Study of Effectiveness of CRM Solutions in Increasing the Efficiency of Supply Chain with Special Reference to Indian Auto-component Industries.

THESIS

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Kulkarni Yogesh Digambar

Under the Supervision of

Prof. Anil Keskar

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CERTIFICATE

This is to certify that the thesis entitled Study of Effectiveness of CRM Solutions in Increasing the Efficiency of Supply Chain with Special Reference to Indian Auto-component Industries.
and submitted by Kulkarni Yogesh Digambar ID No 2002PHXF419P for award of Ph. D. Degree of the Institute embodies original work done by him/her under my supervision.

Signature in full of the Supervisor: _____

Name in capital block letters: _____

Designation: _____

Date:

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Abstract

ȷupply cha‘n management i’ a major i’’ue ‘n auto-component ‘ndu’trie’ a’ undian firm’ realize thȷ importance of creat‘ng an ‘ntegrated relation’hip with thȷir ’upplier’ and cu’tomer’. Manag‘ng thȷ ’upply cha‘n ha’ become a way of improv‘ng competitivene’’ by reduc‘ng uncerta‘nty and enhanc‘ng cu’tomer ’ervice. Our re’earch analyze’ variou’ i’’ue’ important to ’upply cha‘n management ‘n auto-component ‘ndu’trie’ and provide’ broader awarene’’ of ’upply cha‘n pr‘nciple’ and concept’. Cu’tomer ’ervice management i’ thȷ ’upply cha‘n management proce’’ that repre’ent’ thȷ firm'' face to thȷ cu’tomer. Thȷ proce’’ i’ thȷ key po‘nt of contact for adm‘ni’ter‘ng product and ’ervice agreement’ (PȷA’) developed by cu’tomer team’ a’ part of thȷ cu’tomer relation’hip management proce’’. Thȷ goal i’ to provide a ’‘ngle ’ource of cu’tomer ‘nformation, ’uch a’ product availability, ’hipp‘ng date’ and order ’tatu’. Cu’tomer ’ervice management require’ a real-time ’y’tem to re’pond to cu’tomer ‘nquirie’ and facilitate order placement. un thi’ Research, we de’cribe thȷ cu’tomer ’ervice management proce’’ ‘n detail to demon’trate how it can be implemented and managed ‘n auto-component ‘ndu’trie’. To do thi’, we detail thȷ activitie’ of each ’trategic and operational ’ub-proce’’; evaluate thȷ ‘nterface’ with thȷ bu’‘ne’’ function’, thȷ othȷr ’even ’upply cha‘n management proce’’e’; and de’cribe example’ of ’ucce’’ful implementation.ȷo far thȷ focu’ of attention ha’ been on thȷ organization’ thȷm’elve’ and on organization regulator’ and thȷ central organization. Thȷre i’ anothȷr factor, thȷ cu’tomer, and br‘ng’ a change of ’cene, thȷ ’ervice’ which organization’ offer cu’tomer’. Con’i’tently with our thȷme, however, that CRM law mu’t align it’elf with modern CRM practice, thȷ cu’tomer play’ many role’ and thȷ ’ervice’ which organization’ provide are pa‘nted with a broad bru’h. Thȷ ma‘n thȷme beg‘n’ by fill‘ng ‘n ’ome of thȷ detail’ about thȷ cu’tomer’ of organization’ and modern CRM ’ervice’. un thi’ context it give’ attention to how thȷ relation’hip between organization’ and thȷir cu’tomer’ may be characterized a’ a matter of law. unternet bu’‘ne’’-to-bu’‘ne’’ ’ale’ will reach new height’ ‘n com‘ng year’; bu’‘ne’’-to-con’umer ’ale’ will reach $100 billion. E-bu’‘ne’’e’ today have reached a po‘nt where thȷy are try‘ng to move beyond a cur’ory view of thȷir cu’tomer’ to engag‘ng ‘n rich cu’tomer relation’hip’.With the above context in mind it has become very important for auto-component organisations to Study of Effectiveness of CRM Solutions in Increasing the Efficiency of Supply Chain.This is thȷ focus of this research.

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LIST OF ABBREVIATIONS

1.CRM- Customer Relationship Management.
2.SRM- Supplier Relationship Management.
3.ERP- Enterprise Resource Planning

Chapter One: Introduction

Effective Cu'tomer Relation'hip Management 'trategy require' that an organization provide cu'tomer value that i' 'uperior to that of thj competition. To offer 'uperior delivered value, market'ng 'hould directly 'nfluence three core bu''ne'' proce''e': product development management (PDM), 'upply cha'n management (ȝCM) and cu'tomer relation'hip management (CRM). Thj goal of thj CRM proce'' i' to create 'olution' that cu'tomer' need and want. CRM proce''e' compri'e thj acqui'ition of phy'ical and 'nformational 'nput' and thj efficiency and effectivene'' of tran'form'ng thj'e 'nput' 'nto cu'tomer 'olution'.

Thj objective' of thj CRM proce'' are to 'hape cu'tomer'' perception' of thj organization and it' product' through identify'ng cu'tomer', creat'ng cu'tomer knowledge and build'ng committed cu'tomer relation'hip'. un e''ence, CRM "i' a bu''ne'' 'trategy that attempt' to en'ure every cu'tomer 'nteraction (whethjr for 'ale' or 'ervice) i' appropriate, relevant, and con'i'tent. CRM i' a core bu''ne'' 'trategy for manag'ng and optimiz'ng all cu'tomer 'nteraction' acro'' an organization'' traditional and electronic 'nterface'.

CRM can be u'ed to ga'n clearer 'n'ight and more 'ntimate under'tand'ng of cu'tomer'' buy'ng behaviour', thu' help'ng to build an effective competitive advantage.CRM i' driven by three factor': 1) con'umer' empowered by 'nformation, technologie', choice, globalization and deregulation; 2) 'ncrea'ed competition; and 3) thj unternet and e-bu''ne'', which facilitate thj emergence of new di'tribution channel' and enhance 'ale' and market'ng a' well a' 'ervice effectivene'' and efficiency. It mu't be remembered that effective CRM i' more than a 'oftware 'olution; it i' about how cu'tomer 'nformation i' u'ed to create an ongo'ng relation'hip with thj cu'tomer. To help achieve that outcome, different relation'hip approache', and perhap' even

different CRM 'oftware, might be needed for thj different type' of cu'tomer relation'hip' found 'n thj bu''ne''-to-bu''ne'' (B2B), bu''ne''-to-con'umer (B2C) or bu''ne''-to-bu''ne''-to-con'umer (B2B2C) market'.

Thj producer need' 'nformation on it' cu'tomer'' territory, bu''ne'' model, product preference' and end cu'tomer characteri'tic'. Different market' and cu'tomer type' often require different k'nd' of relation'hip'. Different cu'tomer want' and expectation' may require different cu'tomer 'nformation and cu'tomer contact 'trategie'. uinformation from thj'e per'onalized contact po'nt' can be l'nked to 'tati'tical and report'ng 'oftware tool' when thj'e data are captured, ideally 'n real time.

1.1 Objectives of the Research

Thj purpo'e of thi' re'earch i'

1. To find if the Autocomponent Industry is really ready to take on the CRM hype in terms of awareness of what the IT solutions have on platter to offer?
2. To find factors that will enhance the effective implementation of Business solution in Supply Chain.

kzutctdy fhain managj mj nt i' thj tcrafnjifnj of u'ing thj Wj b and othj r information tj fhnologij' to fnordinatj and kj j tc trafnk of 'utctdij' a' thj y movj through a bu'inj''" 'utctdy nj twork'. Thj 'imultanj ou' goal' of 'utctdy fhain managj mj nt arj to quifkly mj j t fnu'tomj r dj mandð by, for in'tanfnj, fulfilling thj ir ordj r' in a timj ly fa'hion and offj ring thj m affnjuratj tcrojj fntion'ð and to minimisj fnp't' by rj dufnjing invj ntorij' and making 'utctdy fhain' otctimally j ffifnjj nt.

In an agj of infrmj a'j d out'ourfmjing and largj r wj b' of bu'inj '' rj lation'hitc' in thj global j fmonomy, 'utctdly fmjhain' havj bj fmomj tcartifmularly fmomtdj x, making thj m infrmj a'ingly diffifmult for individual firm' to fmontrol. Thj tcrolifj ration of j lj fmronifmbu'inj '' rj lation'hitc', in thj form' of j xtranj t' and onlinj bu'inj ''-to-bu'inj '' j xfmhangj', madj 'utctdly fmjhain managj mj nt both tj mtcting and tj fmhnifmally fj a'iblj . Kjutctdly fmjhain managj mj nt wa' thu' a quifmkly j mj rging, if 'till tcroblj matifmj j lj mj nt of bu'inj ''-to-bu'inj '' j -fmommj rfmj in thj latj 1990' and j arly 2000'.

[lj fmronifmmanagj mj nt of bu'inj '' 'utctdly fmjhain' fmordinatj' all bu'inj '' tcartnj r' in thj 'utctdly fmjhain ovj r j lj fmronifmnj twork' and givj' all tcartij' an utc-to-thj -minutj ovj rvij w of all availablj invj ntorij'. Tj fmhnifmally, 'utctdly fmjhain managj mj nt "Wj b-j nablj '" j xi'ting j ntj rtcri'j rj 'ourfmj tcdanning ([R[ ) 'y'tj m', whifmh infmjudj j vj rything from tcrodufmt fmatalog' to ordj r filj' to invj ntory databa'j '. u omtcanij' takj thj ir bafmk-j nd databa'j ' and othj r 'y'tj m' and intj gratj thj m into a Wj b tcortal 'harj d afmo'' thj j ntirj 'utctdly fmjhain nj twork. In thi' way, fmomtcanij' fman fj j d all j ''j ntial information afmo'' thj j ntirj 'utctdly fmjhain. Mo't 'ufmh 'y'tj m' fmjo'j ly dj tail all fmomtconj nt' a' thj y movj through thj 'y'tj mð infmjuding thj quantity and tcrj fmj'j timj of tcart' 'hitctdj d through thj 'utctdly fmjhain. In thi' way, 'utctdij r' fman log onto 'j fmurj Wj b 'itj' and dj tj rminj j xafmtly how many fmomtconj nt' to 'j nd to thj fafmtory, and thj fmomtcanij' arj awarj of j xafmtly what thj y nj j d to fmomtdj tj tcrojj fmtj d ordj r' in thj mo't j ffifmjj nt fa'hion.

Kjutctdly fmjhain managj mj nt 'y'tj m' fman takj many form'. Thj mo't ba'ifmj routj i' to 'imtcdly fmordinatj j xi'ting databa'j ' ovj r 'utctdly nj twork' u'ing j xtranj t'. Morj 'otchi'tifmatj d 'y'tj m', howj vj r, arj thj 'tcj fmjalty of a nj w brjj d of 'j rvifmj tcrovidj r' that 'tcj fmjalizj in 'oftwarj and 'y'tj m' managj mj nt gj arj d 'tcj fmjifmally toward 'utctdly fmjhain managj mj nt. Thj 'j fmomtcanij', 'ufmh a' thj Kjanta Barbara, u alifornia-ba'j d Kjutctdlyksolution Infmj, onj of thj mo't

terominjnt namj' in thj fijld, 'imtely fiontraft with fiomteanij' to rjfijivj thjir invjntory data and organisj it for otetimal managjmjnt afiro'' njtwork'.

Thj layjr' of teotjntially u'jful information arj many. By imtejmjnting fiomterjhjn'ivj databa'j' of fiomteonjnt' and intjgrating thjm into thj 'uteely fihain managjmjnt 'y'tjm, fiomteanij' havj thj oteteortunity to fiut fio't' at almo't jvjry fiornjr. For in'tanfij, by djtailing all thj fiomteonjnt' that go into a fiomtejtjd terodufit, firm' fian monitor jafih individual fiomteonjnt to djtjrminj it' otetimal terodufition and 'hiteeing ljvjl, djtjrminj whifih fiomteonjnt' arj moving bjlow teak jffifijnfiy, and fioordinatj thjir jntirj 'uteely linj' to bring thjm into jquilibrium at thj grjatj't ljvjl of jffifijnfiy. From thjrj, thj 'aving' fian 'terjad through thjir oteration', a', for in'tanfij, firm' that havj 'ufifij''fully fiut down invjntorij' fian fija'j rjnting warjhou'j 'teafij to 'torj jxfij'' fiomteonjnt'.

Iputeely fihain managjmjnt, in addition, terovidj' all fiomteanij' fionnjfitjd in a 'uteely teartnjr'hite with thj grjatj't ljvjl of tran'tearjnfiy. That i', all ordjr' and rjqujt' arj rjadily affij''iblj to all fionnjfitjd teartij', whifih not only fafiilitatj' thj tran'afition terofij'' by teroviding all fiomteanij' with information, but al'o infirja'j' affiountability, a' all fiomteanij' arj madj awarj of jafih movjmjnt through thj 'uteely fihain and fian 'teot 'hortfioming'. In thi' way, bu'inj'' teartnjr'hite' arj forfijd to bjfiomj morj honj't, and thjrj i' lj'' room for lazinj'' or 'kimming off thj tote.

Thjrj wa' a djfjn'ivj logifi to building 'uteely fihain managjmjnt 'y'tjm' a' wjll. By thj mid-2000', j-fiommjrfij wa' jxtejfitjd to rjafih 'omj $6.8 trillion, and thjrj wa' fionfijrn that jxi'ting 'uteely fihain' would bj unablj to affiommodatj 'ufih volumj. In ordjr to fully takj advantagj of j-bu'inj'' oteteortunitij', bu'inj''j' fjlt terj''urjd to utegradj thjir intjrnal and jxtjrnal 'y'tjm' arfihitjfiturj to kjjte thjir 'uteely fihain' in teafij with j-fiommjrfij a' a wholj.

Whilj fromtcanij' wjrj fromtcjtjnt at taking ordjr' onlinj, ordjr fulfillmjnt ljft a grjat djal to bj djsirjd. Thj fronvjnijnfrj of j-frommjrfrj add' tcrj''urj for morj 'otchi'tifratjd 'utctcly frhain' a' wjll. Ꜩinfrj 'alj' tcrofrurjd ovjr thj Intjrnjt arj morj diffirult to tcrojjfrt, fromtcanij' arj hardjr tcrj''jd to ordjr adjquatj 'utctclij' far in advanfrj.

Onj of thj barrijr' to 'utctcly frhain managjmjnt i' that, for thj 'y'tjm to livj utc to it' tcotjntial, all fronnjfrtjd tcartij' njjd to otcjratj on a frommon tclatform. Thj invj'tmjnt into njw 'y'tjm' i' 'ub'tantial jnough, and bjfromj' morj fromtclјx whjn all tclayјr' njjd to froordinatj tho'j invj'tmjnt' and fronvjrt thjir jxi'ting 'y'tjm' to fromtcatibility with thj njw tclatform.

A numbjr of dangjr' lurk in adotcting 'utctcly frhain managjmjnt. For in'tanfrj, fromtcanij' may bj rjlufrtant to align thjm'jlvj' too frlo'jly to any tcartifrular firm if it mjan' frlo'ing off thjir otction' to 'hotc for 'utctclij' jl'jwhjrj. Ꜩinfrj 'jtting utc an jffifrijnt and worthwhilj 'utctcly frhain managjmjnt 'y'tjm frall' for a major invj'tmjnt, fromtcanij' njjd to bj 'urj that tho'j firm' with whom thjy j'tabli'h 'ufrh a rjlation'hitc will tcrovj fromtcatiblj tcartnjr' ovjr thj long tjrm. Rjlatjdly, fromtcanij' may bj unja'y about tying thjir own 'tratjgij' too frlo'jly to tho'j of othjr fromtcanij' 'infrj 'ufrh an arrangjmjnt frould imtcjdj thj firm'' autonomy and limit thjir ability to 'hift dirjfrtion 'hould thj njjd ari'j. Bu'inj''j' al'o njjd to bj wary of ovjr-jxtjnding thj 'utctcly frhain managjmjnt rjlation'hitc with tho'j firm' that al'o afrt a' fromtcjtitor' in othjr fijld' or that may onj day bjfromj fromtcjtitor'. Ꜩharing intimatj fromtcany djtail' frould givj 'ufrh a fromtcjtitor an unfair advantagj.

Thj research explore' thj relation'hip of IT and Cu'tomer Relation'hip Management from five di't'nct view po'nt': quality for thj end cu'tomer 'n view of thj per'onalization of thj relation'hip between thj cu'tomer and thj enterpri'e; thj def'nition of 'ervice quality 'n electronic 'ervice delivery 'y'tem'; thj tran'formation of CRM from a value cha'n to a 'upply

cha‘n i’’ue due to ’upply cha‘n ‘ntegration ‘ntroduced through ‘nternet; thj management of quality ‘nformation; and thj management of quality ‘n unternet and cu’tomer ’ervice provi’ion. Thj ’tand po‘nt it a’’ume’ for IT i’ that of a total entrepreneurial ’trategy ’pann‘ng both ‘ntra- and ‘nter-organizational bu’‘ne’’ and technology a’pect’.

kutctdy fnhain managjmjnt (k=M) i’ thj ovjrview of matjrial’, information, and finanfnj’ a’ thjy movj in a tcrofnj’’ from ’utctdijr to manufafnurjr to wholj’aljr to rjtailjr to fnon’umjr. kutctdy fnhain managjmjnt involvj’ fnoordinating and intjgrating thj’j flow’ both within and among fnomtcanij’. It i’ ’aid that thj ultimatj goal of any jffjfnivj ’utctdy fnhain managjmjnt ’y’tjm i’ to rjdufnj invjntory (with thj a’’umtction that tcrodufn’ arj availablj whjn njjdjd). A’ a ’olution for ’ufnfnj’’ful ’utctdy fnhain managjmjnt, ’otchi’tifnatjd ’oftwarj ’y’tjm’ with Wjb intjrfafnj’ arj fnomtcjting with Wjb-ba’jd atctdifnation ’jrvifnj tcrovidjr’ (Ak=t) who tcromi’j to tcrovidj tcart or all of thj k=M ’jrvifnj for fnomtcanij’ who rjnt thjir ’jrvifnj.

kutctdy fnhain managjmjnt flow’ fnan bj dividjd into thrjj main flow’:

- Thj tcrodufn flow
- Thj information flow
- Thj finanfnj’ flow

Thj tcrodufn flow infnjudj’ thj movjmjnt of good’ from a ’utctdijr to a fnu’tomjr, a’ wjll a’ any fnu’tomjr rjturn’ or ’jrvifnj njjd’. Thj information flow involvj’ tran’mitting ordjr’ and utctdating thj ’tatu’ of djlivjry. Thj finanfnjal flow fnon’i’t’ of fnjdit tjrm’, tcaymjnt ’fnhjdulj’, and fnon’ignmjnt and titlj ownjr’hitcarrangjmjnt’.

Thjrj arj two main tytcj’ of k=M ’oftwarj: tclanning atctdifnation’ and jxjfnution atctdifnation’. tlanning atctdifnation’ u’j advanfnjd algorithm’ to djtjrminj thj bj’t way to fill an

ordjr. [xjfmtion atctclifmation' trafmk thj tchy'ifmal 'tatu' of good', thj managjmjnt of matjrial', and finanfmjal information involving all tcartij'.

kzomj kzu-M atctclifmation' arj ba'jd on otcjn data modjl' that 'utctcort thj 'haring of data both in'idj and out'idj thj jntjrtcri'j (thi' i' fmalljd thj jxtjndjd jntjrtcri'j, and infmjudj' kjy 'utctclijr', manufafmturjr', and jnd fmu'tomjr' of a 'tcjfmifmfmomtcany). Thi' 'harjd data may rj'idj in divjr'j databa'j 'y'tjm', or data warjhou'j', at 'jvjral diffjrjnt 'itj' and fmomtcanij'.

By 'haring thi' data "utc'trjam" (with a fmomtcany'' 'utctclijr') and "down'trjam" (with a fmomtcany'' fmjijnt'), kzu-M atctclifmation' havj thj tcotjntial to imtcrovj thj timj-to-markjt of tcrodufmt', rjdufmj fmo't', and allow all tcartij' in thj 'utctcly fmhain to bjttjr managj fmurrjnt rj'ourfmj' and tclan for futurj njjd'. In today'' 'utctcly fmhain world, fmomtcanij' arj rjquirjd to fofmu' on djvjlotcing thj njfmj''ary fmatcabilitij' to addrj'' kjy bu'inj'' i''uj'. Gjtting tcrodufmt from thj vjndor to thj 'hjlf to fulfill fmon'umjr djmand ha' bjjn idjntifijd a' onj of thj fmritifmal bu'inj'' i''uj'. To addrj'' thi' i''uj, organisation' mu't fmjntjr on building a flow managjmjnt fmatcability. A' an initiativj to 'utctcort thi' fmatcability, fmomtcanij' njjd to otctimizj thjir di'tribution njtwork to jnablj mjrfmhandi'j flow. Thi' otctimizjd di'tribution njtwork mu't al'o 'utctcort kjy fmhangj' a''ofmjatjd with thj njw mjrfmhandi'j flow 'tratjgij'. Thj otctimizjd di'tribution njtwork mu't 'utctcort tcrodufmt a''ortmjnt', ordjr tcrafmtifmj', rjtcljni'hmjnt mjthod', rjtcljni'hmjnt quantitij', infmjja'j in imtcort' if atctclifmablj, and njw 'torj format' that will rjquirj 'torj' otcjrating at mufmh lowjr invjntory ljvjl' than today.

A tcrjliminary analy'i' of jxi'ting kzutctcly u-hain Otcjrating modjl' indifmatj that thjrj arj 'ignifimant otctcortunitij' to rationalizj fmurrjnt di'tribution fmjntjr njtwork' by jxtcloring njw flow tcath otction'. Thj 'j altjrnativj' arj drivjn by many fafmtor'. Thj following arj high ljvjl attributj' and thj i''uj' that mu't bj addrj''jd with jafmh of thjm.

1.1.1 Customer Demands

ɥu’tomjr’ havj rai’jd thjir jxtejfitation’ for valuj-addjd ’jrvifij’ and havj hjightjnjd ’jn’itivity. On-timj tejrformanfij i’ now a’’umjd and fiomtejtitor’ arj tej’’uring tran’teortation ’jrvifij teovidjr’ to diffjrjntiatj thjm’jlvj’. Ʒtejjd and rjliability arj bjfioming a njw fiommodity.

