	OCL	Austin Au	Managing Director	Kashyapa Dela	Good	Call	Weekly	2/15/2017
Primary	GM	PEI	Matthew Lam	Chief Marketing	Kashyapa Dela	Excellent	Call	Weekly	2/16/2017
Primary	GM	Strtchline	Dhananjaya	CEO	Kashyapa Dela	Poor	Call	Weekly	2/12/2017

# Appendix – B - Report - Active Interactions

# Appendix – C – Report - Pending Tasks

Supplie	r												
Pending													
Tasks													
Location	BEL												
Date	#######	#####											
		Accoun	Brandix							Supplier	Relationsh		_
таяк туре	CBU	t/	Function	Due Date	Primary Contact	Secondary Contact	Supplier	Contact Person	Designation	Function	ip	Mode	Frequency
Dimensi	EU.	Depart	DLI Management	1/0/2017	Nelly Meleaned	Dubudu Da Ciba	100	Champers Katawalla	Carrier Manager	Maduatian	Strength	Cell	Onen aven Week
Primary	EU	EU	BU Management	1/8/2017	Nallr Monomed	Pubudu De Silva		Chamara Kotuwelle	Senior Manager -	Marketing	Excellent	Call	Once every week
Primary	GM	LB	General	1/8/2017	Kashyapa Dela	Sisira Kaluarachchi , Nalir	Strtchline	Dhananjaya Rajapakse	CEO	Gerenal	Poor	Call	Once every Week
			Management			Mohomed , Anuradha				Management			
	10		<b>2</b>	4/0/0047	<b>C</b> -1-1	lavasinghe	0.57	2 de cher	Marketta Marca	Marketta	E la la la	<b>C</b> -1	On the second second
Primary	LB	6	BU Management	1/8/2017	Sisira	Manesna waipola , Menuka	PEI	Jacky Chan	Marketing Manager	Marketing	Excellent	Call	Once every week
					Kaluaracrichi	Calpothdeniva							
Primary	US	US	Account	1/8/2017	Nirosha	Naween Karunarathna	OCL	Jayantha Munasinghe	Sales Manager	Marketing	Good	Call	Once every Week
			Management		Thilakaratna					-			
Primary	EU	EU	Account	1/8/2017	Disna Karawita	Suresh Kawshika	OCL	Kapila Elvitigala	Sales Manager	Marketing	Good	Call	Once every Week
Primary	IB	IB	BU Management	1/8/2017	Sisira	Mahesha Walnola . Indika	AandE	Malcolm Peterson	Sales Manager	Marketing	Excellent	Call	Once every Week
,		_			Kaluarachchi	Kumara , Udeshika							
						Edirisinahe							
Primary	US	US	BU Management	1/8/2017	Anuradha	Mahesh De Silva , Nirosha	AandE	Malcolm Peterson	Sales Manager	Marketing	Excellent	Call	Once every Week
					Jayasinghe	Thilakaratna , Wimukthi							
Primary	EU	EU	BU Management	1/8/2017	Nalir Mohomed	Pubudu Daswatta , Disna	AandE	Malcolm Peterson	Sales Manager	Marketing	Excellent	Call	Once every Week
						Karawita							
Primary	US	US	BU Management	1/8/2017	Anuradha	Mahesh De Silva , Ashan	Strtchline	Michel Thomas	Account Manager	Marketing	Excellent	Call	Once every Week
					Jayasinghe	Tharaka , Nirosha							
Primary	IB	IB	Account	1/8/2017	Mahesha Walnola	Thilskarstos Indika Kumara	PTI	Nicole Lee	Account Manager	Marketing	Good	Call	Once every Week
		<u>۳</u>	Management	401201/	- ancona waipula			medic bec	Account manager	manacang	0000	Com	Since every week
Primary	GM	LB	General	1/8/2017	Kashyapa Dela	Sisira Kaluarachchi , Nalir	AandE	Sanjaya Chandrarathne	Marketing Director	Marketing	Good	Call	Once every Week
			Management			Mohomed , Anuradha							
		L				lavasinghe							

Appendix – D User Manual of the Supplier Relationship Management System



# Supplier Relationship Management System



# Introduction

For any business to flourish, it is essential to maintain good relationships in terms of proper communication with its suppliers. Each associate who maintains good solid professional relationships with his/her supplier contacts becomes an asset to the company and brings a wealth of benefits. The **Supplier Relationship Index** or **SRI** is a system that helps the associates harness those benefits by properly organizing, preparing, planning, carrying out communications in an orderly fashion and sharing feedback of the conducted communications sessions with parties of the Brandix Group who might find the information useful for their endeavors. Since this system allows maintaining visibility across tasks that are complete or to be completed in a graphical manner, everybody is aware within a cluster of the task completion of a particular associate which acts as a measuring and monitoring mechanism as well.