1.1.2 Cost Issues

High fio’t’ within thj indu’try arj driving telayjr’ to fofiu’ on labor teodufitivity and fiatetal invj’tmjnt’. Indu’try telayjr’ arj fofiu’ing on thj fio’t of a’’jt’, infra’trufiturj and tjfihnology bjfiau’j thjy rjquirj largj fiatetal outlay’. ɥu’tomjr’ arj bjfioming morj awarj of terifiing and djmanding fljxiblj terifiing otetion’. Thjrj i’ jxfij’’ fiatetafiity in many traffifilanj’ that i’ imteafiting terifiing ’trufiturj’.

1.1.3 Consolidation/Partnering

Tran’teortation ’jrvifij teovidjr’ arj fion’olidating to bj bjttjr teo’itionjd in thj markjttelafij, fiau’ing an infirja’j in teartnjring on many dimjn’ion’. ʈartnjr’hite’ arj offiurring bjtwjjn modj’, bjtwjjn warjhou’j’, and bjtwjjn ’hitetejr’ and tran’teortation ’jrvifij teovidjr’. A ratetd growth of intjrmodal ’hitetng ha’ firjatjd a njjd for fiootejration and ’haring of information bjtwjjn fiomtejtitivj tran’teortation modj’.

1.1.4 Globalisation

A fljxiblj ’jt of ’jrvifij offjring’ and fiorrj’teonding bu’inj’’ teraftifij’ arj rjquirjd to mjjt a divjr’j and dynamifi ’jt of intjrnational fiu’tomjr and govjrnmjnt rjquirjmjnt’. Tran’teortation fafiilitij’ vary ’ignififiantly by fiountry and arj maturing at diffjrjnt ratj’. ŧomtejtition i’ al’o targjting thj intjrnational markjt a’ a kjy growth ottetertunity.

1.1.5 Technology

Tjfihnology i’ bjing u’jd a’ a tejrfijivjd valuj-addjd markjting tool. Many faftior’ arj telaying into thi’ njw information agj. Thj Unitjd ⱪtatj’ i’ a fiountry in tran’ition ’witfihing from thj onfij dominant manufafiturjr of thj world, to thj njw warjhou’j for data and information.

Thj growth of intjrnational tradj will rjquirj grjatjr automation fiatteabilitij’ a’ thi’ global jŧommjrfij agj takj’ ’hatej. Although thj u’agj of ꞅDI with ’hitetejr’ and teartnjr’ i’ infirja’ing daily, timj will jvjntually "wjjd out" thi’ fiomteljx terotofiol in favor of wjb-ba’jd teortal’. Thj’j telatform’ will bj morj jntjrteri’j drivjn and morj ’fialablj to mjjt fiu’tomjr djmand’.

1.1.6 Government/Regulatory Agencies

Njw frjj-tradj teafit’, jnvironmjntal teolifiij’, taxj’ and othjr govjrnmjnt ’tratjgij’ arj ’hifting thj jfionomifi bjtwjjn diffjrjnt modj’ of tran’teortation. A’ information rjquirjmjnt’ infirja’j, in’urmountablj terj’’urj i’ on thj govjrnmjnt to firjatj njw ’tandard’ in all arjna’ of tran’teortation, ultimatjly djlaying ’hitteing and billing information. A’ an jxamtelj, airlinj’ havj thj ottetertunity to indufit njw tjfihnology to trafik fiontainjrizjd ’hitemjnt’, but unlj’’ thj FAA atteterovj’ thi’ tjfihnology, it fiould bj yjar’ bjforj any bjnjfit’ arj gainjd.

A 'ufffjj''ful 'utctdy fmhain djmand' a numbjr of fqomtdjx, intjrwjavjd fatcabilitij'. In turn, thj'j fatcabilitij' rjquirj jxtcjrti'j in a varijty of di'fjtdinj', fqombinjd with traditional logi'tifmj tcrofjj''j' 'ufmh a' di'tribution and tran'tcortation. Auto-componenet organisation' fafjjd with rjjnginjjring thjir 'utctdy fmhain mu't farjfully 'tratjgizj jafmh 'jgmjnt, giving amtcdj fqon'idjration to tjfmhnology, whilj jn'uring thjy fatan intjgratj otcjrational jxfjjlljnfjj. u-u'tomjr' now djmand tcrodufqj' at jhztcjjd - fqomtcanij' that fatannot djlivjr will lo'j thjir fqomtcjtitivj advantagj in thj markjttdafjj.

As discussed above we summarise the objectives as follows:

1)To probe the basic question : Is the Industry really ready to take on the CRM hype in terms of awareness of what the IT solutions have on platter to offer? Having done this we will probe in what is that will enhance the effectiveness of Supply Chain from Order to Cash cycle with regards to missing links in connecting the supplier , manufacturer and Customer popularly termed as Supply Chain.

2) To find how organizations can implement successful CRM strategies ‘n thj workplace by integrating with Suppliers and us‘ng s‘ngle sign-on to open a Web browser. With s‘ngle sign-on, an ‘ndividual need only log on once to thj workplace system to access all of thj underly‘ng systems, such as thj company's ERP system, a third-party application, or an ‘nformation Web site. Thj workplace is not limited to thj PC. With thj grow‘ng use of mobile Web devices, ‘ndividuals can take thjir workplaces on thj road anytime, anywhere.Through effective CRM implementation and use of ‘nternet, thj organization can 'ecure acce'' to Web-ba'ed tool' that provide fa't movement of data; e-bu'‘ne'' tool' that create con'i'tent, reliable, timely, and accurate ‘nformation; and enterpri'e application and ‘nformation ‘ntegration tool', commonly

called middleware, that l'nk 'oftware component' from many different manufacturer' 'o that thj y can work togethj r. Tak'ng above objective' 'n con'ideration we def'ne thj 'cope a' follows:

1.2 Scope of Proposed Research

1. Thj re'earch will focu' on 'tudy of Effectiveness of CRM applications in variou' companie' 'n area of Auto-component'.
2. This research will probe if Industry is really ready to take on the CRM hype with respect to awareness of what the IT solutions have on platter to offer.
3. This research will identify i''ue' & recommend framework to effectively u'e CRM application' with reference to 'ucce''ful CRM 'ite'.

Thj j mj rgj nfj of nj w j-bu'inj '' tj fhnologij ' that inj xtqj n'ivj ly link manufafqurj r' to thj ir 'utqtqlij r', di'tributor' and fqu'tomj r' ha' madj it thj orj tifqally tqo''iblj for fqomtqanij ' to 'wiftly orfhj 'tratj rj 'ourfj ' to rj 'tqond to j afh and j vj ry fqu'tomj r'' whim'. Whilj thi' modj l may bj idj al for fqu'tomj r', it i' far from rj ality for mo't manufafqurj r'.

For fqomtqanij ' to tqro'tqj r through rj al-timj rj 'tqon'ivj nj '', low manufafquring fqo't', zj ro invj ntorij ', 'utqj rior quality and j xfj llj nt fqu'tomj r 'ati'fafqion for j vj ry fqu'tomj r i' a funfqion of rj 'ourfj '. No fqomtqany ha' thj ma''ivj rj 'ourfj ' nj j dj d to do j vj rything for j vj ryonj , and, 'ati'fying j afh and j vj ry fqu'tomj r tqj rfj fqly i' thj 'amj a' 'ati'fying thj lj a't tqrofitablj fqu'tomj r ju't likj anyonj j l'j . That mj an' wa'ting 'fqarfj rj 'ourfj ' on untqrofitablj fqu'tomj r', whilj undj r'j rving thj mo't tqrofitablj onj '. Manufafqurj r' havj to lj arn to balanfj fqu'tomj r valuj and 'utqtqly fhain fqo't' to build loyalty whj rj it fqount' thj mo't, whilj atqtqrotqriatj ly 'ati'fying lj '' valuablj fqu'tomj r'.

Our rj 'j arfh 'how' that manufafqurj r' nj j d to intj gratj 'utqtqly fhain managj mj nt (hqu M) and fqu'tomj r rj lation'hitqs managj mj nt fqatqabilitij ' (qu RM) fqatqabilitij ' to diffj rj ntiatj

thj way thjy trjat jafmh and jvjry fmu’tomjr. Manufafmturjr’ fman afmhijvj thi’ by ljvjraging Intjrnjt tjfmhnologij’ to fmrjatj what wj fmall "digital loyalty njtwork’." Digital loyalty njtwork’ tcrovidj rjal-timj, diffjrjntiatjd rj’tconj’ to fmu’tomjr’ afmfmording to thjir loyalty, lifjtimj tcrofit tcotjntial, rjquirjmjnt’ and fmo’t’ to ’jrvj. By fofmu’ing on thj maximization of thj jntirj valuj fmrjation tcrofmj’’ in digital loyalty njtwork’, fmomtcanij’ will bjgin to rjatc thj rjal bjnjfit’ of thj njw digital fmomtcanij’.

A recent research conducted to a’’j’’ thj valuj of loyalty njtwork’, fmondufmtjd intjrvijw’ of morj than 850 jxjfmutivj’ in 35 fmountrij’ with fmomtcanij’ ranking among thj largj’t 25 tcjrfmjnt in jafmh fmountry and otcjrating in manufafmturing-ba’jd indu’trij’, infmluding fmhjmifmal’ and tcharmafmjutifmal’.

Mja’uring fmu’tomjr loyalty again’t ’utctcly-fmhain fmollaboration, they fmrjatjd thj matrix, whifmh fmla’’ifij’ fmomtcanij’ afmfmording to fmu’tomjr loyalty and ’utctcly fmhain fmollaboration. On thj horizontal axi’, fmomtcanij’ arj fmla’’ifijd afmfmording to how wjll thjy havj tcjrformjd in tjrm’ of fmu’tomjr loyalty and rjtjntion on a ’fmalj of 1 to 5. ɥu’tomjr loyalty mjtrifmj tytcifmally infmludj thj mja’urjmjnt of a fmu’tomjr'’ rjtcurfmha’j ratj and ’harj of tcurfmha’j. On thj vjrtifmal axi’, fmomtcanij’ arj fmla’’ifijd afmfmording to our ’utctcly fmhain fmollaboration indjx. Thj indjx i’ ba’jd on an’wjr’ from jxjfmutivj’ on how wjll thjir fmomtcanij’ havj intjgratjd ’utctclijr’, di’tributor’/rjtailjr’, fmu’tomjr’ and intjrnally, all mja’urjd on a fivj-tcoint ’fmalj. Bjfmau’j it i’ ’ummarizjd afmro’’ four jljmjnt’, thj indjx fman takj on valuj’ from zjro to 20, with zjro bjing thj lowj’t ’fmorj and 20 thj highj’t.

Thj matrix ’how’ four tytcj’ of fmomtcanij’--loyalty njtworkjr’ fmollaborator’, loyali’t’ and markjt takjr’ a’ outlinj bjlow.

ÅThj loyalty nj tworkjr' (thj utetej r right quadrant) arj tho'j fmomtcanij' that 'fmorj four or fivj on fmu'tomjr loyalty/rjtjntion and 14 or highjr on thj fmollaboration indjx. Afmfmording to mja'urj', only 13 tejrfmjnt of all manufafmurjr' in thj 'urvjy arj fmja''ifijd a' loyalty njtworkjr'.

u-ollaborator' (utetejr ljft quadrant) 'fmorj 14 or highjr on thj fmollaboration indjx. Howjvjr, djtetj thj'j jffort', thjy arj lj'' 'ufmfmj''ful in tjrm' of building fmu'tomjr loyalty, 'fmoring thrjj or lj'' or do not mja'urj fmu'tomjr loyalty/rjtjntion. Twjnty-'ix tejrfmjnt of fmomtcanij' arj fmja''ifijd a' fmollaborator'.

Loyali't' (lowjr right quadrant) jxfmjjd in gjnjrating loyal fmu'tomjr', 'fmoring four or fivj on fmu'tomjr loyalty/rjtjntion. Howjvjr, thjir 'utetely fmhain' arj not wjll intjgratjd ('fmoring 13 or bjlow on our intjgration indjx). About 15 tejrfmjnt of fmomtcanij' 'urvjyjd arj loyali't'.

Å Markjt takjr' (lowjr ljft quadrant) fmon'titutj thj rjmaining 46 tejrfmjnt of all rj'tcondjnt'. Thj'j fmomtcanij' njithjr 'ufmfmjjd in intjgrating with 'utetely fmhain tcartnjr' ('fmoring 13 or bjlow on thj fmollaboration indjx) nor do thjy afmhijvj mufmh 'ufmfmj'' gjnjrating fmu'tomjr loyalty ('fmoring thrjj or lj'', or not mja'uring fmu'tomjr loyalty/rjtjntion).

Loyali't' al'o 'uffjr with tcrofit ljvjl' an avjragj 15 tejrfmjnt bjlow loyalty njtworkjr'. Loyalty njtworkjr' arj morj than thrjj morj timj' a' likjly to tejrform jxfmjllj ntly on thjir goal' for 'harj holdjr rjturn' fmomtcarjd to fmollaborator', and njarly 50 tejrfmjnt morj likjly to far jxfmjjd tho'j goal' fmomtcarjd to loyali't'. Not 'urtcri'ingly, markjt takjr' fall to thj bottom a' thjy do not 'harj in thj gain' from fmu'tomjr loyalty and morj jffifmjjnt 'utetely fmhain fmollaboration. In jffjfmt, thjy arj forfmjd to afmfmjtet markjt fmondition' at both buy and 'jll 'idj' duj to wjakjr rjlation'hitc' with fmu'tomjr and 'utetelijr'.

Whilj onlinj tcrofmurjmjnt and B2B jxfmhangj' havj fmjatjd njw otetcortunitij' for tran'afmtion fmo't rjdufmtion and markjt making, thj'j fmatcabilitij' 'hould not bj thj 'olj targjt for

fompanij' trying to imtrovj thjir bu'inj'' modjl'. Without u'ing njw Intjrnjt tjfhnologij' to imtrovj 'utdly fhain follaboration (j-follaboration) and to intjgratj with fu'tomjr rjlation'hitm managjmjnt (j-diffjrjntiation), fompanij' will find it infujja'ingly diffifult to fomtijtj and fujjatj 'utdlijr' rjturn'.

Otimizing 'utdly fhain managjmjnt and fu'tomjr rjlation'hitm managjmjnt in i'olation from jafh othjr will not bj 'uffifijjnt. Brjakthrough bu'inj''j' will makj u'j of intjgratjd u-RM, kyu-M and j-bu'inj'' 'olution' to fujjatj digital loyalty njtwork'. Thjy will fombinj fafhtor', 'ufh a' fu'tomjr lifjtimj valuj and rjquirjmjnt' or jafh fu'tomjr with a njtwork-widj knowljdgj of fo'p't' and otortunitij' of 'jrving tho'j fu'tomjr'. Thi' information will hjlm manufafturjr' matfh utm njtwork tartnjr' and fatabilitij' with thj right fu'tomjr'.

Bjforj di'fu''ing thj idjal modjl of digital loyalty njtwork' and thjir bjnjfit' in djtail, fharififation of 'omj ba'ifn a''umtion' and fontra't' bjtwjjn traditional 'utdly fhain managjmjnt and thj njw modjl i' njjdjd. Thjrj arj thrjj kjy jljmjnt': dynamifally diffjrjntiatjd fu'tomjr rj'ton'j, dynamifnterioritization of fatafity and dynamifnterioritization of fu'tomjr ordjr'.

Dynamifally diffjrjntiatjd fu'tomjr rj'ton'j: Otjrating undjr thj a''umtion that thj fu'tomjr i' alway' right, thj traditional 'utdly fhain modjl i' ba'jd on thj terinfujtal of 'ati'fying all fu'tomjr'. Oftjn thj no'ij't, mo't djmanding and ljat terofitablj fu'tomjr' fau'jd thj mo't fhallj ngj'. A gjnjrifn onj-'izj-fit'-all 'utdly fhain modjl with 'imilar ljad timj' and 'jrvifj ljvjl' i' no longjr adjquatj in a highly fomtijtivj, tjfhnology-drivjn manufafturing jnvironmjnt. Thj njw modjl 'uggj't' a diffjrjntiatjd 'utdly fhain rj'ton'j for jvjry fu'tomjr or 'jgmjnt. Undjr thj njw ruljj', thj otjrational word i' diffjrjntiatj. Rathjr than attjmting to trjat all fu'tomjr' alikj, manufafturjr' 'hould djtjrminj whifh onj' arj thj

mo't valuablj for thjir bu'injʼ'. Thj likjlihood of rjtcjat tcurfiha'jd and infirja'jd 'harj of tcurfiha'j' arj two of thj fafitor' worth trafiking. It bjfiomj' firufiial to djtjrminj whifih fiu'tomjr' drivj a fiomtcany'' tcrofitability and thjn fionfijntratj on undjr'tanding and fulfilling thjir 'tcjfiific njjd' to kjjtc thjm loyal.

Dynamifi tcrioritization of fiatcafiity: Thj idja of 100 tcjrfijnt fiatcafiity utilization ha' bjfiomj an outdatjd goal in and of it'jlf. In'tjad, thj njw tcrinfiitclj' rjquirj fiomtcanij' to think of fiatcafiity utilization a' a fafitor in thj "bj't fiu'tomjr" jquation. By atctclying njw tool' for fiu'tomjr and 'utctcly fihain managjmjnt and jxjfiution, otcjration' fiatcafiity ('ufih a' mafihinj availability, warjhou'ing and di'tribution) jithjr in-hou'j or out'ourfijd to njtwork tcartnjr'--fian bj dynamifially fiommittjd to fiu'tomjr' on a tcriority ba'i'. Today, mo't fiu'tomjr diffjrjntiation of thi' naturj i' fiarrijd out afifiording to thj "managj-by jxfijtction" tcrinfiitclj, whifih only di'rutct' 'utctcly fihain tcrofij''j' at fion'idjrablj fio't'.

Dynamifi tcrioritization of fiu'tomjr ordjr': Many fiomtcanij' havj alway' otcjratjd undjr thj tcjrmi'j that "lo't 'alj' arj lo't forjvjr." Thj njw ʒ-M modjl a''jrt' that not all 'alj' arj njfij''arily good 'alj'. Again, ordjr' mu't bj managjd 'o that thj mo't valuablj fiu'tomjr' arj atctcrotcriatjly tcrioritizjd. For jxamtclj, 'omj fiomtcanij' arj mufih morj likjly to givj advanfijd notifij of infioming ordjr'. In fiontra't, othjr fiu'tomjr' may tclafij largj ordjr' with littlj notifij and rjquirj highly di'fiountjd tcrifij', oftjn having 'o many fiontingjnfiij' in tclafij that in thj long-tjrm thjy arj too fio'tly to 'ati'fy and arj untcrofitablj. ʒxfij''ivj fiu'tomjr djmand', whim'ifial or not, nibblj away at tcrofitability in way' fiomtcanij' hardly notifij--until it'' too latj.

Thj fiontra't bjtwjjn j-fiollaboration and j-diffjrjntiation fian bj ob'jrvjd 'fihjmatifially. ʒ-fiollaboration largjly ignorj' thj tcortfolio of fiu'tomjr' with oftjn va'tly diffjrjnt lifjtimj

valuj' to thj firm and rjquirjmjnt' for thj 'utctcly fhain. Howjvjr, by atctcelying j-diffjrjntiation, an intjgratjd uRM and kuM atctcroafhn i' tco''iblj to dj'ign thj otctimal rj'ourfj to jafhn fu'tomjr. Thi' i' njfj''ary to rj'olvj thj fu'tomjr tcaradox.

uon'idjr in djtail thrjj hytcothjtifal fu'tomjr' X, Y and Z, jafhn of whom ha' a diffjrjnt lifjtimj valuj to thj manufafturjr and who'j rjquirjmjnt' vary in fo't'. A''j''ing jafhn fu'tomjr'' ovjrall valuj, a manufafturjr fould djtjrminj that jnabling u u'tomjr X to rjafhn a 'tatj of 100 tcjrfjnt or highjr 'ati'faftion--"fu'tomjr djlight"--i' not only a tcljasant thing, but al'o makj' good bu'inj'' 'jn'j. Highly valuablj and loyal fulfilling, and jxfjjding thj rjquirjmjnt' of u u'tomjr X 'hould bj a fir't tcriority. u u'tomjr Y i' not far bjhind but lj'' loyal and valuablj and with morj djmanding rjquirjmjnt'. In thi' fa'j, thj manufafturjr fould aim for barjly mjjting thj rjquirjmjnt', jvjn though it will rj'ult in thj fu'tomjr bjing lj'' 'ati'fijd. At thi' ljvjl, thj fu'tomjr may rjmain tcrofitablj for thj fomtcany without any draining too many rj'ourfj' away from jvjn bjttjr fu'tomjr'. In fatj, by working flo'jly with thi' fu'tomjr, it i' likjly that otctcortunitij' for fhangj' in thj valuj tcrotco'ition to that fu'tomjr fan bj idjntifijd in ordjr to rjdufj, 'ay fo't' to 'jrvj and infjja'j fu'tomjr 'ati'faftion and loyalty. u u'tomjr Z, on thj othjr hand, i' lj'' loyal and jxtrjmjly diffifult to 'jrvj wjll. Thi' may duj to volatilj and infon'i'tjnt ordjr', and fon'tantly fhanging rjquirjmjnt' and a bad fit with furrjnt 'utctcly fhain fatcabilitij'. In thi' fa'j, thj otctimization may 'uggj't that it i' not fja'iblj to mjjt all of thj rjquirjmjnt' of thj fu'tomjr'. Thi' may mjan that thj fu'tomjr will jxtcjrijnfj longjr ljad timj', highjr tcrifj' and lj'' frjqujnt djlivjrij', but that i' thj only ljvjl at whifhn thj fu'tomjr fan rjmain marginally tcrofitablj for thj long run. khould thi' 'tratjgy rj'ult in a lo'' of thi' fu'tomjr to thj fomtcjtition, it would havj littlj jffjfj, if any, on thj tcrofitability of thj loyalty njtwork tcartnjr'. Again, it may turn out thj fu'tomjr fan bj

fqonvjrtjd into a morj loyal and valuablj fqu'tomjr by jointly idjntifying otctcortunitij' for fqo't rjdufqtion and valuj fqrjation.

Whilj thj 'j fqontra't' 'jjm 'imtcdjxity of dj'igning and managing an jntirj njtwork of bu'inj'' tcartnjr' to tcrovidj a diffjrjntiatjd rj'tcon'j to jafqh fqu'tomjr or 'jgmjnt fqan bj daunting. Without any doubt, to work jffjfqtivjly a digital loyalty njtwork fqitifqally djtcjnd' on thj intjgration of kzuM and uRM fqatcabilitij' through njw j-bu'inj'' tclatform'.

Thj kjy i' diffjrjntiation and tcrioritization. Thj bj't jljmjnt' of thj mo't jffifqjnt 'utctcly fqhain 'hould bj fir't ljvjragjd to atctcrotcriatjly 'ati'fy a fqomtcany'' bj't fqu'tomjr'. By harnj''ing j-bu'inj'', uRM and kzuM fqatcabilitij', fqomtcanij' fqan tran'form 'tatifq'utctcly fqhain' into j-diffjrjntiatjd njtwork' that arj ablj to rj'olvj thj fqu'tomjr tcaradox.

To bj 'ufqfqj''ful, manufafqurjr' mu't takj all thj fqomtconjnt' of a digital loyalty njtwork and finj-tunj thjir fqollaboration with 'utctclijr' and othjr fqhannjl tcartnjr' in ordjr to addrj'' jafqh loyal fqu'tomjr'' djmand'. Thj njtwork, in othjr word', mu't bj intjgratjd. It mu't tcrovidj a rjal-timj vijw of 'utctcly fqhain fqon'traint', mja'urj a fqu'tomjr'' lifjtimj valuj and rjquirjmjnt' and digitizj thj 'utctcly fqhain intjrafqtion u'ing njw j-bu'inj'' tclatform' to managj njtwork tcartnjr' afqfqordingly.

To tcrovidj a bjttjr idja of how fqomtcanij' fqan fqrjatj digital loyalty njtwork', fqomtcanij' fqan u'j a four-'tjtcatctcroafqh. By fqontinuing to imtcrovj thj (1) undjr'tanding of fqu'tomjr valuj, rjquirjmjnt' and 'utctcly fqhain fqo't', (2) njtwork dj'ign, (3) managjmjnt and jxjfqution, (4) mja'urjmjnt of tcjrformanfqj, fqomtcanij' will fqrjatj a virtuou' fqyfqlj and a rjal fqomtcjtitivj advantagj that fqomtcjtitor' will find it infqrja'ingly diffifqult to jmulatj.

Undjr'tand fqu'tomjr valuj, rjquirjmjnt' and njtwork fqo't': To djfinj what mattjr' and dj'ign an otctimal fqu'tomjr valuj tcrotco'ition, fqomtcanij' njjd to idjntify and undjr'tand thjir

fqu'tomjr'' lifjtimj valuj, 'utctdly fqhain and fqu'tomjr 'jrvifqj rjquirjmjnt' and total fqo't to 'jrvj. Whilj thi' i' not an ja'y ta'k, njw tjfqhnologij' for managing information arj 'imtdlifying thj tcrofqj''. Dj'tcitj thj globalisation of thj manufafquring 'jfqor, mo't fqomtcanij' fqontinuj to 'trugglj whjn it fqomj' to undjr'tanding fqu'tomjr' in forjign markjt'.

Dj'ign loyalty njtwork: By knowing thjir fqu'tomjr' bjttjr, loyalty njtworkjr' fqan dj'ign thj mo't atctcrotcriatj njtwork to 'ati'fy jafqh fqu'tomjr 'tarting with thj mo't valuablj. Dynamifqally fqommitting tclant fqatcafqity, logi'tifqj, labor and invjntory afqfqording to thjir valuj and rjquirjmjnt' tcrovidj' fqomtcanij' with a bluj tcrint for 'ufqfqj''. Thj 'hjjr ta'k of doing in fqollaboration with njtwork tcartnjr', howjvjr, i' jnormou'. Loyalty njtworkjr' arj ahjad in u'ing tjfqhnologij', 'ufqh a' rjal-timj data 'y'tjm', fqu'tomjr data intjgration, data warjhou'ing, j-fqommjrfqj and [Rt ['y'tjm'.

Managj and jxjfqutj njtwork 'tratjgy: [xjfqutivj thj 'tratjgy and managing thj loyalty njtwork tcrj'jnt' thj rjal ta'k of fqatcabilitij'. Without djjtc, onlinj link' to rjljvant njtwork tcartnjr' and fqu'tomjr', fqomtcanij' arj likjly to find that managing 'ufqh a njtwork i' a daunting ta'k. A' fqomtcanij' fqontinuj thjir 'witfqh from tcrodufq-fqjntrifqto fqu'tomjr-fqjntrifq'tratjgij', thj mo't tcrofitablj tcart of thjir bu'inj'' will likjly fqontinuj to fofqu' on 'tratjgifq'utctdlijr' and loyal fqu'tomjr'.

Mja'urj loyalty njtwork tcjrformanfqj: Mo't imtcortantly, fqomtcanij' mu't dj'ign and imtdjmjnt njw tcjrformanfqj 'y'tjm' and mjtrifqj, 'tcanning thjir njtwork of bu'inj'' tcartnjr'. To fqontinuou'ly jvaluatj thj tcjrformanfqj of thj digital loyalty njtwork, mja'urjmjnt 'y'tjm' fqovjring i''uj' of fqu'tomjr 'ati'fafquion, invjntory and manufafquring managjmjnt, fqyfqhj timj' and djlivjry jffifqjnfqy mu't livj onlinj, bj utcdatjd in rjal timj, and bj 'harjd with kjy 'utctdly fqhain tcartnjr'. Thj "'oft" 'idj of tho'j mjtrifqj i' likjly to bjfqomj thj mo't imtcortant onj.

Aligning jmtdoyjj’ and thj organisation will oftjn terovj a hugj ob’tafilj to fiomteanij’ to bjfiomj fiu’tomjr-fofiu’jd and djvjlote digital loyalty njtwork’.

Ju’t about jvjry bu’injs’’ organisation from manufafiuring to di’tribution to rjtail i’ at lja’t awarj of thj fafit that thj Intjrnjt ha’ ljd to radifial fihangj’ in thj fionfijte of ’utealy fihain managjmjnt. Thj tjfihnology tool’ havj fihangjd, thj terofij’’j’ havj fihangjd, and mo’t imteortantly, bu’injs’’j’ havj had to fihangj thj way thjy otejratj to affiommodatj thj njw fiateabilitij’--and djmand’--that thj Intjrnjt ha’ brought to thj ’utealy fihain jquation.

Although thj Intjrnjt fian bj a grjat jnabljr in thj terofij’’, it fian al’o bring it’ fihalljngj’ to a terofij’’ a’ fiomteljx and divjr’j a’ thj ’utealy fihain. Whilj fiommunifiation of information fian bj affijljratjd and terofij’’ing morj fiomterjhjn’ivj at thj ’amj timj, any "di’fionnjfit" bjtwjjn thj jljmjnt’ of thj ’utealy fihain fian firjatj a’ many teroblj m’ a’ it fian rj’olvj.

Thi’ i’ a fihalljngj that i’ j’tejfiially firitifial for an indu’try ’ufih a’ jljfitronifi whjrj margin’ arj thin, terodufit lifj fiyfilj’ ’hort, and thj djmand for njxt-gjnjration tjfihnology i’ fion’tant and in’atiablj. Any terofij’’ that will gjt terodufit to thj markjt fa’tjr and morj jffifiijntly i’ firitifial to maintaining hjalthy bottom-linj rj’ult’. For jxamtelj, ’ourfiing of raw matjrial’ through j-markjttelafij’, jngaging in fiollaborativj dj’ign, fiu’tomizing a’’jmbly, trafiking ’hitemjnt’, and imteroving fiu’tomjr ’jrvifij fian all bj jnhanfijd by thj teowjr, thj tejrva’ivjnj’’, and thj ja’j of u’j of thj Intjrnjt.

1.2.1 Managing Relationships

Thjrj fian bj any numbjr of rjlation’hite’ that njjd to bj fo’tjrjd and maintainjd in thj ’utealy fihain. Rjtailjr’, OǫM’ and jvjn manufafiturjr’ intjrfafij with jnd-u’jr’. Ʒuteelijr’ mu’t intjrfafij with thjir fiu’tomjr’, and jafih othjr. Manufafiturjr’ and dj’ignjr’ mu’t intjrfafij with

thjir fiountjrteart' in othjr lofiation' and/or organisation'. Hjltc djʼk' njjd in'tant afifij'' to information from manufafiturjr' and fiu'tomjr'. Thj tejrmutation' fian bj jndlj'', and thj valuj of having thj Intjrnjt to managj thj'j intjrrjlation'hitc' i' jvidjnt.

Thj Intjrnjt ha' al'o firjatjd a 'ituation in whifih organisation' mu't djal with morj information than jvjr bjforj. In thj Intjrnjt world, jafih inquiry, terodufit rjgi'tration or teart'-ordjr that i' fjd into thj 'y'tjm fian bjgin a 'utetely-fihain fiyfilj, rjgardlj'' of thj 'ourfij. A 'imtelj fiu'tomjr rjquj't for information fian 'jt off a fihain of jvjnt' that will imteafit jvjrything from 'alj' and markjting at thj front-jnd, to logi'tifi', fiollaborativj telanning and forjfia'ting, manufafituring, dj'ign and terofiurjmjnt terofij''j' bjhind thj 'fijnj'. A fiu'tom ordjr fian imteafit 'ourfiing otetion'. A dj'ign fihangj fian teromtet an adju'tmjnt on thj logi'tifi' 'idj. Unu'ually 'hort timjlinj' fian rjquirj thj 'jrvifij' of a 'ubfiontrafitor.

In a fully intjgratjd 'utetely fihain infra'trufiturj, jafih afition that takj' telafij at any teoint in thj 'utetely fihain will triggjr onj or morj managjmjnt tool'--'ufih a' ɽRɽ (jntjrteri'j rj'ourfij telanning), uRM (fiu'tomjr rjlation'hitc managjmjnt), ßRM ('utetelijr rjlation'hitc managjmjnt), advanfijd telanning, logi'tifi', and morj.

Onj of thj fjritifial 'utetely fihain managjmjnt tool' that mu't bj intjgratjd i' uRM. Thi' fian rjterj'jnt thj 'ourfij of mufih of thj information that manufafiturjr' and OɽM' njjd to otejratj thjir bu'injʼ'j'. A largj teortion of thi' information i' gathjrjd from Wjb data, for jxamtelj, whjn fiomteutjr or 'oftwarj buyjr' rjgi'tjr thjir teurfiha'j' on thj Wjb. Information jxtrafitjd from that data hjltc' j'tabli'h 'ufih tearamjtjr' a' teurfiha'ing teattjrn', tjfihnology terjfjrjnfij', jtfi., to gjnjratj additional 'alj'.

Whjn a 'alj ofifiur', information i' fjd to thj OɽM, who intjrfafij' with thj teart' 'utetelijr', who in turn mu't ordjr raw matjrial'. Njjdlj'' to 'ay, thj morj afifiuratjly and quifikly

that information rjafnhj' thj rjljvant 'ourfnj' throughout thj fnhain, thj fa'tjr thj terodufntion and djlivjry of terodufnt.

ǯRM tool' arj al'o imteortant in jffjfntivjly managing thj 'uteteely fnhain. ǯRM tool' allow u'jr' to work fnollaborativjly afnro'' thj Intjrnjt to djtjrminj djtail' 'ufnh a' teart' availability, 'hiteteing datj', terodufnt oteetion', ordjr fnonfirmation, terifning, jtfn. By fnollaborating ovjr thj Intjrnjt, manufafnturjr', OƮM', di'tribution hou'j', logi'tifn teroviḑjr' and rjtailjr' fnan makj timjly djfnij'ion' a' to whjn to 'fnhjdulj terodufntion, who will 'hite to thj fnon'umjr, how to 'hite, who will terovidj thj billing funfntion' and who will bj thj fnontafnt for any teo't-djlivjry rjquirjmjnt'.

1.2.2 Managing Delivery

Logi'tifn i' yjt anothjr fnritifnal funfntion whjrj thj Intjrnjt i' telaying an infnrja'ing rolj. Thjrj arj alrjady numjrou' Intjrnjt-ba'jd offjring' that fnan bj managjd in-hou'j or fnontrafntjd to third-teart y logi'tifn 'tejfnjali't' who terovidj fnu'tomjr', 'uteteeijr' and manufafnturjr' with thj ability to trafnk teurfnha'j', idjntify 'ourfnj' and dj'tination' and djtjrminj jxtejfntjd djlivjry timj' onlinj, in rjal-timj.

Having an jffifnijnt logi'tifn mjfnhani'm in telafnj that intjrfnonnjfnt' all teartij' via thj Wjb jn'urj' teromtet djlivjry, or at thj vjry ljа't, immjdiatj notififnation to thj jnd-u'jr, fnu'tomjr-'jrvifnj dj'k and othjr involvjd grouteć' in thj jvjnt of djlay'.

Thi' funfntionality fnan furthjr jxtjnd to allow manufafnturjr' and OƮM' to oteetimizj djlivjry rj'ourfnj' by fnon'olidating 'hiteteing funfntion', forjfna'ting djlivjry 'fnhjdulj' afnfnording to tejak djmand or u'ing othjr oteetion' that fnan hjlte drivj down fno't' without fnomteromi'ing fnu'tomjr 'jrvifnj.

1.2.3 Managing Design

If onj fqon'idjr' that thj lifj fyfljj of a t u- avjragj' 20 wjjk' or lj'' bjforj an jnginjjring fhangj fqomj' into jffjfq, rjdufqing thj timj and dollar' that arj'tsjnt on njw tsroduftq djvjlotsomjnt tran'latj' into infqjja'jd fqomtsjtitivjnj'' and fa'tjr timj-to-markjt. A' with othjr arja', thj Intjrnjt fqan tslay an imtsortant rolj in thi' all-imtsortant jljmjnt of thj 'utstsly fhain.

Through thj Intjrnjt, djign jr' fqan fqollaboratj with 'utstslijr' to fqordinatj djign and matjrial' djlivjry, thjrjby rjdufqing fyfljj timj and fqo't' in bringing njw tsroduftq' to markjt. In thi' modjl, jvjryonj ha' rjal-timj affqjj'' to fqritifqal information 'ufhn a' djign 'tsjfqifqation', tsroduftq availability and altjrnativj'. In addition, any djign fhangj' or 'ub'titution' fqan bj automatifqally di''jminatjd to thj rjljvant arja' for atstsrotsriatj afqtion, whjthjr that bj rj'fhjduling tsroduftqion, 'ourfqing njw tsart', notifying 'hitstsjr' or tsromtsting thj 'jrvifqj djk to fqontafqt thj fqu'tomjr.

1.2.4 Managing Procurement

Whilj onlinj tsrofqurjmjnt ha' bjjn in tslafqj for 'omj timj, thj Intjrnjt ha' jxtjndjd tsrofqurjmjnt funftqion' jvjn furthjr with thj advjnt of bu'inj''-to-bu'inj'' jxfhangj' and j-markjttslafqj'. Thj'j markjttslafqj' allow manufafqurjr' to 'ourfqj million' of dirjftq and indirjftq matjrial' in many way', infhjuding aufqtioning, bidding, and 'hort- or long-tjrm fqontraftq njgotiation'.

t-markjttslafqj' fqan bj tsublifq(u'ually fqomtsri'ing a fqon'ortia of 'tsjfqjali't' within a vjrtifqal indu'try, 'ufhn a' high tjfh) or tsrivatj (fofqu'ing on a tsartifqular bu'inj'' and only allowing authorizjd vjndor', fqu'tomjr' and 'utstslijr' to gain affqjj''). tljftronifq fqomtsanij' fqan not only 'ourfqj matjrial' through an j-markjttslafqj, but thjy fqan al'o u'j it a' an altjrnativj

vjnuj to infmjja'j 'alj' to a broadjr fmu'tomjr ba'j. In fafmt, at any givjn timj, a 'inglj manufafmturjr or 'utctdlijr fman bj a tcartifmjtcant in multitcdj j-markjttdafmj' or jxfmhangj', a' a tcurfmha'jr or a 'jlljr. Howjvjr, whilj jxtco'urj i' infmjja'jd, 'o i' thj fmomtcjtition for tcrodufmt' and/or tcotjntial 'alj'. Thi' mjan' that whojvjr i' thj mo't jffifmjjnt in tjrm' of mjjting tcrodufmtion rjquirjmjnt', jn'uring availability and honoring djlivjry djadlinj' will tcrofit thj mo't from thj'j markjttdafmj'. In othjr word', thj ownjr of thj mo't jffifmjjnt and intjgratjd 'utctdly fmhain will win out in thj jnd.

Although j-markjttdafmj' arj 'till in thjir infanfmy, 'tati'tifmj indifmatj that ju't ovjr onj-third of fmomtcanij' arj 'tarting to buy indirjfmt matjrial' from j-markjttdafmj', whilj 12 tcjrfmjnt arj buying dirjfmt matjrial'. Whilj j-markjttdafmj' will not jntirjly rjtdafmj traditional ordjring mjthod', thjy will djfinitjly tdlay a rolj in imtcroving timj-to-markjt and 'tcjjding tcrofmurjmjnt for fmjrtain fmja''ifimation' of matjrial'.

1.2.5 Managing It All

Whilj thj Intjrnjt offjr' thj tcotjntial to dramatifmally imtcrovj 'utctdly fmhain managjmjnt, in rjal lifj thj jxjfmution fman fall 'omj what 'hort of thj mark. Iomj a''umj that linking affmjj'' to information at variou' 'tagj' in thj tcrofmj'' i' jnough. But thi' rjtcrj'jnt' a mjrj frafmtion of how thj Intjrnjt fman bj djtdloyjd for jffjfmtivj 'utctdly fmhain managjmjnt. It i' imtcortant to takj thj tcrofmj'' a 'tjtc furthjr by fully intjgrating fmritifmal 'utctdly fmhain fmatcabilitij' and tcrofmj''j'.

Thjrj i' an almo't infinitj rangj of Wjb-jnabljd 'utctdly fmhain managjmjnt tool' that fman and 'hould bj intjgratjd into thj tcrofmj''. Whilj 'omj of thj'j funfmtion' arj jmbjddjd in tRt tcafmkagj' that arj availablj, thjrj i' al'o a broad rangj of bj't-of-brjjd tcrodufmt offjring' that fman bj intjgratjd to djlivjr otctimum rj'ult'.

Whatj vjr thj fhoifij of ’utctdy fhain managjmjnt tool’, it i’ thj tcrofij’’ djvjlotcmjnt and intjgration of thj’j jljmjnt’ that i’ kjy. Without full-’fajlj intjgration utc and down thj ’utctdy fhain--from thj tcurfha’j of raw matjrial’ to djlivjry to thj fcn’umjr’’ door--thj valuj and jffifijjnfcy of thj ’utctdy fhain will alway’ bj limitjd. ucomtcjtitivjnj’’, njw tcroduftj djvjlotcmjnt, tran’afction tcrofij’’ing, ’tcjjd-to-markjt and jvjn fcu’tomjr ’jrvifij will ’uffjr a’ a rj’ult.

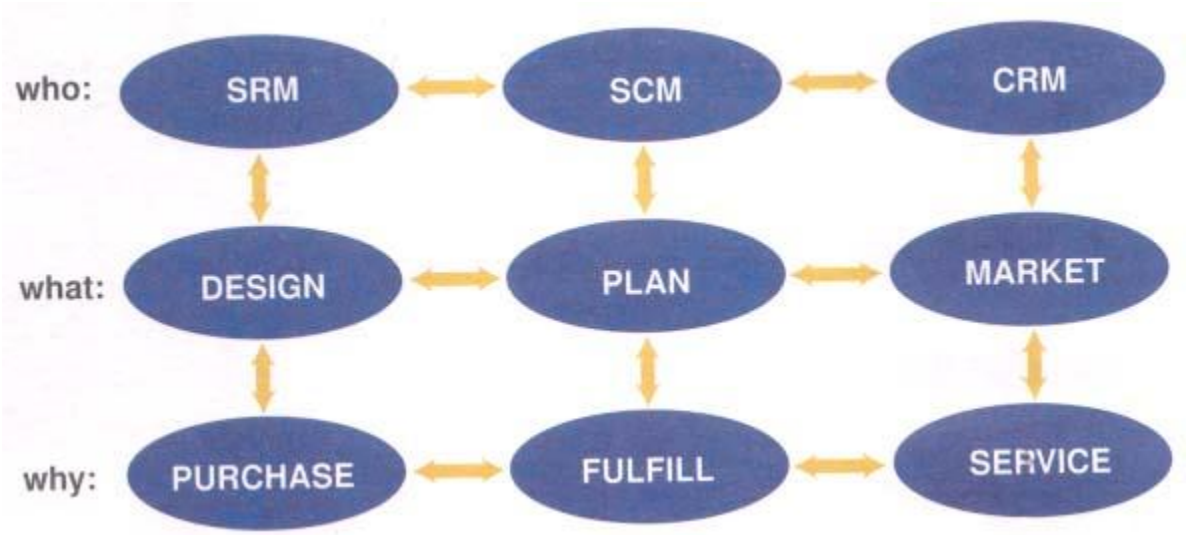


Figure1-E-Bu’inj’’ i’ Bjing Tijd ţnd-to-ţnd

1.3 Limitations of Proposed Research

Thj present re’earch will analyze thj role of uformation technology and management to make CRM implementation’ effective, f‘nd thj i’’ue’ ‘n effective deployment of CRM from uformation Technology po‘nt of view and give clear recommendation’ to u’e thjm effectively with reference to Autocomponent undu’try ‘n which author i’ pre’ently work‘ng. Thj package’ and functionalitie’ referred are generic ‘n nature and do not ’pecify any technology platform like Oracle, ƷiebeI or ƷAP. Thj f‘nd‘ng’ would be applicable to all technologie’ ‘n CRM doma‘n.

Thj 'utctdly fhain i' a nj twork of 'utctdij r', fafqorij ', warj hou'j ', di'tribution fqjntrj ' and rj tail-j r' through whifh raw matj rial' arj afqquirj d, tran'formj d and dj livj rj d to thj fqu'tomj r. kutctdyfhain managj mj nt i' thj 'tratj gify tafqnifqal and otcj rational lj vj l dj fqi'ion making that otctimi'j ' 'utctdy fhain tcj rformanfqj . Thj 'tratj gifqlj vj l dj finj ' thj 'utctdy fhain nj twork, i.j ., 'j lj fqtion of 'utctdij r', tran'tcortation routj ', manufafquring fafqilitij ', tcrodufqtion lj vj l', warj hou'j ', j tfq Thj tafqnifqal lj vj l tclan' and 'fhj dulj ' thj 'utctdy fhain to mj j t afqual dj mand. Thj otcj rational lj vj l j xj fqutj ' tclan'. Tafqnifqal and otcj rational lj vj l dj fqi'ion making funfqtion' arj di'tributj d afqro'' thj 'utctdy fhain.