The system supports the below functionalities,

View upcoming event details

Ensure managed visibility levels of details depending on the user permission given for a specific user.

List upcoming communication sessions scheduled to take place in a month's time, starting from today. (based on the due date of the said communication)

List details of primary and secondary contacts separately.

Ability to filter the listed details for ease of use.

To do list

List the incomplete tasks of users.

Facility to tick the completed tasks.

Facility to save a note to be referenced later on a selected task, or share a note with associates in the Brandix Group. (one or many notes can be saved for a particular task)

If a note is to be shared amongst associates, the relevant associates are notified from an e-mail once the note is saved.

Ability to filter the listed details for ease of use.

Notes on tasks

Ensure managed visibility of the notes saved on particular tasks depending on the user permission given for a specific user.

Ability to filter listed details of a specific task so that all notes for that task can be viewable.

Dashboard

Listing the total vs incomplete tasks in graphical format for a specific time period.

Drill down facility from Business unit (BU) -> Supplier -> Account -> Associate level detail.

On mouse over on a particular bar the associate level details is visible.

#### Notifications

Seven days before the due date of a particular communication session, an email notification is sent to both primary and secondary contact.

One day before the due date of a particular communication session, an email notification is sent to the secondary contact if the primary and secondary schedule is not the same.

After the due date of the communication session has passed an email notification is sent to the relevant associate informing of the incomplete task. (the total number of incomplete tasks is displayed here)

On the day of the relation an SMS notification is sent to the user.

The associate's calendar is booked at the specified time of the relation.

Administration

Add /Edit /Delete a supplier to the SRI

Add /Edit /Delete BEL contact team to the SRI

Add /Edit /Delete a relationship to the SRI

Search for associates from the address book and grant them permission to access the SRI.

# Getting Started

In this section the back end of the system is discussed with illustrations on how to setup the SRI.

Step 1- Grant access to SRI

Search for associates from the address book and grant permission to the SRI

Only administrators of the SRI can use this page to grant permission to associates.

Search for an associate by typing the windows login name or part of it in the search box and press enter or click on the "Find User" button. The associates who matches the search criteria will be loaded to the grid.

Supplier Relationship Index											
er N	lana	gement									
ent u	sers an	d their pern	nissions								
/ SRI use	er 🕂										
elete	Image	UserName	Designation	BU Level Permission	BU	Accounts	Department LevelPermission	Department			
C		gayaneew	Senior Engineer - Software Engineering	ALL	-	-	ALL	-			
¢		SisiraKa	Deputy General Manager - Supply Chain								
C	1	NuwanN	Assistant Manager - Sourcing								
C		AnuradhaSe	Senior Merchandiser - Sourcing								
¢.		MaheshaW	Manager - Sourcing								
	ent u SRI use elete	er Mana nt users an SRI user + elete Image	er Management	Inf users and their permissions         SRI user         SRI user          alete       Image       UserName       Designation         Image       UserName       Designation          gayaneew       Senior Engineer - Software Engineering          Image       SistraKa       Deputy General Manager - Supply Chain         Image       NuwanN       Assistant Manager - Sourcing         Image       AnuradhaSe       Senior Merchandiser - Sourcing         Image       AnuradhaSe       Senior Merchandiser - Sourcing	Inf users and their permissions         SRI user         SRI user	Inf users and their permissions         SR user         SR user         alete       Image       UserName       Designation       BU Level Permission       BU         alete       Image       UserName       Designation       BU Level Permission       BU         gayanew       Senior Engineer - Software Engineering       ALL       -         Image       SisiraKa       Deputy General Manager - Supply Chain       -         Image       NuwanN       Assistant Manager - Sourcing       -         Image       AnuradhaSe       Senior Merchandiser - Sourcing       -         Image       MaheshaW       Manager - Sourcing       -	er Management	er Management			

Figure 22 User Management

Select the associate you need to grant permission to, and the details of that user will be automatically loaded.

Find User	Find User
User name	Company
Designation	Department
Mobile	

Figure 23 Find User

Find User	Wimu	kthiM		Find User
Image	User Name	Title	Company	Email
	Wimukthi Meegasdeniya	Senior Merchandiser - Sourcing	Brandix Apparel Solution LTD - Essentials	WimukthiM@brandix.com
User name				Company
Designation				Department
Mobile				

Figure 24 User Details

According to the permission level you select further parameters for defining the visibility level will be displayed. Select the required option.