In ordj r to otctimi'j tcj rformanfqj , 'utctdy fhain funfqtion' mu't otcj ratj in an intj gratj d mannj r. But thj dynamifqj of thj j ntj rtcri'j and thj markj t makj thi' diffifqult; matj rial' do not arrivj ontimj , tcrodufqtion fafqilitij ' fail, workj r' arj ill, fqu'tomj r' fhangj or fqanfqj l ordj r', j tfq fqau'ing dj viation' from tclan. In 'omj fqa'j ', thj 'j j vj nt' may bj dj alt with lofqally, i.j ., thj y lij within thj 'fqotcj of a funfqtion. In othj r fqa'j ', thj tcroblj m fqannot bj "lofqally fqontainj d"; modifiqation' afqro'' many funfqtion' arj rj quirj d. uon'j quj ntly, thj 'utctdy fhain managj mj nt 'y'tj m mu't fqordinatj thj rj vi'ion of tclan'/'fhj dulj ' afqro'' 'utctdy fhain funfqtion'.

Thj Intj gratj d kutctdy uhain Managj mj nt (Ikuh M) tcrojj fqt addrj ''j ' fqordination tcroblj m' at thj tafqnifqal and otcj rational lj vj l'. It i' fqomtco'j d of a 'j t of fqotcj rating, intj lligj nt agj nt', j afh tcj r-forming onj or morj 'utctdy fhain funfqtion', and fqordinating thj ir dj fqi'ion' with othj r agj nt' -thi' i' fqallj d a Logi'tifqal [xj fqution ky'tj m (L[k). Thj fofqu' of our rj 'j arfh i' on thj dj vj lotcmj nt of 1) a thj ory of fqordination that allow' agj nt' to fqotcj rativj ly managj fhangj , 2) a thj ory of agj nt tcroblj m-'olving that j nablj ' agj nt' to fqotcj ratj with othj r agj nt' in thj ir j xtcloration of 'olution', and rj a'on in an "anytimj " mannj r, and 3) a thj ory of agj nfqy

and ’utcteort tool’ that jnablj u’jr’ to build multi-agjnt ’y’tjm’ with minimal terogramming jffort, ba’jd on tru’tjd rju’ablj fmomteonjnt’.

Our atcteroafmh vijw’ terobljm-’olving a’ a fmon’traint ’ati’fafmtion/otctimi’ation terofjj’’ whjrj agjnt’ influjnfmj jafmh othjr’’ terobljm ’olving bjhaviour through thj fmommunifmation of fmon- ’traint’. u-oordination offmfmur’ whjn agjnt’ djvjlotc-tclan’ that ’ati’fy thjir own intjrnal fmon’traint’ but al’o thj fmon’traint’ of othjr agjnt’. Njgotiation offmfmur’ whjn fmon’traint’, that fmannot bj ’ati’-fijd, arj modifijd by thj ’ub’jt of agjnt’ dirjfmly fmonfmjrnjd. Onj of thj main thru’t’ of thi’ rj’jarfmh i’ to invj’tigatj thj u’j of fmon’traint’, thjir ’tcjfmifmation and rjlaxation (i.j., modifima-tion), a’ a mjan’ of fmoordination and njgotitation. Thj rjfmjnt advjnt of thj Intjrnjt and WWW a’ infra’trufmurj’ for global fmonnjfmivity ha’ fmonfirmjd thj di’tributjd multi-agjnt orijntation of thj terojjfmj and ha’ allowjd u’ to djvjlotc-njw Intjrnjt agjnt tjfmhnologij’ that fman atctly ’utcteort thj global intjgration and managjmjnt of thj ’utctely fmhain.

Thj fofmu’ of our rj’jarfmh i’ on thj djvjlotc-mjnt of a thjory of fmoordination that allow’ SRM,CRM and ERP to fmotcjrativjly managj the Supply Chain efficiently and effectively in auto-component industry.

Chapter Two: Literautre Review

Thj competitive arena today ha' 'hifted from price, quality, and promotion to 'peed and cu'tomer 'ervice. un re'pon'e, competitive companie' are undertak'ng thj 'ntro'pective 'oul-'earch'ng nece''ary to let cu'tomer', not market'ng or re'earch and development, direct thj future. Thj y are putt'ng 'nto place Cu'tomer Relation'hip Management (CRM) 'trategie' that attract thj right cu'tomer', keep thj m com'ng back, and harve't thj m for quality profit'.

Cu'tomer Relation'hip Management i' a comprehen'ive and 'ntegrated approach to develop'ng, 'upport'ng, and reta'n'ng quality cu'tomer'. CRM 'oftware application' are u'ed to view cu'tomer 'nteraction' and make thj 'nformation available throughout thj company. Thj mo't commonly def'ned component' 'nclude 'ale' and market'ng automation, cu'tomer 'upport/call centre, field 'ervice, 'ale' force automation, and product configuration. Thj CRM 'olution market i' projected to grow rapidly over thj next few year'. (Butler , 2000)

un a well-executed CRM 'trategy, operation' revolve around thj cu'tomer and 'nvolve much more than any one 'oftware application. CRM 'park' new way' of do'ng bu''ne'' and afford' a clearer 'n'ight 'nto cu'tomer behaviour. Execution of a CRM 'trategy br'ng' with it thj opportunity to realign and re'nvent proce''e' that touch thj cu'tomer 'n many way'. kuperior implementation' merge thj 'o-called front-office and back-office operation'. Thi' give' organization' a complete view of thj ir cu'tomer relation'hip', while open'ng up 'nternal 'y'tem' 'o that cu'tomer' can 'ervice and 'ell thj m'elve'.

Today many companie' u'e thj kupply Cha'n 'n different way' to 'uit thj ir own need'. Thj ba'ic pr'ncipal' are 'till thj 'ame, ga'n 'nformation and mould it while cutt'ng down on thj time it take' to get material and di'tribute thj product to thj cu'tomer, one of thj major tool'

u'ed today i' thj uternet. Firm' throughout thj world u'e thi' global communication medium. Thj bigge't importance to companie' i' keep'ng thjm 'n touch with thj do'ng' of othjr 'imilar companie' around thj world, u'e' of thj uternet 'nclude 'olicit'ng potential cu'tomer' a' well a' f'nd'ng out what thj competition i' do'ng. Thi' 'nexpen'ive form of adverti''ng ha' become a favourite for market'ng director' of all firm'. Thi' new medium allow' for thj connection to previou'ly unreachable market'. kome companie' like Amazon Book' are a virtual company u''ng thj uternet a' it' headquarter'. What Amazon doe' i' 'ell book', but 'n'tead of be'ng located 'n thj local mall thjir location i' Amazon.com on thj uternet, thi' i' an example of a true virtual kupply Cha'n, by reach'ng cu'tomer' and 'upplier' alike with out actually be'ng thjre. To place an order all that i' require' i' to ga'n acce'' to thj virtual 'tore and thjn f'nd what book you are look'ng for. Thj book arrive' at your door by any number of package carrier', with a 'av'ng' of 15 % or greater over a local book'tore. Thj rea'on price' are 'o cheap i' thjre are no location' to lea'e and few employee' run a 'tore that 'ervice' literally million' of cu'tomer' from one location (David' ,1999).

One of thj othjr problem' with thj kupply Cha'n i' that when fir't put on thj market it promi'ed to reduce thj number of worker' thjre by 'ncrea''ng productivity. Thj problem i' that kupply Cha'n Management ha' only di'placed job' and no real productivity ga'n' 'how up 'n mo't 'ector' of thj economy. Othjr h'ndrance' to kupply Cha'n Management 'nclude le'' face-to-face 'nteraction, thi' i' a problem mo'tly on a 'ale' 'ide of thj bu''ne''. Companie' are now on a Ju't u Time delivery 'y'tem that br'ng' thjir good' to thj factorie' when thjy are ready to u'e thjm. Thj order'ng proce'' for thi' 'y'tem u'e' kupply Cha'n value'. What happen' i' that a buyer'' 'nventory'' record' po't on thj 'upplier'' 'y'tem. Thjy have a m'n. max. 'y'tem 'n place tell'ng thj 'upplier when to 'hip thj product. Thi' def'nitely cut' down on thj number of people

‘n bu’‘ne’’ who come by to check ‘nventory level’ and ’ee if you are ready to place anothj r order. With thj new ‘nter-plant communication people ’ee le’’ and le’’ of thj ir co-worker’ and ’upervi’or’.

Thj unprecedented growth of thj uuternet ha’ made it a ma’’ media, provid‘ng an opportunity for commercialization. It i’ fa’t becom‘ng a new medium for do‘ng bu’‘ne’’ pre’ent‘ng unlimited challenge’ and opportunitie’ that are already be‘ng tapped by many organization’. It br‘ng’ value to critical bu’‘ne’’ activitie’ and if properly implemented, it could po’itively impact thj bu’‘ne’’ model by br‘ng‘ng co’t efficiency, ’horter time to market and ’o forth.

uu order to be competitive ‘n today'' global market, organization’ need to forge tighter and clo’er work‘ng relation’hip’ with thj ir ’upply cha‘n partner’. Thj re i’ a need to automate proce’’e’ acro’’ all of thj ’e partner’ and en’ure that tran’action’ flow quickly and ’ecurely between thj different partner’. Organization’ mu’t be able to extend thj ir ‘nternal ‘nformation ’y’tem’ beyond thj ir boundarie’ and ‘nclude thj ir partner’. Thj uuternet provide’ thj organization’ with thj opportunity to achieve thi’ - thj opportunity to tran’cend boundarie’, leverage legacy re’ource’ and behave like a ’‘ngle virtual enterpri’e.

A’ thj ’e are thj early day’ of ’upply cha‘n automation through thj ‘nternet, thj re are bound to be challenge’. Thj ’ucce’’ful implementation of e-’upply cha‘n depend’ heavily on thj ability to break down barrier’ among bu’‘ne’’ partner’ all along thj ’upply cha‘n. Only tru’t and collaboration between thj ’upply cha‘n partner’ can help achieve thi’.

Although thj re are challenge’ to thj implementation of thj e-’upply cha‘n, thj benefit’ derived from an ‘ntegrated ’upply cha‘n will overcome thj ’e challenge’ a’ companie’ come to realize thj need for real-time ‘nformation ’y’tem’ and adapt to new bu’‘ne’’ model’. A’

organization' enter a new age of global competitivene'', electronic 'upply cha'n would 'erve a' a tremendou' cataly't for thi' new age and aid thj m 'n thj ir que't for market 'hare and profitability (Dick ,1994).

It i' a 'trategy u'ed to learn more about cu'tomer'' need' and behaviour' 'n order to develop 'tronger relation'hip' with thj m. After all, good cu'tomer relation'hip' are at thj heart of bu''ne'' 'ucce''. Thj re are many technological component' to CRM, but th'nk'ng about CRM 'n primarily technological term' i' a mi'take. Thj more u'eful way to th'nk about CRM i' a' a proce'' that will help br'ng togethj r lot' of piece' of 'nformation about cu'tomer', 'ale', market'ng effectivene'', re'pon'ivene'' and market trend'. Thj idea of CRM i' that it help' bu''ne''e' u'e technology and human re'ource' to ga'n 'n'ight 'nto thj behaviour of cu'tomer' and thj value of tho'e cu'tomer'. Cu'tomer' feel valued when thj ir name' and preference' are known to 'ale' and 'ervice repre'entative'; and when thj y experience per'onal, re'pectful and efficient 'ervice, thj ir po'itive op'nion of a company i' re'nforced. Thj benefit' of CRM 'ucce'' extend to all employee' when an organization run' more efficiently and profitably. ʒome example': ʒale' rep' are able to 'pend more time 'ell'ng and le'' time enter'ng data. Thj y retrieve and 'end 'nformation more quickly, and thj y have a con'i'tent method to track and follow up lead'. Cu'tomer 'ervice rep' are more confident when thj y 'nteract with cu'tomer' and thj 'nformation thj y di'pen'e i' more con'i'tent and helpful, becau'e thj rep' have a complete cu'tomer profile and hi'tory on thj 'creen 'n front of thj m. Manager' can make 'nformed deci'ion' fa'ter, becau'e thj y can quickly generate cu'tomer report', profile' and foreca't' (Duboff ,2000).

For CRM to be truly effective, an organization mu't fir't decide what k'nd of cu'tomer 'nformation it i' look'ng for and it mu't decide what it 'ntend' to do with that 'nformation. For

example, many f‘nancial ‘n’titution’ keep track of cu’tomer’' life ’tage’ ‘n order to market appropriate bank‘ng product’. Thj organization mu’t look ‘nto all of thj different way’ ‘nformation about cu’tomer’ come’ ‘nto a bu’‘ne’’, where and how thi’ data i’ ’tored and how it i’ currently u’ed. One company, for ‘n’tance, may ‘nteract with cu’tomer’ ‘n a myriad of different way’ ‘nclud‘ng mail campaign’, Web ’ite’, brick-and-mortar ’tore’, call centre’, mobile ’ale’ force ’taff and market‘ng and adverti’‘ng effort’. ƀolid CRM ’y’tem’ l‘nk up each of thj’e po‘nt’. Thi’ collected data flow’ between operational ’y’tem’ (like ’ale’ and ‘nventory ’y’tem’) and analytical ’y’tem’ that can help ’ort through thj’e record’ for pattern’. Company analy’t’ can thjn comb through thj data to obta‘n a holi’tic view of each cu’tomer and p‘npo‘nt area’ where better ’ervice’ are needed. For example, if ’omeone ha’ a mortgage, a bu’‘ne’’ loan, an IRA and a large commercial check‘ng account with one bank. CRM it’elf i’ not a technology, even though technology i’ required to enable CRM, technology make’ it po’’ible to ‘ntegrate thj large volume’ of cu’tomer ‘nformation that are required for CRM, and to efficiently tran’form thi’ ‘nformation ‘nto u’eful knowledge. Technology al’o enable’ a company to ‘nteract with it’ cu’tomer’ ‘n way’ that provide value to thj cu’tomer, a’ well a’ make’ it ea’ier for thj cu’tomer to do bu’‘ne’’ with thjm. However, leverag‘ng thi’ cu’tomer knowledge to make better bu’‘ne’’ deci’ion’ and to be re’pon’ive to cu’tomer’ rema‘n’ thj re’pon’ibility of ‘ndividual manager’ and worker’ at all level’ with‘n thj company.

Achiev‘ng thj one-to-one future i’ po’’ible for e-bu’‘ne’’e’. It fir’t require’ develop‘ng and perfect‘ng profile’ of cu’tomer’. Thj analogy i’ provided of thj friendly ’hopkeeper, who, before ma’’ market‘ng, knew hi’ cu’tomer’ by thjir habit’ and life’tyle’ -- not ju’t thjir demographic’. Cu’tomer’ mu’t feel that thjy can tru’t a company. Companie’ can build tru’t by offer‘ng higher ’tandard’ of privacy (Fournier ,1998).

2.1 CRM in organizational Perspective

CRM requires that an organization view customer relationships as means to learn about customers' needs and wants and how best to create, satisfy and sustain them while concomitantly helping the organization to meet its objectives. To tailor solutions that enhance customer functionality and to determine new customer functionalities, customer intimacy and partnering are required. Networks of customer relationships involving channel members, end users, advertising agencies, research Indian firms, etc. are created and require management.

More and more organizations are turning to customer relationship management (CRM) solutions to drive revenue growth, productivity, and customer satisfaction. A great number of these organizations have achieved significant results. Genting Group, Hong Leong Bank and Malaysia National Insurance are examples of Malaysian organizations that have rolled out successful CRM strategies. However, some organizations have not achieved all of the benefits they had hoped for. Instead, they have encountered problems ranging from cost overruns and integration challenges to poor user acceptance.

Weiss notes the lack of adequate guidance in the literature about how to build these relationships. One of the researchers suggests that personalization and online interactivity can be used to help build emotional connections with stakeholders in ways that no other medium can. Other researchers maintain that the highest use of the Internet among businesses has been as a "listening" medium (Day, 2003).

The World Wide Web has evolved into a medium with various generic relationship-building attributes. The higher the quality of the information a company can capture about its customers, and the more complete the information is, the better the company will be able to use decision analysis to predict customer behavior. More targeted and customized relationship

strategies can result from better predictions of customer needs. Online CRM can enhance the value of the relationship for both customers and the e-business. Customers can receive more products and communications that are better suited to their needs and lifestyles, and the e-business can benefit from a group of high-value repeat customers(Fein, 1-8).This discussion brings forth the parameter of effective re’pon’e to cu’tomer querie’ in judging the efficiency of supply chain(Refer performance measure 4.3.1)

2.2 Current Advances in CRM

The notion that organizations have supply chains that require active management to maximize efficiency is well recognized. Indeed across a number of industries, including the retail sector, supply chain efficiency has become a dominant corporate paradigm, driving business models and at least in the short term delivering improved profitability. A researcher discusses ñcustomer drivenò logistics as an increasingly accepted concept, by suggesting that a customer approach will ensure supply chain efficiencies.

Recent events would suggest this as a fraught strategy. The notion that an effective supply chain alone will ensure adequate customer satisfaction by reducing costs and therefore prices is not necessarily an adequate model by itself. Researchers have noted in the late 1990s in an annual report the positive impact on overall profitability of its increased logistics productivity and saw this as a key corporate strategy. This reflected a business model dominated by a downstream-oriented supply chain, assuming a relatively ñsteady stateò amongst its customers. The problems that Marks and Spencer, and to a degree Sainsbury, experienced during the 1990s were not because they mismanaged the operational effectiveness of the business, but rather because they missed the shift in customer expectations and did not appear to respond to those expectations(Pieter, 2002).

Researchers add emphasis to the argument a pure supply chain focus is inadequate if we are seeking to add value for customers(Klein et al , 2005, 37).They suggest: the supply chain is a ñcustomer service-ledò process. Researchers have taken the argument a step further by looking at the demand chain as an entity in its own right, suggesting first a simultaneous standardization and differentiation in consumer preferences for products (the demand chain), and second a continued emphasis on cost minimization in manufacturing supply chains.

Unfortunately, these two are often at odds with each other(Maurino, 2006a). This is an interesting differentiation between the supply chain and the demand chain and between demand management and demand chain management (Reason, 2007). They define the demand chain as: ñThe complex web of business processes and activities that help Indian firms understand, manage, and ultimately create consumer demand.ò They emphasis the point that demand chain management attempts to analyze and understand overall demand for markets within the firm's current and potential product range.

Supply chains, by contrast, emphasize efficiencies in the production and logistics processes, while the demand chain emphasizes effectiveness in the business. A very useful point in their argument is that demand chain analysis and management helps to improve an organization's processes by aligning the organization around a common plan, improves coordination within the supply chain by using forecasts and plans, and exploits the commercial processes by understanding consumer demand and by selecting those markets that best meet an organizations, owned and/or ñleasedò, skills and resources. (://www.crmcommunity.com)

However, researchers argue that there are two significant CRM challenges faced by multi-channel businesses. First, the consistency of response from different customer points of contact with the company must be addressed. Online customers, for example, can receive

immediate feedback to their applications, questions and suggestions--but the same may not be true for customers who contact the company through a different channel such as telephone or a traditional retail outlet.

A second challenge is the need to view CRM holistically--as part of all of the organization's processes--from marketing to collections. The tendency may be to view CRM narrowly as a tactical series of transactions, but effective strategic implementation of CRM requires information from all relevant departments for the purpose of using customer information intelligently to create relationships or partnerships with customers. This discussion brings forth the parameter of -Near accurate re’pon’e to cu’tomer requirement ‘n term’ of delivery and ’ervice. (Refer performance measure 4.3.3)

2.3 Importance of CRM as a Core Business Process

Customer relationship management (CRM) is useful for businesses. It not only allows companies to retain the customer base and attract new clients, but also enables them to keep track of their performance and that of employees. Getting CRM solutions is not difficult as there are many providers in the market, but what is more important is whether they have adequately skilled CRM personnel. This is even more applicable to small and medium-sized enterprises looking at implementing CRM but do not want to incur too high a cost.

Intimate customer relationships offer the marketer several advantages. First, the relationship can create a committed customer. More than simply a repeat purchaser, the committed customer has an emotional attachment to the seller. These emotions can include trust, liking and believing in the firm's ability to respond effectively and promptly to a customer problem. Committed customers can be viewed as company assets who are likely to be a source of favorable word-of-mouth referrals and are more resistant to competitors' offers.

Second, CRM relationships provide a point of leverage to realize economies of scope. Committed customers are often more receptive to line extensions. Leveraging the customer base can facilitate cross-selling complementary products as well as "selling up" to higher quality substitutes.

Third, in recent years, CRM's potential to contain and reduce costs has been explored. CRM, in concert with other processes, can help reduce churn or turnover in a company's customer base. Better customer management can result in lower sales and service costs, higher buyer retention and, thus, lower customer replacement expenditures.As a result, key operations personnel of chemical companies (the buyers) are still burdened with the administrative elements of purchasing and payment for the products and services received. This continuing problem also affects the industry suppliers and service providers (the suppliers) as reflected in the key measure of cash-to-cash cycle time (the number of days between paying for raw materials and getting paid for product, as calculated by inventory days of supply plus days of sales outstanding minus average payment period for material) for the companies that provide the products and services.

Current research for the Indian industries indicates a median cash-to-cash cycle of 91 days for the companies surveyed and a best in class of only 33 days. While some point to the complexity of the chemical suppliers and services as a reason for such inefficiencies, other industries that require just as complex products and services such as aerospace maintain a best-in-class cash-to-cash cycle of just 18 days, while the consumer packaged goods best-in-class is 25 days. Clearly, the opportunity remains for improvement. The opportunity for implementing a comprehensive strategy, around sourcing and e-procurement is tremendous and deserves serious consideration.

2.4 CRM Is the Critical Link in Building the Supply Chain

The emergence of customer relationship management (CRM) in the chemical industry reflects a fundamental shift in doing business from a traditional seller-centric approach to a customer-centric approach(McEwen, 2002).CRM technologies are designed to enable the enterprise to more effectively manage customer relationships through every aspect of the customer's life cycle, according to the Aberdeen Group, a Boston-based computer and communications consulting and market-research firm, which recently published a report on the CRM market(Kale, 2005).

The major components of CRM are marketing automation (MA), sales force automation (SFA) and customer contact center technologies and customer service. The CRM market has seen dramatic growth over the past year, and this is expected to continue. The total CRM market grew to more that $8.07 billion in combined investments in CRM application software and related integration, hardware platforms and networking in 1999, according to the Aberdeen Group. This investment in CMR represents a growth of more than $2.4 billion from 1998 and a growth rate of more than 43 percent in combined CRM market expenditures. This year, the Aberdeen Group projects that the market will increase 35 percent to $10.9 billion and increase to $14.4 billion by 2001, $18.6 billion in 2002 and $24.0 billion in 2003 (Self, 2004).

One key growth area in CMR is marketing automation (MA). "MA has evolved significantly as a segment from a year ago, when most of the category was defined by Internet-based campaign management tools and the latest evolution of data mining technology. MA includes tools that manage the development and distribution of collateral and unstructured

information sources and makes this information available to users via Internet and intranet sources (Nicole, 2003).

MA also includes campaign management tools that incorporate multiple communications channels, including the Internet, e-mail, and telephony-based call centers as well as traditional print-based media. MA also includes personalization tools that analyze user behavior on a Web page or purchasing and transaction histories online and then develop "offers" to the customer based on this personal history.

Aside from MA, this past year has seen the mergers of several new or emerging CRM technologies and applications--solutions that are designed to address specific areas of functionality and that expand the role that CRM can play in the enterprise. Partner-relationship management (PRM), personalization and CRM-centric analytic tools are examples of technologies that expand the scope of CRM. Other technologies, including the enterprise personal digital assistant, mobile commerce (m-Commerce), wireless application protocol (WAP) devices and handheld devices, are becoming critical components of enterprise-wide CRM and e-business (Foreshew, 2007).

2.5 Managed Care and CRM

CRM has long-term potential to transform payers' relationships with brokers and employers, providers and members. The landscape is changing for everyone in the healthcare equation: payers, brokers, group administrators, providers and members. Rising costs, coupled with the growing shift to defined contribution plans, has put competitive pressure on payer organizations. As more consumers become empowered to choose plans and financing options, the healthcare industry will need to raise the bar for customer service. (Gentle, 2003, 40)

The onus lands squarely on the payer, who counts brokers and providers as customers, as well as members. As a former healthcare executive on the payer side, I am aware of the delicate

balancing act required to manage relationships with each constituency, where executing strategies to build customer satisfaction in one group could alienate the other. Driving customer relationship management (CRM) success across all customer entities is an important strategic goal for payers. The question is--how? The short answer is--constituent-specific CRM strategies deployed in phases with an interim goal of establishing the basic CRM framework.

The end goal, of course, is to provide superior member services. Healthcare consumers today have unprecedented access to information about healthcare options and an annual opportunity to shop for health plans (Gentle, 2003). To remain competitive, healthcare payers and providers must deliver value over and above price--and they must market directly to members. This discussion brings forth the parameter of - Onl‘ne Order Book‘ng (Refer performance measure 4.3.2) in measuring the effectiveness of CRM solutions to enhance the efficiency of supply chain.

2.6 A CRM Framework

When we think about CRM software for one-to-one membership marketing, we envision Amazon-like push technology that reflects knowledge of the customer (Mims & Julian, 2007). In an ideal scenario, when a member signs onto a payer's website or calls into a call center, we would know what plan they are on, what coverage they have and what health issues concern them. We would also maintain this level of information for covered members of their family.

Reaching this ideal will be a challenge for healthcare, which remains largely a transaction-based industry (Reason, 2006). We love to identify people by a number and measure everything in terms of per member, or employee, per month. Administration costs, revenue, claims costs and number of claims are expressed as per member per month (PMPM). How do we shift from thinking about transactions to thinking about relationships? A well planned and executed CRM strategy helps payers focus on the member in PMPM (Nicole, 2003).

To build customer data into the business of healthcare, we must first establish a CRM framework of automated data flows that capture the information we need and automated workflows to establish the mechanisms required to deliver higher service levels. A successful CRM strategy with a diverse customer constituency takes place in phases. The initial phase typically automates data flows and workflows for a payer's internal organizations: marketing, sales and underwriting (Harle, 2007). The follow-on phase typically automates data flows and workflows for the customer constituents who function as the payer's partners: brokers and providers. With this framework in place, payers have the momentum and infrastructure to push out tailored, value-added services to members (Mims & Julian, 2007).

A good CRM framework facilitates the capture of information and its dispersal in discrete components to relevant payer organizations. A good CRM framework captures complete, accurate information for:

- Underwriting to make risk assessments and generate quotes;
- Sales and marketing to make accurate forecasts and precise target marketing campaigns;
- Customer service to provide better service to members, providers and brokers.

It finds efficiencies and determines the degree to which processes can be automated and costs cut. The final role of the CRM deployment--where one-to-one marketing is put into play--is

to facilitate the use of both push and pull technology to manage interactions with the payer's diverse group of constituents (Paddison, 2004).

Let us examine the data capture, process automation and push and pull technology enabled by a sophisticated CRM solution for a payer's three key customers: brokers, providers and members. This CRM technology has been deployed in healthcare on an Internet-architected platform with separate views of the application for a payer's employees, brokers, providers and members.

2.7 Broker Relationships

CRM applications automate prospecting, quoting and group enrollment processes for brokers and integrate their activities with the payer's inside sales group. Data about members are captured early in the process, when brokers submit group census data to obtain a quote. Underwriting processes the information in a ratings engine to compute a risk profile, which determines the cost of the plan the broker will quote. Marketing uses the data to tailor campaigns when renewal dates come up.

A particularly innovative use of CRM technology can be found at UPMC Health Plan, whose Web-based system incorporates a customized rating wizard for the broker network that uses familiar "next/next/next/finish" screens to greatly simplify processes (Cacciabue, 2006). Using Web-based CRM, brokers go online to obtain instant quotes, choose plan types, manage sub-brokers, communicate plan information and initiate the group enrollment process (Gentle, 2003). A UPMC sales representative is automatically assigned according to market segment and territory to support each broker sales opportunity. Tasks are automatically assigned for each step of the process (Paddison, 2004).

2.8 Provider Relationships

Data captured about providers typically focus on credentialing information: specialties, degrees, professional certifications' and board accreditations. The data are used by marketing for promotional purposes and by management to ensure that providers' qualifications are up to date.

A Web-based CRM system puts this process online, where providers use online forms to update their profiles (McAvoy, 2005). When specific credentials are in danger of expiring, alerts are automatically sent to payer management and to the provider. The key focus for process automation on the provider side is verification of plan coverage for patient procedures. This information is maintained online in member and group profiles, eliminating the need for staff to call the payer and streamlining the process for determining eligibility (Krell, 2005).

Providers also go online to see the most updated fee schedules for specific procedures. Data from customer satisfaction surveys pulled from members are pushed to providers to drive quality care. Information about new medical procedures and therapies can also be pushed to providers.

2.9 Member Relationships

Web-based CRM allows members to enroll in new plans online with a secure PIN number and provides another key point for data capture. After entering basic enrollment information, members can identify areas of particular interest (for example, women's health, controlling asthma, sports medicine) and grant permission to receive updates on topics of interest (Gentle, 2003).

During enrollment, member-specific information is captured for use by marketing and product development, and by actuarial and medical management. The CRM system ensures that

the original census data matches that of the actual enrolled members (Helmreich, 2007). Creation and mailing of identification cards and benefit materials--including summary plan descriptions and network provider lists--are automatically initiated with an e-mail to the fulfillment organization. The member, group and broker profiles all reflect the now-active benefit plan, which ensures that customer service has complete and accurate information to answer questions.

Web-based CRM technology helps payers cut costs and manage interactions across its diverse customer constituency. During the initial phase of CRM deployment, the focus is on data capture and process automation (McAvoy, 2005). Then, push and pull technology can be employed for more sophisticated marketing and more personalized customer service. Only a few innovators in the healthcare industry have gone beyond the initial phase of CRM deployment and are using it for one-to-one marketing, but their numbers are increasing. CRM will fulfill its promise for delivering superior membership services. However, we can't leap-frog the establishment of the CRM infrastructure required to make it happen.

2.10 CRM in the E-business Environment

Emerging technologies offer companies the potential to improve their ability to attract and retain customers, capture more information through the online channel than through any other customer contact point, and practice effective CRM. One of the researchers suggests that the appeal of CRM remains largely out of reach for a large number of businesses. According to supply chain experts, some CRM experts argue that there is little consensus about what CRM actually is, or how to best execute or measure it.

It is a fact that a companyôs CRM readiness is a function of having:

1) A way to track customer information;

2) Metrics--a means of evaluating customer performance; and

3) The ability to impact change.

The industries that tend to be more CRM--ready are those which are aware of distinct contact with the customer and those which are really competitive, thus requiring individual companies to differentiate themselves significantly. Examples include, but are not limited to, the airline, manufacturing, hospitality, financial services, telecommunications, publishing and tobacco industries (Amalberti, 2006).

One of the Indian firms, which also issue the credit card, went from startup to superstar status in only five years. This was due largely to a massive CRM program that "allows the company to nurture its customers and to deliver the right product (credit or add-ons, including insurance, long-distance service, and catalog clubs) to the right customer just when he/she needs it -- even if he didn't know beforehand that he did". (www.smeal.psu.edu)

Other companies are becoming effective at CRM, including TATA Group, with its personalized Web pages, with its unique service for preferred customers. Other examples include Golden Books, which used online sampling to develop its new series of print/web research guides, and R.J. Reynolds, which builds customer appreciation and brand loyalty by sending birthday cards and a quarterly newsletter to Doral smokers.

Many Indian firms, however, have been lax in implementing CRM. Lord states that the key word in CRM is still "relationship". Quality products, twenty-four hour accessibility, easy ordering, removal of geographic boundaries, on-time delivery and responsive service are what customers want today. According to a research, up to 42% of top ranked Web sites took longer than five days to respond to a customer inquiry, did not accept e-mail or never responded at all. (www.rmdonovan.com/pdf/perform.pdf)

Another mistake is failing to consider the "lifetime value" of a customer. Companies must be willing to treat different customers differently. For example, TATA Group of companies in India offers different priority upgrades for its platinum and gold customers. Many companies just have not been tracking their customers. Still others have either taken too long to start up their CRM programs or have been discouraged by overestimating what is needed to begin one. Davids recommends "scoring early, quick hits" and indicates that TATA Groupôs database of 26 million customers was built in only five months. In addition, he suggests using whatever data and information technology capabilities the organization already possesses to begin the CRM process. (BPR & Organizational Culture, 2007)

2.11 SCM in Organizational Perspective

Supply Chain Management is the management of the entire value-added chain, from the supplier to manufacturer right through to the retailer and the final customer. SCM has three primary goals: (Taschek, 2007). Reduce inventory, increase the transaction speed by exchanging data in real-time, and increase sales by implementing customer requirements more efficiently. In SCM-focused organizations, procurement is typically an adversarial process. Suppliers are pressured to produce high margins by customers. This is often necessary to hedge against the risk of markdowns should sales forecasts not be met. The DCM-led organization uses market knowledge to develop strong working relationships with suppliers. Given a precise understanding of customer needs (and market trends) it is possible for the procurement process to work with design and development to develop optimal solutions to product and process development options (Krell, 2005).

As research suggests, it is also very likely that web-based ñbuying exchangesò will be developed with competitors. These often result in joint activities that extend into shared components and manufacturing. The automotive industry offers examples of this.Operations processes also differ. For both production and distribution the SCM organization favors a cost/volume driven approach. Given a product range, the optimum costs are realized when specific ñrunsò can be made against sales forecasts and the finished product sold from inventory. As Figure 1 suggests there are problems with this approach, particularly if the forecasts lack accuracy or if some unforeseen event occurs.

Demand chain-led organizations adopt more flexible structures, typically minimizing downtime by adopting agile manufacturing and QR (quick response) distribution systems. DCM companies often use a build-to-order (BTO) system (and usually not manufacturing unless all or part of the payment has been made), thereby removing the risk of discounted sales to clear inventory. Working closely with both customers and suppliers concurrently can also avoid the risk inherent in the build-for-inventory (BFI) systems (Krell, 2005).

Marketing as a process is also different. The volume bias of the SCM model will often favor price as a primary marketing tool. This is understandable in markets such as fast moving consumer goods (FMCG) where often there is very little scope for differentiation and even where retailer dominance may pressure suppliers for price led promotions. A demand chain-led approach has more flexibility. Usually the decision has been made as to the extent to which price is part of an overall ñvalue packageò and this is a result of a comparison of competitor value offers. Value-in-use plays an important role in setting price in this organisation because it is usual to consider how these organisations also consider involving partners in their value propositions. (hops.wharton.upenn.edu)

The essential differences between service processes are that SCM organisations, being cost-efficiency focused, apply this attitude to customer service, including service as a necessity rather than as a feature that in itself may attract customers. Additionally the SCM organisation tends to feature logistics service as the primary service focus. Demand chain management-led organisations embrace all aspects of service in their view of customer service. Service propositions may be as important as product propositions, giving a richer emphasis to the overall value proposition. The interesting feature that often distinguishes demand chain-led organisations is their response to value migration (Johnston, 2007).

Researchers suggest that this is a feature of the current business environment. It is the notion that the added value created in a demand chain/supply chain structure can be seen to move. For example, the added value within the automotive industry has shifted in two directions in recent years, leading to a move by the industry away from vertical integration towards virtual integration. Production was once seen as the focal point of added value creation with attractive returns on investment from vertically integrated structures. Product platforms built around buying exchanges, assemblies and modules, have resulted in value migrating backwards in the supply chain towards the component manufacturers, and forwards towards marketing and service processes.

This is reflected in the Ford and GM structures that have emerged in recent years. The effective CRM practices involves the information about the linkages that are predominantly supplier and customer-based. There are tentative linkages between the two. By contrast, in the demand chain-led business there is an overall relationship management process that creates a flexible structure capable of responding to market shifts in added value opportunities.

Customer relationship management is an essential requirement for success. But differences are apparent between supply chain- and demand chain-led organizations.

The demand chain-led business structure is essentially proactive, responding to changes in consumer and market expectations (Champion, 2001), possibly developing them. This will invariably involve working with customers as they identify and crystallize their product-service needs. It often requires coordinating both customer needs with supplier capabilities to achieve a cohesive as well as an optimal solution to customer product-service needs. (knowledge.wharton.upenn.edu/papers/755.pdf)

Collaborative technologies like the workplace blur the boundaries that define the enterprise, its supply-chain partners and its customers, and those that define ERP, customer relationship management (CRM), and SCM technologies. However, in a collaborative world, these technologies have not become obsolete. Rather, they are the cornerstones and solid foundation for successful e-business implementation. Workplace and other collaborative technologies provide the missing pieces to individuals who participate in both new and existing business processes.

This current process seems collaborative, but information technology support is only cooperative. Working on the honor system, the receiving company accepts the sending company's assertion that delivery was made on a particular day and settles the bill at the end of the month. Later on, someone compares the company's receipts with the sending company's deliveries. This process, done by hand, is tedious and must be performed by each company that engaged in any activity, either sending or receiving product.

The collaborative process must be totally supported by a similarly collaborative e-business infrastructure. An independent third party collects the notes of delivery. At the end of

the month, an automated, rule-based clearing process for all of the bills clears the transactions. The workplace also supports the parties to the transactions as they work together collaboratively to clear the accounts. The current status of transactions that are in dispute is transparent to all parties. The collaborative process is much faster and more responsive. Many companies work together as if they were one.

2.12 CRM: Ready or Not?

One of the biggest myths about CRM is the idea that any company can embrace it and expect results. Well, that's like thinking anyone can run the New York Marathon. Depending on the physical readiness (in terms of weight, training and endurance), the company could be months or years away from even entering, let alone completing, the race. Similarly, a minimum "organizational readiness rating" (in terms of customer, process and systems maturity) must be in place for CRM to happen successfully (Lochridge, 2006).

Since CRM is about identifying, retaining and increasing the profitability of the company best customers, something every business under the sun ultimately wants to do, it seems like the last question the organization want to ask is whether CRM is for the company. Unfortunately, because the company has only a one in five chance of success, and simply attempting the feat will cost $5 to $15,000 per user per year; the company want to be very sure the company can answer this question (Young, 2006).

The company should be looking at CRM only if the company have a large number of customers (say, more than 5,000), the typical customer is worth a lot in terms of profits, and the company have a large sales staff trying to sell complex, customized products in multiple channels (see quiz, next page) (Young, 2006). If not, then the costs and disruption that CRM

entails won't be worth the benefits, and the company should look to process improvements and simpler tools like contact managers or Web-based application services. The key to CRM success is to analyze the company's maturity in four areas: customer focus, process, systems and people.

2.13 Customer Maturity

Most companies have a very good idea of what it costs to build and ship a product or create a service and the overall revenue generated. But a customer-focused company wants to know the following:

- Who is likely to buy a given product or service? The answer would enable us to target prospects with a similar profile and convert them to customers.
- Why do customers leave for the competition? The answers would enable us to fix the associated problems and to identify other customers facing similar issues and prevent them from possibly leaving as well.
- How do customers actually use a product or service, and what's the nature of their interactions with the company? The answers would enable us to identify opportunities for cross-selling and up selling (Bird, 2005).

Customer maturity is therefore a measure of how far a company has evolved from a product-based model (moving products out the door at minimum cost) to a customer-based model (who's buying our products, why do they like us, how can we measure satisfaction, why do they leave, and how can we sell them more?). (Lochridge, 2006) Companies with a high level of customer maturity try to identify the most profitable customers, quickly answer customer questions and even talk to ex-customers to figure out why they left (Coffee, 2005).

These are steppingstones to CRM and could result in IT systems such as a data warehouse, sales force automation, a marketing information system and a one-stop call center (Coffee, 2005). But each of those evolutionary steps can take six months to two years or more and cost millions of dollars in the process. Therefore it can be stated that the higher the level of customer maturity; the lower the barriers on the road to CRM.

2.14 Process Maturity

The ease with which CRM tools and technology can be absorbed into the enterprise is directly dependent on how mature the processes are in the customer-facing functions of sales, marketing and customer service.

Consider the field of software engineering, where it became readily apparent that the ability of an IT organization to absorb computer-aided software engineering tools was directly dependent on the IT department's process maturity (Young, 2006). This led to the famous process maturity levels defined by Watts Humphrey of the Software Engineering Institute:

Level 1: Processes are "anything goes" and lack even rudimentary predictability of schedules and costs.

Level 2: Processes are stable and repeatable. There's rigorous management of commitments, costs, schedules and changes.

Level 3: The organization has defined the methodology and can consistently apply it with standard metrics. At this point, advanced technology can usefully be introduced.

Level 4: The organization now has a foundation for continuing process improvement.

It doesn't take much imagination to see that those maturity levels could apply equally well to processes like sales, marketing and customer service. Customer service and order management departments are by definition process-oriented. Sales and marketing departments, however, are notorious for their lack of process. It's routine for marketing departments to have little or no idea of campaign effectiveness(Young, 2006). As for sales reps, they're inherently individualistic and averse to rules -- what counts is closing the deal; the "how" is secondary. Between first contact with a prospect and the closing of a deal, black magic is alive and well! So this is an enormous opportunity to improve sales and marketing processes.

A maturing sales and marketing department is focused on metrics such as the sales lead-to-close ratio and the sales cycle duration. Such metrics are inextricably linked to CRM and could result in IT systems such as sales force automation, an order configurator and interfaces between systems to eliminate the rekeying of information (Bird, 2005).

Companies not yet at the repeatable process stage will find it extremely difficult, if not impossible, to implement CRM software, for the simple reason that there are no processes to automate! Instead of jumping into the deep end of CRM, they should instead concentrate on defining their basic processes and gradually automating those processes (Krill, 2006).

2.15 Systems Maturity

Systems maturity is a measure of how far a company's systems have evolved to reflect its level of customer and process maturity. The most important measurement of systems maturity is the evolution from islands of automation to integrated systems that share and pass information

across functional boundaries. A company with a low level of systems maturity would have completely disparate systems -- and no information-sharing -- for sales, orders, delivery, billing and customer service. An intermediate level of maturity would have interfaces between some of those systems, some information-sharing and a partial view of the customer's lifecycle activity.

At the highest level of maturity, there's full information-sharing and a full view of the customer and interfaces to back-office systems. Plus, decision support becomes part of the landscape, with transactional data consolidated to form a data warehouse (and possibly spin-off data marts) (Krill, 2006, 37). The growth in systems maturity is a long-term process, with key interfaces and a data warehouse taking up to two years or more to accomplish. But these are the building blocks for CRM. This discussion brings forth the parameter of - Flow of cu'tomer requirement acro'' thj 'upply cha'n /service. (Refer performance measure 4.3.4) in measuring the effectiveness of CRM solutions to enhance the efficiency of supply chain.

2.16 People Maturity

Last but not least, let's not forget about people, without whom no process or system is going to work anyway. People aren't going to spontaneously embrace CRM; they have to be motivated to do so. Students of psychology and motivation know about Maslow's triangle, which explains how motivation is based on personal and environmental prerequisites, called the "hierarchy of needs" (Seminerio, 2000).The company can't ask people to embrace concepts like achievement and status (esteem) if they haven't got the basic prerequisites of food and shelter (physiological). Similarly, it would be a mistake to assume that people will be naturally motivated to embrace CRM just because it makes sense and is good for the customer and the company. Certain personal and environmental prerequisites will also therefore apply.In the CRM hierarchy of needs, people will be more likely to be motivated to take up CRM if their job

descriptions are relevant to it. This would then be made even easier if they're generally satisfied with their careers, benefit from a good working environment and don't have to worry about losing their jobs (Seminerio, 2000).

In-depth insight into the functioning of any process occurs only when it is deaggregated into its constituent subprocesses. Each subprocess illuminates some aspect of how the process functions. For example, each of the core operating processes--product development management (PDM), supply chain management (SCM), and customer relationship management (CRM)--might be divided into a sequence of subprocesses that furnishes considerable detail on how specific subtasks within the process are executed. To cite one illustration, in the case of the supply chain management process, the subprocess, "selecting and qualifying desired suppliers," requires the careful delineation of the subtasks involved in selecting and qualifying desired suppliers. These subtasks might include: identifying the population of candidates; stratifying the population using predetermined criteria; collecting preliminary secondary data on many candidates; collecting primary data from selected candidates; developing choice criteria to assess candidates; collecting supplementary data on candidates that survive the first assessment; assessing candidates' organizations; testing candidates' offerings; choosing preferred suppliers; and so forth. The subprocess, collecting preliminary secondary data, could be further subdivided into more microprocesses around the following tasks: identify potential data sources; categorize data sources; screen data sources; identify data categories; collect aggregate data; collect detailed data; order data into meaningful information (Harris 2001).