Click on "Save User" button to grant the associate permission to access the system.

Edit saved user details

Type the user name in the search box and press enter or navigate to the required user with the navigation provided in the grid.

Edit	Delete	Image	UserName	Designation	BU Level Permission	BU	Accounts	Department LevelPermission	Department
Ø	×	1	gayaneew	Senior Engineer - Software Engineering	ALL	-	-	ALL	-
$\oslash$	×	Л	SisiraKa	Deputy General Manager - Supply Chain					
$\oslash$	×	Ω	NuwanN	Assistant Manager - Sourcing					
Ø	×	Π	AnuradhaSe	Senior Merchandiser - Sourcing					

Figure 25 Find User from SRI to edit

Use the edit button in the left most corner of a particular record to edit the record. After editing, save or discard the edit using the two buttons provided.

UserName	Company	Department	Designation	CBULevel	CBU	DepartmentLevel	Department	Accounts
KashyapaD	Brandix Apparel Solution LTD - Essentials	CFT	Senior General Manager – Supply Chain					
-User Permi	ssions							
BU Lev	vel Permission		▼ BU				•	
Accou	nt(s)							
Depart Permis	tment Level		▼ Depar	tment			•	
Save	e User							

Figure 26 User Priviledges Edit

Delete users from the system

Use the delete button in the second column from the left to delete a particular user.

Edit	Delete	Image	UserName	Designation	BU Level Permission	BU	Accounts	Department LevelPermission	Department
Ø	×	1	gayaneew	Senior Engineer - Software Engineering	ALL	-	-	ALL	-
$\oslash$	×	Π	SisiraKa	Deputy General Manager - Supply Chain					
$\oslash$	×	Ω	NuwanN	Assistant Manager - Sourcing					
$\oslash$	×		AnuradhaSe	Senior Merchandiser - Sourcing					
Ø	×	Ω	MaheshaW	Manager - Sourcing					

#### Figure 27 User Deletion

Upon clicking the delete button another dialog will appear. Click ok to proceed or cancel to exit.



Figure 28 User Deletion Confirmation

# Step 2- Add supplier details

Add supplier details to the system

This interface allows users to add new supplier contacts to the system. Items marked with a \* are compulsory fields. "Submit Details" button saves the new supplier details to the system.

	S	upplier	Relation	ship Index								
Su	ıppli	er Cor	ntact Ma	anagement								
Sup	ew Supplie	r Contact										
Edit	Delete	Image	Supplier	Contact	Department	Email	OfficeNum	MobileNum	Address	Website	Birthday	Keports I o
$\oslash$	×	Ω	AandE	Malcolm Peterson	Marketing	-	-	-	-	-	01/01/2000	
0	×		AandE AandE	Malcolm Peterson Sanjaya Chandrarathne	Marketing Marketing	-	-	-	-		01/01/2000	
0	× × ×		AandE AandE AD	Malcolm Peterson Sanjaya Chandrarathne Akitha Bandara	Marketing Marketing Marketing	-	-	-	- -	-	01/01/2000	
© © ©	× × × ×		AandE AandE AD AD	Malcolm Peterson Sanjaya Chandrarathne Akitha Bandara Lakshitha Darmawansha	Marketing Marketing Marketing Marketing	· ·	• • •	• • •	· ·	- - -	01/01/2000 01/01/2000 01/01/2000 01/01/2000	

Figure 29 Supplier List

	Brand	Select			•	
	Brand Contact					
	Designation					
	Supplier Function	Select			•	
Reports To	Select Select		•	User Image		Select
Email				Address		
Office Phone				Mobile		
Website				Birthday		

Figure 30 Supplier Details Entry

Edit saved supplier details

Type the supplier name in the search box and press enter or navigate to the required user with the navigation provided in the grid.

	20	1010]/1612_1	y ejenov	epib Jugex								
<b>-</b> .	نامم	or Col	ata at M	anaganaant								
su	ippii	er Coi	ntact IVI	anagement								
Sur	oplier (	Contacts										
Sup	oplier (	Contacts										
Sup	oplier (	Contacts							_	_		
Sup Add n Edit	pplier ( new Supplie Delete	Contacts er Contact	Supplier	Contact	Department	Email	OfficeNum	MobileNum	Address	Website	Birthday	ReportsTo
Sup Add n Edit	p <b>plier (</b> new Supplie Delete	Contacts er Contact	Supplier	Contact	Department	Email	OfficeNum	MobileNum	Address	Website	Birthday	ReportsTo
Add n Edit	pplier ( new Supplie Delete	er Contacts	Supplier	Contact Malcolm Peterson	Department Marketing	Email -	OfficeNum -	MobileNum -	Address -	Website	Birthday 01/01/2000	ReportsTo

Figure 31 Supplier Details

Use the edit button in the left most corner of a particular record to edit the record. After editing, save or discard the edit using the two buttons provided.