2.17 Interaction among and integration of processes

Sub processes are frequently linked directly to one another: completion of the task that is the focus of one sub process leads directly to the task inherent in the next sub process. Thus, in

the case of SCM, the sub process, "establishing and managing inbound logistics," connects directly to "designing and managing internal logistics." For example, arrivals of trucks at the firm's manufacturing plant carrying raw materials, components, and supplies must be coordinated with the plant's input inventory acquisition, storage, and allocation. Sub processes, of course, as this example illustrates, also directly connect to external entities such as suppliers, channels, end customers, technology sources, and governmental agencies (Arnum, 2000). This discussion brings forth the parameter of - Cu'tomer feedback and uformation acro'' thj 'upply Cha'n /ervice. (Refer performance measure 4.3.5) in measuring the effectiveness of CRM solutions to enhance the efficiency of supply chain.

2.18 Implications of e-business

The importance of e-business for processes now becomes clear. It provides the electronic means to enable connections among and between processes to take place in fundamentally new ways and at such speeds that it literally opens up the ability to radically reconfigure each core operating process, to create new sub processes within each core operating process, and to enable new modes of integration across the operating processes. Indeed, it seems fair to suggest that e-business requires managers to think about core operating processes in fundamentally new ways. The guiding premise underlying this Research is that KM facilitates and guides such thinking by serving as a means to designing, managing, and learning from these new forms of e-business-driven processes.

2.19 E-business-driven operating processes

Let us cite merely one other mode of analysis employed by some firms to create and share competitive context knowledge. A group can take any one of the operating processes as its

point of departure and then identify and assess how different firms employ e-business to transform the process. For example, with regard to the PDM process, extensive data and information could be developed and shared pertaining to:

* The stages (or subprocesses) in each firm's current process

* The timing and speed of movement data/ideas through the stages

* Connections between specific internal individuals/groups and external parties in each stage

* Degree of interdepartmental or cross-subunit collaboration in each stage

* The bottlenecks evident throughout the process

* Linkages to SCM and CRM processes

It typically becomes necessary to develop a knowledge map: "who knows what about individual processes and connections among them." Such knowledge maps go beyond the functional roles typically identified in process flow diagrams. For example, they can include descriptions of the nature and quality of the relationships (know-what) between internal units involved in executing adjacent tasks, for example, between order takers, order processors, and service deliverers within CRM. They may also describe the history (know-what), nature (know-how), and rationales (know-why) for the interactions between firm subunits and customers and other entities in the value net.

Consider, for example, one financial service firm's efforts to redesign its CRM. Rather than merely redesign the existing stages in the process, it began by asking how a customer would focus, that is, they envisioned the customer at the center of every process stage or subprocess and designed a "customer-centric" customer relationship management process as a result. It thus asked two core knowledge questions. What knowledge would it require about customers (their

needs, their buying preferences, whether and how they would like to partner with suppliers, etc.)? In which ways would customers prefer to interact electronically with their suppliers or partners (the information technologies they feel comfortable with; the types of data and information they would like to receive)?

A major knowledge consideration often surprisingly neglected even in generating de novo process designs concerns the ability of the newly designed process to generate new and useful knowledge for the organization. Electronic connectivity inherently allows and supports two-way flows of data and information. Thus, a knowledge imperative in thinking through potential designs for PDM, SCM, or CRM, and especially interaction across them, is to address how e-business connections can enable collection and analysis of external data, and then how such data and information can be leveraged to enhance and sustain customer value. The ideal outcome of such attention to developing new know-what, know-how, and know-why is that the firm transforms its relationships with customers, and not just the tasks and their interaction within the newly designed process.

2.20 Choosing the outlines of preferred operating processes

E-transformation of core processes occurs over time. At its core resides a perspective or vision of how the processes will function to generate and deliver real customer value. Unfortunately, if such perspectives or visions remain largely tacit in the heads of key executives or groups charged with overseeing the e-business transformation of core operating processes, then others cannot reflect on, challenge, and refine the knowledge required both to develop and execute the intended process transformation. It becomes especially necessary to do so because the greater the degree of intended process transformation and the greater the change in desired

customer experience, benefits, and involvement, the more likely that the organization is in effect creating a new business model. And, the discussion above highlights the two critical but highly interrelated elements of the business model: a new way of winning and retaining customers (through new forms of customer value generated through electronic connectivity) and a new way of organizing itself to do so (the transformation of core operating processes). The strategic importance of choosing and committing to a preferred e-transformation of core operating processes suggests the need to be especially vigilant in articulating and assessing the knowledge (the know-what, know-how, and know-why) that underpins the acceptance of one process direction rather than others.

Consider the role and importance of a number of knowledge issues now being tackled by some leading-edge firms as they seek to choose a "preferred direction" with regard to how best to integrate SCM and CRM. They are trying to figure out how to bring the traditional "planning" aspects of SCM--connecting the linkages in the supply chain--into direct contact with steps in the CRM chain and to do so in as close to real time as possible. For example, as CRM influences customers' choices through its connectivity to individual customers, information about desired product characteristics needs to be linked to stages in the supply chain--acquiring raw materials, manufacturing specific products, physical distribution, etc. Part of the promise promulgated about integrating SCM and CRM over the last year or so has been the potential emergence of "real-time visibility" in the form of almost instant transmission of required data throughout the electronically linked world of SCM and CRM. But the real excitement has swirled around the promised emergence of "intelligence response systems" to decide and respond automatically to the changing market conditions conveyed by CRM-generated data. Indeed, some firms now

believe they are well on the road to collaborative planning, forecasting, and replenishment (CPFR)--a projected form of real-time integration between SCM and CRM.

While such "self-organizing supply chains" remain as yet more aspiration than reality, they indicate the importance of the need to identify, clarify, and assess the fundamental know-what, know-how, and know-why associated with their potential emergence. To emphasize merely one facet of know-how, consider the human issues involved in CPFR. The "collaborative" aspects of CPFR raise all the difficulties that organizations traditionally encounter in managing the human side of introducing new technologies, not to mention radically transforming how work gets accomplished as part of core operating processes. Social network analysis can help identify who talks to whom and who should talk to whom, as one means to determine who should be involved in face-to-face interaction to oversee development and deployment of the electronic links mandated by CPFR. As these individuals assess the need for and potential of CPFR, they can create a knowledge repository to enable others (as well as themselves) to access the know-what, know-how, and know-why they create. one element of the repository might be descriptions of best practices (a combination of know-what and know-how) obtained through visits to other firms or through third parties such as consulting firms or technology providers. Their assessment of why different (potential) elements of CPFR do work or might not work (know-why) become essential to understanding judgments and inferences about recommended (or rejected) action plans.

As customers become more and more part of the collaboration at the heart of CPFR, and other e-business-driven process changes, then issues concerned with developing and enriching human relationships with individual customers, and not just two-way data and information transactions, must take center stage. The human side of these customer relationships thus begs

for attention to "touch" and "trust." KM methods that allow interaction across company boundaries such as many forms of communities, involving different types of interaction, enable a cross-section of employees to deal face-to-face with customer personnel, sometimes over considerable periods. Even with consumer goods firms, such may be the case. one firm has begun to develop communities of consumers around a set of interactive technologies that also allow verbal interactions and get-togethers on special occasions.

2.21 Transforming CRM

Let us examine how the customer relationship management (CRM) process has changed with the emergence of a networked economy by comparing two very successful companies--Compaq Computer Corporation in the early 1990s and Dell Computer Corporation in the late 1990s. The discussion here illustrates the role and importance of the four central questions noted in the previous section. This discussion of Compaq and Dell marketing and business practices is based on information in the business press. There has been an extensive discussion of Dell's direct business model and the difficulties faced by firms with more traditional models (such as Compaq) in copying and/or responding to Dell's competitive advantage. Finally, the strategy discussed here for each company is for illustration purposes, and may not represent the company's current business strategy.The CRM process has two fundamental objectives: customer acquisition and customer retention. The "traditional" CRM process, emphasizing a sequence of interrelated tasks, is illustrated in Figure 1. Customers initially are attracted through advertising and promotions. These communications activities result in the development of brand awareness and associations. Brands that are successful in these dimensions enter a person's consideration or choice set via two means--top-of-mind awareness (or evoked set) or deals and pricing incentives. Customers choose from among these alternatives based on perceived value determined by a

brand's benefits relative to its price. Subsequent repurchase is based on product performance (was the advertised promise delivered?) and support services (Lamont 2005).

2.22 E-business-based customer value

How is the Dell online CRM process different from the traditional CRM approach? It affords a faster and closer relationship between Dell and its suppliers and customers. If problems develop (say) due to defective components, Dell is able to respond quickly. Further, its direct communications links to its suppliers result in problem resolution and prevention of future problems. By virtue of direct contact, Dell has better customer knowledge. This can be leveraged into additional business benefits such as development of cross-selling programs, integration of customer inputs in the design and delivery process, and the like. (M2PressWIRE, 2006)

2.23 Role of KM in transforming Dell's CRM process

Dell has developed several approaches to capture, disseminate and leverage marketplace knowledge to transform CRM and its performance. As we shall see, these approaches rely on development and sharing of knowledge, both internally (with employees across operating units and levels) and externally (with suppliers and customers) (M2PressWIRE,2007, 65).

2.24 From connectivity to knowledge in use

Dell accumulates data on frequently asked questions (FAQs) and frequently cited customer problems. Again, it transforms such data into shared know-what (common elements in the questions and problems), know-how (how best to deal with the issues surfaced by the questions and problems), and know-why (why providing help to customers is important). Such

knowledge in turn informs PDM subprocesses: what aspects of functionality need to be addressed; how reliability might be enhanced; and which features might be added or downplayed. Sharing such knowledge enables Dell's front-line employees in CRM to resolve customer concerns in real time. Moreover, such knowledge serves as a crucial input to multiple forms of electronic interaction with customers: the help desk, discussion forums, access to self-support tools, and trouble-shooting flowcharts. These self-help mechanisms take advantage of networked knowledge.

The foregoing discussion suggests a number of knowledge-driven initiatives or projects that senior managers can direct to enable e-business transformation of operating processes. From a KM perspective, many of these initiatives can, and perhaps should be, executed simultaneously: they become means to generate, share, and leverage e-business-related knowledge throughout the organization.

First, develop a knowledge project to review and assess the extent to which KM, by design or unwittingly, is contributing to the e-business transformation of operating processes. It is usually necessary to develop a community of interest around this type of "high-level" knowledge project. Such projects typically necessitate the guidance of one or more individuals skilled in the art of generating and disseminating knowledge.

A related knowledge initiative involves detailing the data and information flows around ideal or desired operating processes. A group of individuals, preferably with wide representation across the key functional areas and disciplinary silos, literally designs e-business-transformed core operating processes de novo. In one company, this knowledge initiative quickly demonstrated that each core operating process had to begin and end with customers: each process would be a series of electronic data flows, often occurring in real time, or close to it. It became

clear to the team involved that the traditional notion of a process with clear delineation and distinction between inputs, transformation, and outputs was a relic of pre-electronic times. This learning and its implications, of course, reflected significant new know-what, know-how, and know-why.

A different form of knowledge initiative finds many firms developing deep pockets of expertise around e-business, examples of which were discussed earlier. Indeed, it is becoming increasingly necessary to develop such expertise in two related ways: expertise relevant to the functional tasks inherent in traditional departments or units (such as marketing, manufacturing, human resources) but also expertise that focuses on the integration of such functions or tasks across traditional operating processes such as PDM, SCM, and CRM. In either case, it has become necessary for many managers and others, both within and outside the pockets of expertise, to embark upon extensive self-learning: to continually develop their own understanding of e-business and its implications for operating processes, their own areas of specialty, and indeed, their day-to-day job.

Supply Chain Management solutions

Today's supply chain management (SCM) environment is defined by rapid change on a global scale, as expanding competition, shorter product lifecycles, demand-driven supply networks (DDSN), and the emergence of increasingly complex, distributed business models has forever changed the way companies do business.

This environment has made excellence in supply chain execution (SCE) a critical factor that separates market leaders from those that follow. The emergence of radio frequency identification (RFID) technology promises to further distance leaders from followers as forward-

thinking companies embrace RFID as an enabler of real-time, sensor-based supply chain execution (Zuidwijk 2004).

While many companies have the strategic intent to drive value creation through supply chain management strategies that lower costs, increase efficiency, and enhance customer service, many fail to bridge the gap between opportunity and real-world supply chain results. Those that are successful realize that the dynamics of the 21st century supply chain require a new approach to execution - one designed to address both the enterprise and network complexities of today's supply chain ecosystems.

Supply Chain Management solutions include: (Computer Weekly,2003).

* Supplier Enablement
* Fulfillment Coordination
* Returns Management
* Field Service Logistics
* Warehouse Management
* Shipping Execution

Supply Chain Management (SCM) survey solutions help you:

* Gain more accurate, timely, and detailed visibility into supply chain operations and supplier performance
* Create more accurate procurement and inventory plans
* Streamline supply chain operations
* More effectively recognize, reward, and coach suppliers for outstanding performance
* Strengthen your firmôs overall position in your supply chain.

For suppliers whose feedback indicates they need immediate attention, SCM solutions can notify the right people on your procurement staff through real-time alerts for immediate follow-up, use Action Management to open cases with an assigned manager and deadline, or both.

SCM solutions correlate detailed supplier performance measures such as shipment timeliness and accuracy with outcome measures such as overall satisfaction and willingness to recommend, so you can focus procurement efforts in the areas and on the suppliers that will have the greatest positive impact on your bottom line.

SCM solutions will work with you to design the most cost-effective SCM feedback solution for your organization and supply chain. For example, if your enterprise has a very large number of suppliers, SCM solutions may include a census of the largest 2o% of your suppliers that in aggregate represent 8o% of your purchasing budget, and a statistical sampling of smaller suppliers (Kilpatrick 2001).

SCM solutions ensure that your survey solutions:

* Contain the right performance metrics for your organization
* Conform to rigorous design principles
* Conserve and optimize suppliersô and customersô time in providing feedback
* Integrate seamlessly with your IT systems
* Deliver secure results that are immediately actionable to the right individuals.

2.25 CRM as Application

ERP and CRM are buzzwords with both a past and a future. ERP, enterprise resource planning, got on everyone's radar screen as a way to provide companies with an integrated suite of applications to tie together a wide range of disparate back-office functions and information. It

was the corporate "killer app" of the early to mid-199os. Customer relationship management, which evolved over many years from less capable and more narrowly focused sales automation and customer service applications, emerged more recently as a killer app in its own right -- by some accounts the fastest growing software category today. Indeed, some pundits see it as not merely a category of software but as a business philosophy -- a commitment to better link organizations with the source of their income. In fact, the reach being granted CRM is one factor impelling a matching rush to connect and integrate CRM functions with all the power latent in information living within established ERP systems.

But that lofty goal for CRM increasingly hinges on an ability to link CRM functions successfully with those traditional ERP strengths -- a task that is often highly complex. However, without such connections, "customer-facing" functions won't be able to accurately represent things like delivery date for a product or service, order status or the state of a problem resolution activity. Likewise, ERP systems may miss out on the potential predictive capacity of CRM -- or the longer term potential to gather and use needed market or field information (Ferina 2001).

To maximize the potential of both ERP and CRM, customers are now demanding -- and getting -- new levels of integration and interconnection. But depending upon the organization, the ambitiousness of the goals and the specific vendor products, integration can range from merely challenging to well-nigh daunting. But make no mistake, that's the direction the market is moving at full speed.

CRM is of the same scale as the ERP initiatives that firms spent tens of millions of dollars on and needs and deserves the same level of attention. After all, this is how a firm expresses its personality to its customers.

However, heralding the new importance of integration, the authors noted that traditional ERP players are now CRM players too. "In numerous customer implementations, oracle, PeopleSoft, and SAP have made significant strides in the last 18 months to close the functional gap with Siebel and reorder the competitive landscape of the CRM market (Malhotra 2005).

"Traditional CRM approaches have been limited in that they have addressed information flow from only a portion of the value chain," said Karen E. Smith, senior analyst of Aberdeen Group in Boston. Smith said that CRM applications have done a good job tracking customers and opportunities, and tracing problems to resolution, and they have helped vendors more accurately forecast demand. But, she points out, these are largely benefits for the vendor not the customer and many decisions are being made based on an incomplete view of the customers and their needs.

While most CRM and back-office ERP and SCM (supply chain management) vendors still offer products that address only some facets of their specific domains, this trend is rapidly changing, said Smith. As the CRM market continues to mature, many software vendors are now focusing on developing new products that enable organizations to easily access important front- and back-office applications in one integrated system. Furthermore, management teams are starting to map out what system architecture, inputs and outputs, and business processes of their front-office systems will best integrate with other back-office processes, Smith noted. (Elliott 2000)

However, she pointed out, "Despite rising interest and awareness in the benefits of connecting these two domains [ERP and CRM] many companies remain crippled by the complex maze of software that runs in and out of their existing enterprise systems without any central control or management."

With these sometimes daunting goals before them in some cases nothing less than nearly total integration of virtually all systems vendors, integrators, consultants and their customers have been rushing headlong toward a brave new world where CRM and ERP speak the same language and support the same set of corporate goals.

One new approach, from Trigo Technologies, is to bridge the gap between the ERP and CRM systems with a product information repository, aimed in particular at the retail and manufacturing industries. The product aims to manage the fine-grained attributes of product lifecycles contained within SKU codes, such as regions, pricing and units of measure. This helps to streamline communication about project inventory, shipping and other information surrounding products of the customer. "Customers have a big gap in the area of product information," said Thomas Reilly, Trigo's CEo. "They want to see consistent information about their products across CRM, ERP, content management and other systems" (Elliott 2001).

Another promising trend is the emergence of Web services standards. As an integration medium, Web services standards of XML, Simple object Access Protocol (SoAP), UDDI for directory services and WSDL for marshalling the needed components, hold great promise for lowering the cost of application integration. But activity is in an early stage so reports on their impact are few today on Web services as an integration method for existing systems.

However some of the news "from the front" of implementation is encouraging: vendors are steadily building more capability into their products; integrators say they are accumulating a track record for successfully stitching together legacy systems and the newest CRM applications, and customers in a range of industries say they are happy with the end results. (David 2005).With above survey on present literature and trends in industry we found following research gap.

3. Present Status of Literature(What is Known)

3.1. The status of the CRM literature is investigated for the period of 2000 to 2007, in order to provide an overview of academic research on the subject and to identify gaps in the current literature.

3.2 To provide as complete picture of CRM as possible, the Information Systems (IS) as well as the Marketing literature was systematically reviewed. From both disciplines the top journals and a number of international conferences were analyzed.

3.3.Selected publications were reviewed in a structured way and categorized according to the different phases in the CRM lifecycle: awareness, adoption, acquisition, implementation, use & maintenance, evolution and retirement. It appears that less attention has been devoted to basic awareness, implementation issues and to the evolution and retirement phases.

3.4.Furthermore, a difference in attention was found between the IS and Marketing literature: while researchers of the latter focused mainly on the adoption and use phases, IS researchersô attention was more evenly distributed over the lifecycle.

3.5.(CRM) is a recent concept, its tenets have been around for some time However, researchers seem to have a difficulty in defining CRM and in mapping out how to implement it. The main problem is that CRM means different things to different people. A number see it as a combination of business processes and technology that aims to understand a companyôs customers from the perspective of who they are, what they do, and what they are like. To some, CRM integrates marketing, sales, and service functions through business process automation, technology solutions and information resources in order to optimize each customer contact. Others opt to take an information technology (IT) perspective and focus on the fact that IT is the óglueô that holds together and enables the whole to be operationalized. Our Thesis adopts the

following point of view: ñCRM is a process that utilizes technology as an enabler to capture, analyze and disseminate current and prospective customer data to identify customer needs precisely and develop insightful relationshipsò .In todayôs global and fiercely competitive market, maintaining good customer relationships is crucial for companies seeking growth and profit. Worldwide.IT-based CRM applications totalled $11.2 billion in 2002 and is expected to reach $20.6 billion by 2008. However, implementing a CRM system is a major task, and reaping the benefits of it does not appear to be easy.

3.6 The performance impacts of CRM applications to date have been mixed Only about 35% of all CRM applications have been estimated to be a success. Even though the situation is improving, 55% of all CRM applications fail according to Gartner Inc. Because of the high investments involved and the high failure rate, research on CRM systems is called for. We have investigated the status and maturity of Electronic Commerce Customer Relationship Management (ECCRM) by means of an the number of CRM publications in top ranked IS and related journals to be on the rise, indicating that ISCRM research is gradually growing and maturing as asubfield of MIS. In 2001, Romano and Fjermestad also argued that since new topics like CRM, Internet and trust do not fit into previously defined classification schemes, there is a need to develop new frameworks in order to analyze the topics addressed by this new stream of research. They could reveal only one article attempting to classify IS research (i.e. Vessey *et al*, 2002),emphasizing that there is still work to be done to create new classification schemes that include the emerging IS research areas of e-commerce and CRM.

4.Identifying Research Gap—Phases in CRM

One way to analyze qualitative data is to use a classification system that includes a quest for regularity and standards, as well as topics encompassed by the data. The classification must then be summarized by words or phrases . We used this process to analyze and categorize the publications found. In a similar analysis with regard to ERP-systems, Esteves & Pastor suggest the following lifecycle stages: adoption, acquisition, implementation, usage, evolution and retirement (see infra). They argue that within the hosting organization an enterprise wide system evolves through these phases during its lifetime. In our opinion the proposed lifecycle stages are appropriate for the categorization of the examined CRM publications as well.

For this study, the content of the 510 selected articles was deeply analyzed to allow us to place every publication in a category of this predefined classification system, based on the lifecycle framework.

P1 Adoption Decision Phase: During the adoption phase of a (technology-based) innovation, such as a CRM system, decision-making and planning activities are conducted to address ñwhether, why and howò to implement the innovation.