Image	Supplier Contact	Designation	Department	Email	ReportsTo
	AandE Malcolm Peterson	Sales Manager	Marketing	-	
Designation	Sales Manager	Depa	rtment	ing	
Reports To	AandE	User	mage		Select
Email		Addr	-		
Office Phone	-	Mobi	e -		
Website	-	Birtho	lay 1/1/200	00 IIII	]
Update					

#### Figure 32 Supplier Details Edit

Delete supplier details

Use the delete button in the second column from the left to delete a particular supplier contact.

	Su Su	upplier	Relations	hip Index								
Su	pplie Oplier C	er Cor	ntact Mar	nagement								
Add n Edit	ew Supplie Delete	r Contact 📲 Image	Supplier	Contact	Department	Email	OfficeNum	MobileNum	Address	Website	Birthday	ReportsTo
Ø	×	Π	AandE	Malcolm Peterson	Marketing	-	-			-	01/01/2000	
0	×		AandE AandE	Malcolm Peterson Sanjaya Chandrarathne	Marketing Marketing	-	•	•	•	•	01/01/2000	
© ⊘	× × ×		AandE AandE AD	Malcolm Peterson Sanjaya Chandrarathne Akitha Bandara	Marketing Marketing Marketing	-		-	- -	• •	01/01/2000 01/01/2000 01/01/2000	
© © ©	× × × ×		AandE AandE AD AD	Malcolm Peterson Sanjaya Chandrarathne Akitha Bandara Lakshitha Darmawansha	Marketing Marketing Marketing Marketing	· ·	• • •	• • •	- - -	- - -	01/01/2000 01/01/2000 01/01/2000 01/01/2000	

Figure 33 Supplier Details Delete Button

Upon clicking the delete button a confirmation window will appear. Click ok to proceed or cancel to exit.



Figure 34 Supplier Deletion Confirmation

Step 3- Add Brandix teams

Create and save Brandix team for communication

Associates who have been granted permission to the SRI are listed here. Teams consisting of one or many associates can be created. These teams will be loaded as the primary and secondary contacts in the interface provided for adding a new relationship.

By selecting the user ID, teams can be created consisting of one or many associates. Click on the "Submit Details" button to create the team.

## Edit saved team

Type the team name in the search box and press enter or navigate to the required team with the navigation provided in the grid.

Use the edit button in the left most corner of a particular record to edit the record. After editing, save or discard the edit using the two buttons provided.

## Delete teams

Use the delete button in the second column from the left to delete a particular team.

Upon clicking the delete button a confirmation window will appear. Click ok to proceed or cancel to exit.

# Step 4 - Add relationship

Define the relationship and save it to the system

This interface allows users to save relationship details with the supplier contacts.

# Supplier and Supplier Contact accommodates details saved in "STEP 2 - Add supplier details"

Primary Contact Details and Secondary Contact Details, **Contact Name** accommodates details saved in "**STEP 3- Add Brandix teams**"

# Relationship Type has four options

- a Excellent
- b-good
- c-moderate
- d poor

Contact Frequency Type and Frequency defines the frequency in which the relations takes

place

Eg:

Contract England and True a	Englander	Maanina
Contact Frequency Type	Frequency	Meaning
Week	1	Every week
Week	2	Every two weeks
Month	1	Every month
Month	2	Every two months
Year	1	Every year
Year	2	Every two years

Table 8 Contact Frequency Details

Contact Mode determines the medium through which the communication takes place

CBU determines to which CBU the relation belongs to

Function determines to which relation the relation belongs to

Account determines to which account the relation belongs to

Start Date and Time is the starting date of the relation and the time in which it will take place

Edit saved relationship

Select the supplier from the drop down list or navigate to the required relation with the navigation provided in the grid.

Use the edit button in the left most corner of a particular record to edit the record. After editing, save or discard the edit using the two buttons provided.

Delete relationships

Use the delete button in the second column from the left to delete a particular relation.

Upon clicking the delete button a confirmation window will appear. Click ok to proceed or cancel to exit.

# Using the system

# Upcoming events

Display upcoming primary relationship details and secondary relationship details for a month according to the user level permission. Users are recognized based on their windows login.



Figure 35 Upcoming Events



# Notifications

# Notifications are sent to associates in the following manner

Notification Type	Received by primary contact	Received by secondary contact
Primary contact notification	YES	YES
Secondary contact notification	NO	YES (if primary contact and secondary contact has different schedules)

Table 9 Notification Matrix

## **7 DAY NOTIFICATION**

This notification is sent to the associates 7 days before the due date of the relation.

			Supplier Relationshi	ip Index Primary Contact No	tification - Message (HTML			
e Message	McAfee E-mail Scan	? Tell me what you want to	do					
gnore 🗙 🗔 unk* Delete Archive	Reply Reply Forward	Meeting     Stuff       Stoff     Team       More *     Reply	G To Manager Email ✓ Done & Delete ۶ Create New	The second seco	es v Note Assign Mark Ca ons v Policy v Unread	ategorize Follow Up •	P Find Q Related ▼ ate Select ▼ Zoom	
Delete	Respond		Quick Steps	Fa Move	Tags	Fa	Editing Zoom	
SupplierRelationshipIr f there are problems w	lationshipIndex@brand tionshipIndex Primary Conf ndex@brandix.com; Kashya ith how this message is disp	dix.com tact Notification apa Dela; <mark>—</mark> Sisira Kaluarachch alayed, click here to view it i	ii; 🎉 Nalir Mohomed; 🔲 Anurad n a web browser.	ha Jayasinghe				
ction Items								+ Get more add
ear KashyapaD, You have the followin	g supplier relationship man	agement activities in <b>7</b> day	s time on 3/15/2017.					
ear KashyapaD, You have the followin Brand	g supplier relationship man Contact	agement activities in 7 day Designation	s time on 3/15/2017. Function	Contact Mode	Due Date	Time (24 Hrs)	Contact Type	Secondary Contact
lear KashyapaD, You have the followin Brand DCL	g supplier relationship man Contact Andrew Claughton	agement activities in 7 day Designation Deputy General Manager	s time on 3/15/2017. Function Marketing/Operation	Contact Mode Call	Due Date 3/15/2017 12:00:00 AM	Time (24 Hrs) 09:00:00	Contact Type Once every Week	Secondary Contact SisiraKa/NalirM/AnuradhaJa
ear KashyapaD, You have the followin Brand DCL DCL	g supplier relationship man Contact Andrew Claughton Austin Au	agement activities in 7 day Designation Deputy General Manager Managing Director	t time on 3/15/2017. Function Marketing/Operation Marketing/Operation	Contact Mode Call Call	Due Date 3/15/2017 12:00:00 AM 3/15/2017 12:00:00 AM	Time (24 Hrs) 09:00:00 09:00:00	Contact Type Once every Week Once every Week	Secondary Contact SisiraKa/NalirM/AnuradhaJa SisiraKa/NalirM/AnuradhaJa
lear KashyapaD, You have the followin Brand OCL DCL TJ/OCI	g supplier relationship man Contact Andrew Claughton Austin Au Rodney Arland	agement activities in 7 day Designation Deputy General Manager Managing Director COO - Marketing	time on 3/15/2017. Function Marketing/Operation Marketing/Operation Marketing	Contact Mode Call Call Call	Due Date 3/15/2017 12:00:00 AM 3/15/2017 12:00:00 AM 3/15/2017 12:00:00 AM	Time (24 Hrs) 09:00:00 09:00:00 09:00:00	Contact Type Once every Week Once every Week Once every Week	Secondary Contact SisiraKa/NalirM/AnuradhaJa SisiraKa/NalirM/AnuradhaJa SisiraKa/NalirM/AnuradhaJa
tear KashyapaD, You have the followin Brand OCL DCL TI/OCI	g supplier relationship man Contact Andrew Claughton Austin Au Rodiney Arland Sriyan De Silva Wijeyeratne	agement activities in 7 day Designation Deputy General Manager Managing Director COO - Marketing CEO	time on 3/15/2017. Function Marketing/Operation Marketing General Management	Contact Mode Call Call Call Call	Due Date 3/15/2017 12:00:00 AM 3/15/2017 12:00:00 AM 3/15/2017 12:00:00 AM 3/15/2017 12:00:00 AM	Time (24 Hrs) 09:00:00 09:00:00 09:00:00 09:00:00	Contact Type Once every Week Once every Week Once every Week Once every Week	Secondary Contact SisiraKa/NalirM/AnuradhaJa SisiraKa/NalirM/AnuradhaJa SisiraKa/NalirM/AnuradhaJa SisiraKa/NalirM/AnuradhaJa