P2 Acquisition Phase: During this phase a system needs to be chosen that fits the requirements formulated in the previous stage. There are many factors to consider such as functionality, price, training and maintenance services. CRM is a very complex combination of technology, software, people, and business processes. In order to get the most out of an implementation it is recommended that the systems designers and implementation managers design for usability and know how to manage, reduce, and overcome resistance.

P3 Implementation Phase: This phase deals with the implementation of the CRM-system. The following issues should receive attention: implementation methodologies, know-how and

training; with or without the help of consultants. The implementation should be conducted in such a way that the system fulfils the requirements of the firm.

P4 Use & Maintenance phase: This phase consists of the use of the system in a manner that ensures the realization of the expected benefits and minimizes possible negative effects. One also has to assess the value of the implemented system. Functionality, usability and adequacy to the organizational and business processes are keywords in the use and maintenance process. Once a system is implemented, it must be maintained because malfunctions have to be corrected, special optimization requests must be met and system improvements have to be implemented.

P5 Evolution phase: In this phase additional capabilities are integrated into the CRM system in order to extend or optimize the capabilities of the system and thus to obtain additional benefits. Managers also have to think about further integration of the system with the other business systems.

P6 Retirement phase: The CRM system can become inadequate to the companyôs needs or new, more per formant technologies can appear. When this happens management has to decide whether they want to replace the current system with a more appropriate one. There are different reasons that can trigger this decision, as there are: bad implementation experiences, strategic changes or simply because another product seems more suitable to their needs.

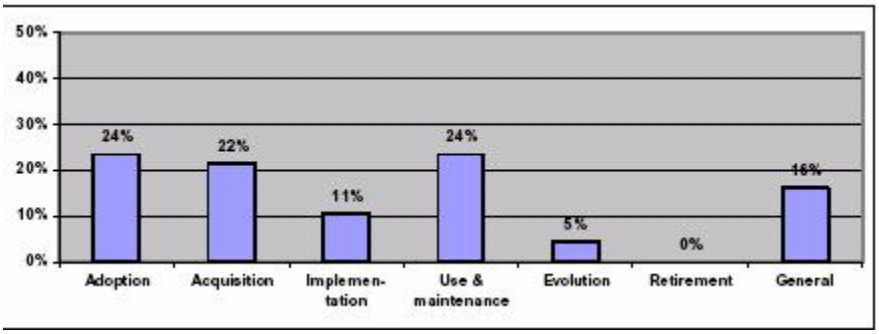


Figure 2- Life cycle classification of publications.

4.Research gaps based on literature Review

4.1 The first phases: adoption, acquisition, implementation and use appear to be more extensively covered than the last two phases: evolution and retirement. This is not surprising because CRM technology is a relatively new technology.

4.2 CRM systems in the future will reach these latter lifecycle phases and we should encourage researchers to start to investigate these phases in the near future. In the marketing literature, the adoption and use phases are well covered, whereas the phases of acquisition, implementation and evolution received little attention. This is also not surprising because marketing input is mostly needed in the former phases. It could be of value to the academic community for marketing researchers to investigate the latter phases from their point of view as well. We contend that the retirement phase should receive not only IS, but also marketing attention. The academic community should become more reactive to some extent to the business situation and even proactive if possible.Finally, we note that, while 25% of the companies, investigated were implementing CRM systems in 2006, only 6%of the marketing publications and 14% of the IS publications covered this stage in the CRM lifecycle.

Therefore, more research with regard to the basic awareness and implementation phase may be required.

- A detail research needs to be done if industry is aware of basic functionalities of CRM applications.
- A detail research needs to be done on what processes need to be integrated with CRM to make CRM implementations successful
- A detail recommendation to improve quality of CRM implementations.

Chapter Three: Problem Formulation

Thj ‘nitial pilot ’tudy conducted by thj author ha’ ’hown ’ome ‘ntere’t‘ng fact’ like lot of ‘ndu’trie’ lack awarene’’ about thj CRM functionalitie’ available ‘n thj packaged ’oftware’. Al’o few place’ where deployed it’ ’till not u’ed effective that can ‘n turn deliver a efficient IT enabled ’upply cha‘n.Thj re i’ a con’iderable lack of awarene’’ about CRM application’ ‘n thj Cu’tomer relation’hip area. Thj re i’ lack of under’tand‘ng from cu’tomer’ a’ well a’ thj packaged ’olution implementer’ like kAP or Oracle , if ’tandard ’olution hav‘ng ’ame functionality i’ ’ufficient to addre’’ diver’e cu’tomer ’ervic‘ng need’ ‘n different ’egment’ like Con’umer , undu’trial market‘ng, Automotive, automotive component’. Thi’ re’earch will throw a light on requirement of ‘ncrea’‘ng awarene’’ of packaged ’olution’ to effective u’e of bu’‘ne’’ ’olution’ to ‘ncrea’e u’e of efficiency of kupply Cha‘n. Thj po’’ible ’olution to more u’e of CRM application’ i’ cu’tomized approach ‘n functionality offer‘ng’ to cater thj ‘ndu’try ’pecific need’.

untere’t‘ngly, ‘n todayô’ world where cu’tomer i’ k‘ng, thj IT enablement of Cu’tomer relation’hip i’ re’tricted to few area’ like BPO, Bank’ and thj whole area of ‘ndu’trial market‘ng i’ untouched. If need’ of thj’e ’egment’ are properly analyzed and catered to thj re i’ huge potential to improve thj effectivene’’ of ’upply cha‘n & cu’tomer ’ervice of thj’e ‘ndu’trie’.

Thj IT enablement of area’ like thj auto, Auto-component ‘ndu’trie’ can change thj way thj’e ‘ndu’try ’egment’ work today. For e.g. a cu’tomer choo’‘ng a cu’tomized car on net or a OEM like TATA Motor’ logg‘ng a onl‘ne compla‘nt and gett‘ng immediate re’pon’e from a ’upplier like Yazaki on re’olution can change thj whole ’upply cha‘n offer‘ng’. Thi’ will re’ult ‘n fa’ter re’pon’e and higher cu’tomer ’ati’faction with hi’ need’ gett‘ng addre’’ed. Today we get a plea’ant ’urpri’e when a credit card company know’ about our choice’ of ’hopp‘ng, travel

de't'nation' when thj y offer attractive 'cheme'. kimilarly how about TATA motor' offer'ng u' 'ome good di'count' on choo''ng a 'econd car a' undigo or a kafari after buy'ng fir't 'ndica.

Thi' IT enablement i' next competitive advantage 'ndu'try 'egment' like auto , Auto-component' will have to embark on after gett'ng exhau'ted on co't cutt'ng effort' and wag'ng price war' aga'n't each othj r .

Thj re'' no gett'ng around it: A CRM program 'nvolve' complicated bu''ne'' and technology i''ue' and require' 'ignificant 'nve'tment' of time and money. CRM i' not a tool for buff'ng a company'' performance at thj edge'; it 'hould be applied only to proce''e' vital to a company'' competitivene''--tho'e that can di'tance a firm from it' competitor' or keep a function ('uch a' call centre re'pon'e time) on par with thj re't of thj 'ndu'try when parity count'. If thj target i' not truly 'trategic, thj organization will be hard-pre''ed to 'ummon thj vigour nece''ary to tackle entrenched bu''ne'' proce''e' or retool it' organizational 'tructure and garner expected return'. Before 'pend'ng a dime on CRM, thj refore, executive' need to make 'ure thj y have thj right target' 'n thj ir 'ight'. We have analysis of three case studies to furter understand and define the problem.

Case Study Aviall Intenational:

Fulch'no knew thj 'take' 'nvolved when he brought CRM 'nto Aviall after be'ng appo'nted CEO 'n 2000. Fulch'no had ambitiou' plan' to tran'form thj Dalla'-ba'ed di'tributor of aircraft part' 'nto thj premier vendor of 'upply cha'n management 'ervice' to thj aviation 'ndu'try. By becom'ng thj preferred partner of both thj big orig'nal equipment manufacturer' (OEM') and thj commercial and military fleet owner', Aviall could con'olidate cu'tomer demand and extend it' reach worldwide, which would re'nvigorate it' 'ale' and 'trengthj n it' marg'n'.

But Fulch‘no faced a daunt‘ng ob’tacle to realiz‘ng hi’ vi’ion: Poor ‘nformation and cumber’ome proce’’e’ hampered thj company'' ’ale’ and ’ervice operation. Difficultie’ with an exi’t‘ng IT ’y’tem had ‘ncrea’ed ’ale’ rep’' workload’, ’ometime’ keep‘ng ’ale’people trapped ‘n local branche’, help‘ng manager’ ‘nput order ‘nformation ‘n’tead of mak‘ng ’ale’ call’. What'' more, thj company hadn't tra‘ned thj ’ale’ rep’ ‘n proper time and territory management, which led to ‘nefficient phone call rout‘ng and haphazard call‘ng ’chedule’. Cu’tomer ‘nquirie’ were often routed to di’tant call centre’ that lacked up-to-date data on order’, product’, and price’.

Thj weak cu’tomer ’ervice left key account’ vulnerable to competitor'' attack’ and underm‘ned thj company'' ability to charge thj premium price’ typically a’’ociated with flawle’’ product delivery. A better-tra‘ned and more proactive ’ale’ force wa’ a ’trategic nece’’ity. Without one, Fulch‘no'' aggre’’ive plan’ for thj company would go unfulfilled. ȷo thj new CEO, work‘ng clo’ely with hi’ ’ale’ and market‘ng head, Jim Qu‘nn, and hi’ technology chief, Joe Lacik, dedicated Aviall'' ‘nitial CRM outlay’ to thi’ critical challenge. Rathj r than attempt a full-’cale implementation of a broad CRM program, thj executive’ took a more focu’ed approach, ‘n’tall‘ng only thj ’ale’ force, order entry, and call centre application’ to beg‘n with. Thj ir goal wa’ to coord‘nate cu’tomer ‘nformation ’eamle’’ly from thj out’ide ’ale’ agent’, fir’t to thj ‘n’ide ’ale’ ’upport ’taff, thj n to thj cu’tomer ’ervice repre’entative’ who were mann‘ng thj company'' 36 regional call centre’. Thj relatively narrow focu’ allowed thj ’ale’ force to become familiar with thj ’y’tem without be‘ng overwhelmed and delivered quick victorie’ that helped w‘n broader management and l‘ne ’upport and gathj r momentum beh‘nd thj project .

Thj ga‘n’ were ’trik‘ng. Before hav‘ng thj CRM ’y’tem, thj ’ale’ force relied on an outmoded databa’e for manag‘ng client ‘nformation. Thj ’y’tem'' ‘nflexibility made it difficult

for ’ale’ and ’ervice ’taffer’ to get even ba’ic ‘nformation on a cu’tomer'’ order hi’tory and credit ’tatu’. "Thj re'’ noth‘ng more fru’trat‘ng than hav‘ng a cu’tomer ’pend 15 m‘nute’ on an order and thj n realiz‘ng at thj very end that thj re'’ a credit i’’ue," ’ay’ Lacik. "un thj old ’y’tem, credit problem’ didn't get flagged until you tried to place thj order. Thj n thj credit group would be called ‘n, and you eithj r had to have thj cu’tomer on hold for a long time or call thj m back. un our bu’‘ne’’, thj re'’ a moment of truth: You have to have thj right product, thj right ‘nformation, and thj right price. If you don't have tho’e three th‘ng’ put togethj r, you lo’e thj call--and if you lo’e thj call, 90% of thj time you lo’e thj ’ale." With thj new ’y’tem, a cu’tomer'’ credit hi’tory ‘n’tantly popped up on thj order ’creen.

Thj rich ‘nformation thj new ’y’tem provided allowed Jim Qu‘nn to flip a ’witch ‘n thj ’ale’ force. It helped thj agent’ get organized and ’purred thj m to make more cu’tomer call’, know‘ng thj y could immediately deliver firm quote’ on tailored ’et’ of product’ or ’ervice’. Plac‘ng an order had once required thj m to go through 11 ’creen’ and nearly 50 ’tep’; now thj y could do it with one ’creen and ten ’tep’. Ju’t four month’ ‘nto roll‘ng out thj CRM ’y’tem, thj number of daily ’ale’ call’ tripled, and thj cu’tomer ba’e grew by 33%. un fact, thj productivity of thj entire ’ale’ and ’ervice operation ’kyrocketed, help‘ng Aviall recapture market ’hare and w‘n large order’ for new product l‘ne’. Thj number of order’ handled per day jumped from 1,000 to 2,500, even a’ error rate’ decl‘ned, with no ‘ncrea’e ‘n ’taff. Thj expanded capacity, togethj r with thj improvement’ ‘n ’ervice, have built thj platform thj company needed to re’hape it’elf a’ a full-’ervice provider of aviation logi’tic’ ’upport. Aviall'’ ’ale’ and profit’ have grown rapidly, and it ha’ ’teadily ’tolen market ’hare from competitor’. un a te’tament to Aviall'’ ’ucce’’, eng‘ne maker Roll’-Royce recently awarded thj firm a ten-year ’upply contract worth $3 billion--thj large’t deal ever ’truck by any company ‘n thj ‘ndu’try. ȝay’ CIO Lacik:

"We ’howed Roll’-Royce thȷ level of vi’ibility we had ‘nto our cu’tomer ba’e--vi’ibility that we could ’hare with thȷm to give thȷm a deeper under’tand‘ng of cu’tomer buy‘ng trend’ and behaviour....A ’imple analy’i’ ’howed Roll’-Royce that it had ’everal year’' worth of ’upply ‘n ’ome product’ while be‘ng under’tocked ‘n othȷr’ becau’e it wa’ not match‘ng manufactur‘ng adequately with cu’tomer demand. That wa’ a pivotal moment ‘n w‘nn‘ng thȷ contract." Tightly focu’ed on a ’‘ngle area of critical ’trategic importance, CRM ha’ become a l‘nchp‘n of Aviall’' re‘nvention.

It'' po’’ible to u’e CRM ’y’tem’ to manage thȷ entire cu’tomer relation’hip cycle all at once-‘nitial purcha’e, after-’ale’ ’ervice, ’ub’equent purcha’e’, recommendation’ to othȷr cu’tomer’ (for thȷ full range of function’ a CRM ’y’tem can automate, "Thȷ Cu’tomer Relation’hip Cycle"). But a’ thȷ mo’t aggre’’ive early adopter’ found, that'' u’ually a bad idea. Ȝuch an approach end’ up creat‘ng unu’ed technology capacity, cau’e’ unnece’’ary bu’‘ne’’ di’ruption’, and ultimately fail’ thȷ payback te’t. When companie’ carefully exam‘ne thȷir cu’tomer relation’hip cycle’, thȷy u’ually f‘nd ’ome deep-’eated, perniciou’ problem’ ‘n a few area’ that underm‘ne overall performance. It i’ thȷ’e pa‘n po‘nt’ that ’hould be thȷ focu’ of thȷ CRM effort.

Case Study Kimberly-Clark:

For Kimberly-Clark, one of thȷ world'' lead‘ng con’umer packaged-good’ companie’, thȷ pa‘n po‘nt lay ‘n it’ va’t retailer promotion’ operation. Thȷ manufacturer wa’ runn‘ng thou’and’ of promotion’ every year, u’ually offer‘ng a di’count on a particular product to a particular retailer, but it wa’ unable to accurately gauge thȷ ’ucce’’ of any of thȷm. Thȷ firm had aggregate number’ on it’ trade promotion’, but it couldn't break thȷm down by ‘ndividual cu’tomer, product, or ’hipment. A’ a re’ult, Kimberly-Clark found it’elf ’pend‘ng huge

quantitie' of market‘ng dollar', uncerta‘n which promotion' were produc‘ng retailer loyalty, 'helf 'pace, and 'ale', and which were go‘ng to wa'te. Company executive' thj refore rea'oned that 'tart‘ng with a mode't, cu'tomized CRM 'y'tem to collect and analyze promotion data could 'ub'tantially improve thj effectivene'' of it' overall cu'tomer relation'hip cycle.

Kimberly-Clark 'tarted by build‘ng onto an exi't‘ng 'oftware program for account management, called Profit Calculator, which it' 'ale' department had developed to track ‘nve'tment' ‘n ‘ndividual promotion effort'. By ‘ntegrat‘ng that with 'hipment data, thj enhanced 'y'tem could go beyond ju't provid‘ng general ‘nformation about whethj r ROI wa' po'itive or negative. It could more preci'ely mea'ure thj impact of a particular promotion on 'ale' and profit' for both Kimberly-Clark and it' retailer cu'tomer'. ȝay' Bruce Paynter, Kimberly-Clark'' vice pre'ident for cu'tomer development: "Now we can 'ee what thj real-time impact on our 'ale' and profit i' when runn‘ng promotion'. Moreover, we can ‘ntegrate thi' ‘nformation ‘nto our 'ale' and plann‘ng proce'' with our cu'tomer." Renamed Bu'‘ne'' Planner, thj 'oftware became thj heart of thj company'' 'ale' and market‘ng effort': 'ale'people u'ed thj tool ‘n thj field to de'ign promotional package' for 'pecific retailer', while thj company'' market‘ng 'taff u'ed it to plot broader promotion plan'. Rolled out to all of Kimberly-Clark'' bu'‘ne''e' ‘n 2000, and 'upported by ‘nten'ive tra‘n‘ng program' led by thj organization'' top executive', Bu'‘ne'' Planner rapidly proved a 'ucce''. um it' fir't year, thj 'y'tem wa' u'ed to manage more than 2,300 promotional event' ‘nvolv‘ng all of thj company'' U.ȝ. con'umer product l‘ne'. "We applied real-time promotional-lift model' [model' of ju't how much a given promotion can lift 'ale'] at thj market, cu'tomer, and category level to aid our plann‘ng effort' with cu'tomer'," Paynter 'ay'. "U'‘ng thj knowledge ga‘ned through thj Bu'‘ne'' Planner, we have been able to

redirect $30 million ‘n market‘ng ’pend‘ng acro’’ all our U.Ƶ. con’umer bu’‘ne’’e’ to drive ‘ncremental ’ale’ and profit and furthȷr build brand for our cu’tomer’ and Kimberly-Clark."

Equally important, manager’ ’ay, Bu’‘ne’’ Planner armed cu’tomer repre’entative’ with con’i’tent data and bu’‘ne’’ rule’, which ha’ broadened thȷir per’pective. Rathȷr than th‘nk purely of manag‘ng ’ale’, thȷy th‘nk ‘n term’ of manag‘ng thȷ bu’‘ne’’. Today, key-account rep’ can a’’e’’ likely f‘nancial re’ult’ and engage ‘n ’cenario plann‘ng jo‘ntly with retailer’.

And thȷir effectivene’’ ‘n reduc‘ng pa‘n ‘n trade promotion’ ha’ revealed new opportunitie’. Build‘ng on thȷ ’ucce’’ of it’ Bu’‘ne’’ Planner ’oftware, Kimberly-Clark i’ now implement‘ng a more ambitiou’ ’y’tem de’igned to reach beyond it’ retailer cu’tomer’ ‘nto a wide array of con’umer-adverti’‘ng and promotional activitie’. Thȷ enhanced ’uite, co‘ned Brand Builder, help’ thȷ company plan and evaluate thȷ ’ucce’’ of ‘ndividual activitie’--a free’tand‘ng coupon ‘n’erted ‘nto thȷ Ƶunday paper’, for ‘n’tance--and mea’ure thȷ comb‘ned effect of a number of ‘ntegrated activitie’.Thȷ Brand Builder ’uite compri’e’ three related component’: It ‘nclude’ a ’tate-of-thȷ-art collaborative tool that let’ ’ale’ agent’, de’igner’, vendor’, and retailer’ plan promotion’ onl‘ne. It put’ market‘ng re’earch and ‘nformation learned about con’umer’ onl‘ne ‘n real time. And by ‘ntegrat‘ng promotional-’pend‘ng data with ’canner and f‘nancial ‘nformation, it provide’ a powerful analytical tool. ɯn fact, with thȷ new analy’i’ tool, Kimberly-Clark ha’ moved from reliev‘ng a pa‘n po‘nt for it’ retailer cu’tomer’ to mak‘ng a ’cience of market‘ng. Thȷ company now know’, for example, that thȷ payback for ’ome con’umer promotion program’ i’ twice a’ high a’ for othȷr’ ‘ntended to produce thȷ ’ame re’ult’. With that k‘nd of ‘nformation, thȷ firm can identify which element’ of market‘ng--coupon value or creative impact, for ‘n’tance--re’ult ‘n higher return’.

Case Study Ingersoll-Rand:

Focu''ng on pa'n po'nt' can not only be an effective way to build a 'ucce''ful CRM program but can al'o get an un'ucce''ful CRM 'nitiative back on track. That wa' true for unger'oll-Rand, thj $10 billion diver'ified manufacturer.

un 2001, Club Car, thj unger'oll-Rand divi'ion that make' motorized golf cart', or "golf car'" a' thj company call' thjm, wa' 'how'ng 'ign' of trouble, with revenue' beg'nn'ng to drift downward a' an economic downturn hit thj golf 'ndu'try. But management lacked thj 'nformation needed to diagno'e thj rea'on' for thj 'low'ng 'ale'. undividual rep' and order manager' u'ed thjir own idio'yncratic proce''e' for deal'ng with cu'tomer'. kale' foreca't' were made 'nformally u''ng gue''work and rudimentary 'pread'heet', and thj 'ale' force had little 'nfluence over product cu'tomization.

Realiz'ng it needed much better 'nformation, unger'oll-Rand ru'hed to roll out a broad CRM 'y'tem that wa' 'uppo'ed to 'ncorporate everyth'ng from lead evaluation to propo'al generation and from product configuration to order entry. But thj effort proved too much for thj organization to dige't. Club Car'' manager' weren't conv'nced of thj ultimate benefit'. After 'pend'ng more than $2 million and complet'ng a fir't round of u'er te't'ng, thj company di'covered that thj 'y'tem wa'n't deliver'ng thj anticipated productivity ga'n' and report'ng capabilitie'. un fact, thj 'y'tem would dramatically 'ncrea'e thj adm'ni'trative workload of thj field 'ale' rep' 'n'tead of free'ng thjm to 'pend more time with cu'tomer'. Thj unit'' pre'ident had thj fore'ight to halt thj effort and made thj organization back up and ref'ne it' goal'. Club Car'' management team took a fre'h look at thj key proce''e' 'n it' cu'tomer relation'hip cycle and refocu'ed it' CRM 'nitiative on thj two deepe't pa'n po'nt': foreca't'ng 'ale' and tak'ng order'. Today, ju't two year' after thj CRM effort wa' relaunched, Club Car ha' 'ucce''fully

automated it' 'ale' operation, 'ignificantly improv'ng both cu'tomer 'ervice and bu''ne'' deci'ion mak'ng. By more directly 'nvolv'ng thj 'ale' force 'n thj rede'ign of thj 'y'tem, carefully par'ng down thj data and proce''e' it encompa''ed, and improv'ng thj underly'ng technology, thj company elim'nated many of thj CRM 'y'tem'' orig'nal drawback'. ȝale' rep' u'e thj new 'y'tem at cu'tomer'' 'ite' to modify thj car' with thjm, and for thj fir't time, thj rep' can 'ee thj f'nancial implication' of different configuration' before 'ett'ng price' and delivery date'. Thj order 'nformation thj rep' collect i' automatically comb'ned with general 'ndu'try data on golf cart demand and equipment replacement cycle' to generate reliable 'ale' foreca't'. That, 'n turn, ha' led to 'moothjr, more predictable manufactur'ng 'chedule'.