Figure 36 7 Days prior Notification Email

# **1 DAY NOTIFICATION**

This notification is sent to the associates 1 day before the due date of the relation.

gnore 🗙 🗔 unk • Delete Archi	Reply Reply Forward	Meeting Meeting	tuff ♀ To M earn Ernail ✔ Done eply & Delete 犭 Creat	lanager e te New = Move	Rules *	k Categorize Follow ad - Up -	Translate → Find ⇒ Related → ⇒ Select →	Q Zoom		
Delete	Respond		Quick Steps	G M	ove	Tags G	Editing	Zoom		^
Wed 3/8/20	7 7:01 AM									
SupplierR	elationshipIndex@bran	dix.com								
Supplier Relationship	Index@brandix.com: Sisira I	Kaluarachchi: Mahesh	a Walpola: Menuka Tennak	oon: Buddhika Galpothdeniva						
here are problems	vith how this message is dis	played, click here to vi	ew it in a web browser.							
here are problems	vith how this message is dis	played, click here to vi	ew it in a web browser.							^
here are problems on Items rr SisiraKa,	vith how this message is dis	played, click here to vi	w it in a web browser.						+ Get more add	d-ins
tion Items ear SisiraKa, You have the followi	vith how this message is dis	played, click here to vi	w it in a web browser.			T			+ Get more add	* d-ins
ion Items ar SisiraKa, 'ou have the followi Brand rtchline	with how this message is dis	played, click here to vi nagement activities in Designation Account Manager	w it in a web browser.	Contact Mode	Due Date 3/9/2017 12:00:00 AM	Time (24 Hrs) 09:00:00	Contact Type	Seco MaheshaW	+ Get more add	d-ins
there are problems ion Items ar SisiraKa, 'ou have the followi Brand rtchline	with how this message is dis ng supplier relationship mar <u>Contact</u> Shehan CasieChetty	played, click here to vi nagement activities in Designation Account Manager	w it in a web browser.	Contact Mode Call	Due Date 3/9/2017 12:00:00 AM	Time (24 Hrs) 09:00:00	Contact Type Once every Week	Seco MaheshaW/	+ Get more add	d-ins
there are problems ion Items ar SisiraKa, (ou have the followi Brand utchline ank you.	with how this message is dis	played, click here to vi nagement activities in Designation Account Manager	w it in a web browser.	Contact Mode Call	Oue Date 3/9/2017 12:00:00 AM	Time (24 Hrs) 09:00:00	Contact Type Once every Week	Secc MaheshaW/	+ Get more add	d-ins
there are problems ion Items ar SisiraKa, fou have the followi Brand urtchline ank you. st Regards,	ng supplier relationship mar Contact Shehan CasieChetty	nagement activities in Designation Account Manager	w it in a web browser.	Contact Mode Call	Due Date 3/9/2017 12-00:00 AM	Time (24 Hrs) 09:00:00	Contact Type Once every Week	Secc MaheshaW/	+ Get more add	d-ins
there are problems on Items ar SisiraKa, ou have the followi Brand rtchline ank you. at Regards, applierRelationship!r	hith how this message is dis	nagement activities in Designation Account Manager	w it in a web browser.	Contact Mode Call	Oue Date 3/9/2017 12:00:00 AM	Time (24 Hrs) 09:00:00	Contact Type Once every Week	Secc MaheshaW/	+ Get more add	^ d-ins
there are problems on Items ar SisiraKa, ou have the followi Brand rtchline ank you. It Regards, aplierRelationshipIr ase on to the follow	In the second se	hagement activities in Designation Account Manager	v /this a web browser.	Contact Mode Call	Due Date 3/9/2017 12:00:00 AM	Time (24 Hrs) 096040	Context Type Once every Week	Secc MaheshaW/	+ Get more add	A d-ins

#### Figure 37 1 Day prior Notification Email

# Incomplete Task Notification

Once the due date has passed this notification is sent to the users listing the incomplete tasks. The link to update the tasks is sent with this email.

🚍 5 0 🛧 🎍 =	Supplier Relationship Index -	Incomplete tasks - Message (HTML)					
File Message McAfee E-mail Scan 🖓 Tell me what you	want to do						
Ilgnore Junk- Delete Archive Delete Reply Reply Forward More- All Report	Stuff G To Manager Team Email Done Reply & Delete Create New T Quick Steps G	ve Rules * POneNote Actions * More Tags	ategorize Follow	Franslate Editing	Q Zoom Zoom		^
Wed 3/8/2017 7:02 AM SupplierRelationshipIndex@brandix.com SupplierRelationshipIndex - Incomplete tasks							
If there are problems with how this message is displayed, click here to	view it in a web browser.						^
Action Items						+ Get more	add-ins
Dear IndikaKu, You have 4 incomplete tasks. Please visit <u>the link and ur</u>	late the tasks that you have completed.						
Dear IndikaKu, You have 4 incomplete tasks. Please visit the <u>link</u> and up	late the tasks that you have completed.						
Dear IndikaKu, You have 4 incomplete tasks. Please visit the <u>link</u> and up Thank you.	late the tasks that you have completed.						
Dear IndikaKu, You have 4 incomplete tasks. Please visit the <u>link</u> and up Thank you. Best Regards, Suppler RelationshipIndes @brandix.com	late the tasks that you have completed.						
Dear IndikaKu, You have 4 incomplete tasks. Please visit the <u>link</u> and up Thank you. Best Regards, SupplierRelationshipIndex@brandix.com	late the tasks that you have completed.						
Dear IndikaKu, You have 4 incomplete tasks. Please visit the <u>link</u> and up Thank you. Best Regards, SupplierRelationshipIndex@brandix.com Please go to the following URL to visit the SupplierRelati	late the tasks that you have completed.						
Dear IndikaKu, You have 4 incomplete tasks. Please visit the <u>link</u> and up Thank you. Best Regards, <u>SupplierRelationshipIndex@brandix.com</u> Please go to the following URL to visit the SupplierRelati	late the tasks that you have completed.						
Dear IndikaKu, You have 4 incomplete tasks. Please visit the <u>link</u> and up Thank you. Best Regards, <u>SupplierRelationshipIndex@brandix.com</u> Please go to the following URL to visit the SupplierRelati	date the tasks that you have completed. onshipIndex: <u>http://belwebsite/SRI/</u>						
Dear IndikaKu, You have 4 incomplete tasks. Please visit the <u>link</u> and up Thank you. Best Regards, <u>SupplierRelationshipIndex@brandix.com</u> Please go to the following URL to visit the SupplierRelati	date the tasks that you have completed.						
Dear IndikaKu, You have 4 incomplete tasks. Please visit the <u>link</u> and up Thank you. Best Regards, <u>SupplierRelationshipIndex@brandix.com</u> Please go to the following URL to visit the SupplierRelati	date the tasks that you have completed.						

Figure 38 Incomplete Task Notification

# To Do List – Updating Completed Tasks

Incomplete Tasks

Details of tasks to be completed by the particular associate is listed here. Records loaded is based on the windows login of the user and displays details belonging to that user only.

Му Та	isk Li	st										
My Tasks	5											
Add plus-task f	for existing o	ontact 🕂	Add ad-hoc task fo	or existing relationship	+							
Туре	Status	Due Date	Primary Owner	Secondary Owner	Notes	Supplier	Contact	Designation	Mode	Frequency	SRI Strength	Action
Primary	THE	03/09/2017	NalirM	JeevithaT/GayaneeW		PTL	Alex Tai	Account Manager	Call	Once every Week		0 💻 🖸
Drimana	4	03/02/2017	NalirM	JeevithaT/GayaneeW		PTL	Alex Tai	Account Manager	Call	Once every Week	-	0 💻 🖸
enimaly		02/23/2017	NalirM	JeevithaT/GayaneeW		PTL	Alex Tai	Account Manager	Call	Once every Week		0 💻 🖸
Primary	-		NalirM	JeevithaT/GayaneeW		PTL	Alex Tai	Account Manager	Call	Once every Week		0 🗖 🖸
Primary Primary Primary	÷.	02/16/2017					Aless Tel	Account Manager	Call	Once every Week		0 💻 🖸
Primary Primary Primary Primary		02/16/2017 02/09/2017	NalirM	JeevithaT/GayaneeW		PTL	Alex Tal	-				
Primary Primary Primary Primary		02/16/2017 02/09/2017 02/02/2017	NalirM NalirM	JeevithaT/GayaneeW JeevithaT/GayaneeW		PTL	Alex Tai	Account Manager	Call	Once every Week		0 💻 🖸
Primary Primary Primary Primary Primary Primary		02/16/2017 02/09/2017 02/02/2017 01/26/2017	NalirM NalirM NalirM	JeevithaT/GayaneeW JeevithaT/GayaneeW JeevithaT/GayaneeW		PTL PTL PTL	Alex Tai Alex Tai	Account Manager Account Manager	Call Call	Once every Week Once every Week		<ul> <li>○ ■ ○</li> <li>○ ■ ○</li> </ul>
Primary Primary Primary Primary Primary Primary Primary		02/16/2017 02/09/2017 02/02/2017 01/26/2017 01/19/2017	NalirM NalirM NalirM NalirM	JeevithaT/GayaneeW JeevithaT/GayaneeW JeevithaT/GayaneeW JeevithaT/GayaneeW		PTL PTL PTL PTL	Alex Tai Alex Tai Alex Tai Alex Tai	Account Manager Account Manager Account Manager	Call Call Call	Once every Week Once every Week Once every Week		

#### Figure 39 My Tasks View

# Saving a note

When a row is selected the options for saving notes are enabled and displayed.

					•							
Туре	Status	Due Date	Primary Owner	Secondary Owner	Notes	Supplier	Contact	Designation	Mode	Frequency	SRI Strength	Action
Primary		03/09/2017	NalirM	JeevithaT/GayaneeW		PTL	Alex Tai	Account Manager	Call	Once every Week		0 💻 🖸
Primary	<u> </u>	03/02/2017	NalirM	JeevithaT/GayaneeW		PTL	Alex Tai	Account Manager	Call	Once every Week		0 💻 🖸
Primary	<u> </u>	02/23/2017	NalirM	JeevithaT/GayaneeW		PTL	Alex Tai	Account Manager	Call	Once every Week		0, 🗾 🖸
Primary	+	02/16/2017	NalirM	JeevithaT/GayaneeW		PTL	Alex Tai	Account Manager	Call	Once every Week		0, 0
Primary	<u> </u>	02/09/2017	NalirM	JeevithaT/GayaneeW		PTL	Alex Tai	Account Manager	Call	Once every Week		0 💻 🖸
Primary	<u> </u>	02/02/2017	NalirM	JeevithaT/GayaneeW		PTL	Alex Tai	Account Manager	Call	Once every Week		0 💻 🖸
Primary	<u> </u>	01/26/2017	NalirM	JeevithaT/GayaneeW		PTL	Alex Tai	Account Manager	Call	Once every Week		0, 💻 🖸
Primary	<u> </u>	01/19/2017	NalirM	JeevithaT/GayaneeW		PTL	Alex Tai	Account Manager	Call	Once every Week		0
Primary		01/12/2017	NalirM	JeevithaT/GayaneeW		PTL	Alex Tai	Account Manager	Call	Once every Week		0 🗖 🕄
ction buttons a	are by defaul	t disabled if the	e task is "completed"	or marked as "not done"	by the pri	mary owner of the	task.					
Cut	"Times New R	B Z abe X	<u>⊔</u> A • ×, ⊗, •		- 課課	¶₊ ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Apply CSS Cla • Normal •	19 × (* * #4				
--	-------------------	--------------	-------------------------	---	----------	--	-----------------------------	-----------------	---	------		
Paste ▼ APrint	A 1/A	<b>⊘</b> +-										
Clipboard	F	ont		F	aragraph		Styles	Editing				
<sup>†</sup> Desian	HTML Q. Pre	view										
<sup>?</sup> Design 🚯	HTML 🔍 Pre	view										
* Design 📣	HTML Q Pre	view			Salart					 		
* Design 📣	HTML <b>Q</b> Pre	view			Select					 		
<sup>*</sup> Design (*) d Attachments:	HTML Q Pre	view			Select				0	 		
* Design 📣 Id Attachments: arch users from share note :	HTML Q Pre	view			Select				٩	 		
<sup>9</sup> Design d Attachments: arch users from share note :	HTML Q Pre	view			Select				٩	11		
<sup>9</sup> Design d Attachments: arch users from share note :	HTML Q Pre	view			Select				٩	it.		

Figure 41 Notes entry

Type the note and click on the add button to add the note to be saved

To assign or share a note with an associate search for the user by typing the windows ID in the Find User search box and press enter. The results will be loaded out of which the required associate must be selected. One or many associates can be selected in this manner for a note.

By clicking on the save button the note gets saved for later reference and the associates who are assigned notes are alerted by an email notification.

## Update Completed Tasks

Use the edit button in the left most corner of a particular record to edit the record. After editing, save or discard the edit using the two buttons provided.

## Saved notes on tasks

Display notes saved on tasks according to the user level permission. Users are recognized based on their windows login.

## Dashboards

At page load details of relations within this week is loaded. Displays details of total Vs incomplete tasks.

The from - to dates can be changed and details within that range will be loaded.



Figure 42 Main Dashboard

Drill down option is enabled so that associates can drill down and view details in the following hierarchy.



## Business unit (BU) -> Supplier -> Account -> Associate

Figure 43 Distribution of tasks BU wise