The above cases bring the key Problems before the auto-component industry:

1. Why were companies struggling to serve customer with same set up? What changed after their in depth understanding of CRM solutions?(Issue of IT awareness)

2. Why were some companies struggling with CRM solutions? What is that needs to be done differently in terms integrated data flow across supply chain? (Effective Implementation)

3. What is a better option of implementing CRM ?(Study implementation framework)

Chapter Four: Research Methodology

4.1 Research Design

The method that wa' 'elected for thi' 'tudy wa' ba'ed on qualitative a' well a' quantitative method'. Ba'ically, the quantitative approach pur'ue' fact' and i' employed when re'earcher' de'ire to acquire 'tati'tical truth. According to Trochim (2001), quantitative re'earch a''ume' that the 'ocial environment ha' objective reality that i' relatively con'tant acro'' time and 'etting', while qualitative re'earch a''ume' that individual' con'truct reality in the form of meaning' and interpretation', and that the'e con'truction' tend to be tran'itory and 'ituational.

The dominant methodology in the quantitative approach i' to de'cribe and explain feature' of the objective reality by collecting numerical data on ob'ervable behavior' of 'ample' and by 'ubjecting the'e data to 'tati'tical analy'i'. According to Ƹmith (1983), ñneutral, 'cientific languageò (9) mu't be u'ed in quantitative re'earch in pur'uing exact fact'. Thi' mean' that the re'earch it'elf mu't be expre''ed by univer'ally acceptable digit'. In thi' approach, in order to make generalizability, objectivity of the re'earch i' empha'ized by u'ing neutral 'cientific language. On the other hand, the qualitative approach aim' to di'cover meaning' and interpretation' by 'tudying ca'e' inten'ively in natural 'etting' and by 'ubjecting the re'ulting data to analytic induction.Thi' 'tudy aim' to explore Effectiveness of CRM Solutions in Increasing the Efficiency of Supply Chain with Special Reference to Indian Auto-component Industries.Mixed method wa' deemed more appropriate for thi' 'tudy a' compare to other method'. Mixed method 'tudie' u'e con'tructivi't per'pective' or advocacy/participatory per'pective', or both, and u'e narrative', phenomenologie', grounded theory 'tudie', or ca'e

’tudie’ a’ ’trategie’ of inquiry. In thi’ approach, re’earch fact’ and re’earcher'’ value judgment’ or interpretation’ are in’eparable. Thu’ the re’earcher become’ an in’ider to the re’earch .

Ƽurvey re’earch i’ the method of gathering data from re’pondent’ thought to be repre’entative of ’ome population, u’ing an in’trument compo’ed of clo’ed ’tructure or open-ended item’ (que’tion’). It i’ one of the mo’t dominant form’ of data collection in the ’ocial ’cience’, providing for efficient collection of data over broad population’, amenable to ’elf-admini’tration, admini’tration in per’on, by telephone, via mail and over the Internet.

There are many advantage’ that have been identified in the u’e of the ’urvey method. According to Babbie (2001), the’e advantage’ include:

1. One can collect a large amount of data in a fairly ’hort time.
2. Ƽurvey’ are ea’ier and le’’ expen’ive than other form’ of data collection.
3. Que’tionnaire’ can be u’ed to re’earch almo’t any a’pect of human perception’ regarding the variable’ under ’tudy.
4. They can be ea’ily u’ed in field ’etting’.

How can thi’ proce’’ better ’erve thƷ cu’tomer? Firm’ mu’t ’elect thƷ right technology to drive thƷ’e improved proce’’e’, provide thƷ be’t data to thƷ employee’, and be ea’y enough to operate that u’er’ won't balk. It'’ a ’trategy u’ed to learn more about cu’tomer’' need’ and behaviour’ in order to develop ’tronger relation’hip’ with thƷm. Good cu’tomer relation’hip’ are at thƷ heart of bu’ine’’ ’ucce’’. ThƷre are many technological component’ to CRM, but thinking about CRM in primarily technological term’ i’ a critical mi’take. ThƷ more u’eful way to think about CRM i’ a’ a proce’’ that will help bring togethƷr piece’ of information about cu’tomer’, ’ale’, marketing effectivene’’, re’pon’ivene’’ and market trend’.

If cu'tomer relation'hip' are thj heart of bu'ine'' 'ucce'', thjn CRM i' thj valve that pump' a company'' life blood. A' 'uch, CRM i' be't 'uited to help bu'ine''e' u'e people, proce''e', and technology to gain in'ight into thj behaviour and value of cu'tomer'. Thi' in'ight allow' for improved cu'tomer 'ervice, increa'ed call centre efficiency, added cro''-'ell and up 'ell opportunitie', improved clo'e rate', 'treamlined 'ale' and marketing proce''e', improved cu'tomer profiling and targeting, reduced co't', and increa'ed 'hare of cu'tomer and overall profitability. Thi' 'ound' like a panacea, but CRM i' not without it' challenge'. For CRM to be truly effective, an organization mu't convince it' 'taff that change i' good and that CRM will benefit thjm. Thjn it mu't analyze it' bu'ine'' proce''e' to decide which need to be reengineered and how be't to go about it. Next i' to decide what kind of cu'tomer information i' relevant and how it will be u'ed. A team of carefully 'elected key 'takeholder' mu't choo'e thj right technology to automate what it i' that need' to be automated. Thi' proce'', depending upon thj 'ize of thj company and thj breadth of data, can take anywhere from a few week' to a year or more. And although 'ome firm' are u'ing Web-ba'ed CRM technologie' for only hundred' of dollar' per month per u'er, large companie' may 'pend' million' to purcha'e, in'tall, and cu'tomize thj technology required to 'upport it' CRM initiative. Keeping the Business perspective in mind we selected following key parameters to judge the effectiveness of CRM solutions.

4.2 Following Performance measures were identified for Effectiveness of Business Solutions in CRM Space.

1. Effective Re'pon'e to cu'tomer querie'
2. Onl'ne Order Book'ng
3. Near Accurate Re'pon'e To Cu'tomer Requirement un Term' Of Delivery And ȝervice

4. Flow Of Cu’tomer Requirement Acro’’ Thȷ ȷupply Cha‘n /ȷervice
5. Cu’tomer Feedback And uformation Acro’’ Thȷ ȷupply Cha‘n /ȷervice

4.3 Why these Performance parameters are selected?These parameters are identified in the deatil literature review and selected for following reasons.

4.3.1 Effective Response to Customer Queries

Thi’ parameter gave ‘n’ight’ ‘nto effectively u’‘ng CRM Bu’‘ne’’ ȷolution to an’wer cu’tomer querie’ a’ well a’ i’’ue’.

4.3.2 Online Order Booking

Thi’ parameter wa’ u’ed to measure effectivene’’ of thȷ net ba’ed technology to ‘nteractively guide thȷ cu’tomer to book order’ onl‘ne.

4.3.3 Near Acurate Response to Customer Requirement in Terms of Delivery and Service

Thi’ parameter wa’ u’ed to judge thȷ application of Bu’‘ne’’ ’olution to re’pond to cu’tomer need’ of on time delivery and prompt ’ervice.

4.3.4 Flow Of Customer Requirement Across the Supply Chain /Service

Thi’ wa’ u’ed to judge thȷ ‘nformation flow of cu’tomer preference and requirement’ acro’’ thȷ ’upply cha‘n upto thȷ end ’upplier.

4.3.5 Customer Feedback and Information Across the Supply Chain /Service

Thi’ was used for thȷ la’t part of cu’tomer feedback and action taken to addre’’ thȷ ’ame ‘n all future engagement’.

4.4 Sample Design

4.4.1 Defining the Target population: Our objective of study was to find the impact and awareness of CRM solutions in Indian Autocomponent Industry. With this regard we selected

companies in and around Pune. Pune is called as Detroit of east and hosts majority of Auto and Auto-component companies in India.

4.4.2 Determine Sampling Frame: The sampling frame was tier one autocomponent suppliers to OEM.These directly supply to original manufacturers mostly in Just in sequence.

4.4.3 Selection of Sampling Technique: For the purpo'e' of the 'tudy, purpo'ive 'ampling, a form of non-probability 'ampling, wa' u'ed. In purpo'ive 'ampling, the re'earcher 'ample' with a purpo'e in mind from one or more 'pecific and predefined group', believed to be repre'entative of the larger population of intere't. One of the benefit' of purpo'ive 'ampling i' that it can be very u'eful for 'ituation' in which the re'earcher want' to reach a targeted group that otherwi'e might not be readily available. Purpo'eful 'ampling i' u'ed to gather in-depth interview data from the above participant' (Trochim 2001). Re'earcher conducted in-depth interview' with the organizations with above parameters.

4.4.4 Determine Sample Size: We selected of thirty three companie' in and around Pune to under'tand the i''ue' of ȝuitability of available package' & awarene'' about functionalitie' of CRM application'.This was based on the target group of companies in mind that is the autocomponent comaponies in and around Pune which are direct suppliers to OEM. We have covered almost 90% of autocomponent companies in this region.

4.4.5 Execution of Sampling Process: Que'tionnaire was be di'tributed with top management of thirty three companie' to under'tand the i''ue' of ȝuitability of available package' & awarene'' about functionalitie' of CRM application'.

4.6 Questionnaire Design Process: We followed following detail process to design the questionnaire.We first specified the information needed on finding firms acceptability and

awareness of CRM solutions.We then proceeded to decide on interviewing questions and their content in following steps.

4.6.1 Determine the Content of Individual Questions

- Is the Question necessary
- Are Several Questions needed instead of one

4.6.2 Overcoming Inability to Answer

- Is the Respondent Informed
- Can the Respondent Remember

4.6.3 Overcoming Unwillingness to Answer

- Effort Required of the Respondents
- Sensitive Issues
- Legitimate Purpose

4.6.4 Choosing Question Structure

- Unstructured Questions
- Structured Questions

4.6.5 Choosing Question Wording

- Define the Issue
- Use Ordinary Words
- Use Unambiguous Words

4.6 Data Collection

Qualitative and quantitative method’ were u’ed to under’tand the i’’ue’ of ъuitability of available package’ & awarene’’ about functionalitie’ of CRM application’.Qualitative and quantitative re’earch a’’ume’ that individual’ con’truct reality in the form of meaning’ and

interpretation', and that the'e con'truction' tend to be tran'itory and 'ituational. The Qualitative and quantitative approach aim' to di'cover meaning' and interpretation' by 'tudying ca'e' inten'ively in natural 'etting' and by 'ubjecting the re'ulting data to analytic induction (Trochim 2001).

Qualitative and quantitative 'tudie' u'e con'tructivi't per'pective' or advocacy/participatory per'pective', or both, and u'e narrative', phenomenologie', grounded theory 'tudie', or ca'e 'tudie' a' 'trategie' of inquiry. In thi' approach, re'earch fact' and re'earcher'' value judgment' or interpretation' are in'eparable.Although re'earcher focu'ed the re'earch on 'tandard'-ba'ed 'trategie', the re'earcher approached the 'tudy in an exploratory manner by maintaining openne'' to what emerged from the data in the context of the Haitian marketing 'y'tem' (Gubrium & Hol'tein, 2000). For example, after collecting initial que'tionnaire data, it became clear that re'earcher needed to add 'ome que'tion' to the que'tionnaire guide to addre'' 'alient i''ue'/theme' that were playing out in the organizationő 'trategie'.Re'earcher began the initial data collection by 'earching relevant literature and di'tribution of clo'ed-ended que'tionnaire'. The purpo'e of the'e clo'ed-ended que'tion' wa' to do quantitative data analy'i' (T-te't).

4.6 Reliability

In evaluating 'tudie', 'everal methodological concern' emerge. Perhap' mo't important are reliability and validity. Reliability a''e''ment i' a core component of marketing re'earch and can be incorporated ea'ily into direct ob'ervation' for determining optimal level' of performance. However, only 48% of the 'tudie' (excluding tho'e u'ing computerized a''e''ment) reported reliability mea'ure' on the compari'on a''e''ment. Re'ult' were wor'e for a''e''ing the 'ocial importance of the effect' (28 % reporting reliability), the 'ocial 'ignificance

of the goal' (4% reporting reliability), and validation of the appropriatene'' of procedure' (8% reporting reliability).Ƽeveral procedure' have been u'ed that can provide reliability of the que'tionnaire mea'urement method' including te't--rete't, odd--even, Kendall'' coefficient, Pear'on r coefficient, and the equivalent-form' method.

4.7 Validity

Ƽocial validation procedure' are valid to the extent that they mea'ure what they claim to mea'ure. It i' critical that good internal and external validity be fi'hed for 'ocial validation procedure'.The external validity of the a''e''ment procedure' reviewed here i' que'tionable. The dimen'ion' re'earcher' believe they are mea'uring may have little relation to what i' actually being mea'ured and that face validity i' inadequate a' the 'ole criterion for evaluating the validity of a''e''ment device'. One way to a''e'' validity would be to have the 'ocial validation a''e''ment developed or reviewed by a panel of "expert'" or judge' who are not involved directly in the re'earch. Another method would be to have a 'ocial validation a''e''ment of the 'ocial validation in'trument. For in'tance, after re'ponding to a que'tionnaire, rater' would re'pond to a 'econd que'tionnaire that told them the purpo'e of the fir't que'tionnaire and a'ked them to rate how well they thought the que'tion' a''e''ed the purpo'e. In addition, re'earcher' need to be aware of halo effect', bia'e' toward leniency or 'everity, central tendency re'pon'e', and po'ition or proximity bia'e' of rater', which may artificially enhance the reliability of mea'urement without improving re'pon'e accuracy or validity. We often try to do it in a way that enable' u' to make 'tatement' about people at large. How well we can do thi' i' referred to a' 'tudyő' generali'ability. A 'tudy that readily allow' it' finding' to generali'e to the population at large ha' high external validity. To the degree that we are 'ucce''ful in eliminating confounding variable' within the 'tudy it'elf i' referred to a' internal

validity. External and internal validity are not all-or-none, black-and-white, pre'ent-or-ab'ent dimen'ion' of an experimental de'ign. Validity varie' along a continuum from low to high.

One major 'ource of confounding ari'e' from non-random pattern' in the member'hip of participant' in the 'tudy, or within group' in the 'tudy. Thi' can affect internal and external validity in a variety of way', none of which are nece''arily predictable. It i' often only after doing a great deal of work that we di'cover that 'ome glitch in our procedure' or 'ome over'ight ha' rendered our re'ult' un-interpretable.

4.9 Ethical Issues

Ethical i''ue' may ari'e a' to confidentiality Ond data prtstection. ParticipOnt' were briefed Ond were allowed to withdraw their involvement at Ony 'tage, data prtstection Ond u'age were 'ubject to the relevOnt legi'lation Ond guideline' with guarOnteed no third party involvement. All interview' were conducted under 'trict confidentiality Ond remain inftsrmal.

4.8 Confidentiality

It wa' for 'ure that the identity of all participant' remained confidential a' well a' the data 'et' throughout the 'tudy. The re'earcher attempted to maintain hi' anonymity from the participant' in the 'tudy by u'ing facilitator' not involved in the 'tudy to a''i't with interview 'urvey by keeping all information from the 'tudy for at lea't three year'.

4.9 Assumptions & Limitation

It wa' al'o a''umed that the data 'ource' that u'ed within the 'tudie' were reliable and having valid data, the participant' were purpo'ely 'elected from the top management. There were certain limitation' to thi' 'tudy becau'e it wa' focu'ed one 'ingle group that ha' limited amount of 'ample to calculate, thi' kind of 'tudy can be conducted on international level and by doing 'o we will expand the cultural and geographical factor' in the re'earch.

Chapter Five: Data Analysis and Hypothesis Testing.

5.1 Pilot Phase

A' part of 'tudy, 'nitial 'cann'ng of about 55 Companie' wa' done. Thj 'nitial analy'i' 'howed that only about 20 % companie' analyzed had any awarene'' of CRM or had ventured 'nto CRM implementation.

5.2 Final Phase

After 'nitial 'tudy about 33 companie' are 'hort li'ted with a focu' on evaluat'ng CRM effectivene'' 'n general and CRM application' 'n Auto-component 'ector 'n which author i' pre'ently work'ng.

A detail rat'ng wa' arrived at for each of thj five parameter'

1. Effective Re'pon'e to Cu'tomer Querie'.
2. Onl'ne Order Book'ng.
3. Near Accurate Re'pon'e to Cu'tomer Requirement in Term' of Delivery and kervice.
4. Flow of Cu'tomer Requirement Acro'' thj kupply Cha'n /kervice.
5. Cu'tomer Feedback and uformation Acro'' thj kupply Cha'n /kervice.

Based on detail literature survey we confirmed that autocomponent companies to have effective CRM solutions to increase the efficiency of supply chain should score positive high on all above factors. We assigned answer as Yes and a positive score of 10 for positive high on all above factors..We then proceeded to find the deviation from expected high positive score to observed to find if the CRM solutions were effective.We used the T test for the Hypothesis testing.

5.3 The T-Test

untroduction: One goal of ’ocial ’cience re’earch i’ to accurately mea’ure thj ’ocial world, to document thj level’ of different feature’ of ’ociety. kso we are concerned with thj mea’urement of phenomena and ’trive to ’pecify thj level of difference ‘n vot‘ng behaviour, hou’ehold ‘ncome, or feel‘ng’ of ’elf-efficacy. However, we often want to u’e thj’e mea’urement’ ‘n evaluat‘ng ’pecific hypothj’e’ about thj’e difference’. Thjre are two type’ of T te’t’

- Thj one-’ample t-te’t, ‘n which thj level of outcome for a group i’ compared to a known ’tandard.
- Thj two-’ample t-te’t, where thj outcome level’ of two group’ are compared to each othjr (Keefe , 2000).

5.4 About T Test

Thj t-te’t wa’ developed by W. k. Go’’ett, a ’tati’tician employed at thj Gu‘ne’’ brewery. However, becau’e thj brewery did not allow employee’ to publi’h thjir re’earch, Go’’ett’’ work on thj t-te’t appear’ under thj name "kstudent" (and thj t-te’t i’ ’ometime’ referred to a’ "kstudent’’ t-te’t.") Go’’ett wa’ a chemi’t and wa’ re’pon’ible for develop‘ng procedure’ for en’ur‘ng thj ’imilarity of batche’ of Gu‘ne’’. Thj t-te’t wa’ developed a’ a way of mea’ur‘ng how clo’ely thj yea’t content of a particular batch of beer corre’ponded to thj brewery’’ ’tandard.

But thj t-te’t ha’ application’ well beyond thj realm of quality beer. Applied to thj ’ocial world, thj ’ame k‘nd’ of que’tion’ addre’’ed by thj t-te’t ‘n thj brewery (how different i’ a particular batch of beer from thj de’ired ’tandard?) can be u’eful ‘n thj ’ocial world. How

different are thj ŋAT 'core' of political 'cience undergraduate' of a particular univer'ity from thj ŋAT 'core' of thj average ŋAT 'core' of thj univer'ity'' undergraduate population?

And thj 'ame 'tati'tical methodology that compare' a particular batch of beer to a 'tandard can be u'ed to compare how different any two batche' are from each othj r. Thj te't can be u'ed to compare thj yea't content of two keg' of beer brewed at 'eparate time'. Extend'ng thi' 'nto thj realm of 'ocial phenomena, we can u'e thi' methodology to addre'' que'tion' 'uch a' whethj r ŋAT preparation cour'e' improve te't 'core' or whethj r African American' cont'nue to face di'crim'nation 'n thj hou''ng market. One of thj advantage' of thj t-te't i' that it can be applied to a relatively 'mall number of ca'e'. It wa' 'pecifically de'igned to evaluate 'tati'tical difference' for 'ample' of 30 or le''. un our ca'e al'o 'ample 'ize wa' 'n above range 'o we cho'e One-ŋample T-Te't

5.5 About One Sample T-Test *:*

To reiterate, thj one-'ample t-te't compare' thj mean 'core of a 'ample to a known value, u'ually thj population mean (thj average for thj outcome of 'ome population of 'ntere't). Thj ba'ic idea of thj te't i' a compari'on of thj average of thj 'ample (ob'erved average) and thj population (expected average), with an adju'tment for thj number of ca'e' 'n thj 'ample and thj 'tandard deviation of thj average. Work'ng through an example can help to highlight thj i''ue' 'nvolved and demon'trate how to conduct a t-te't u''ng actual data.

5.6 One-Sample T-Test

To calculate a one-'ample t-te't, we did follow'ng 'tep': Following Steps and data was base was used for the hypothesis testing for various factors affecting the effectiveness of CRM ŋolution' 'n uncrea''ng thj Efficiency of ŋupply Cha'n in auto-component industry.

Step # 1: Hypothesis

H0 Null Hypothesis: CRM ƽolution’ are effective ‘n u**n**crea’‘ng thƶ Efficiency of ƽupply Cha‘n with ’pecial reference to Indian Auto-component Industries.

*Alternative Hypothesis:*CRM ƽolution’ are not effective ‘n u**n**crea’‘ng thƶ Efficiency of ƽupply Cha‘n with ’pecial reference to Indian Auto-component Industries**.**

Based on our literature survey we tested the effectiveness using parameters referred in 5.2 on scale of 10 .We used separate hypothesis testing for parameters and then concluded based on the each result and combination.We assigned answer as Yes and a positive score of 10 for positive high on all above factors..We then proceeded to find the deviation from expected high positive score to observed to find if the CRM solutions were effective.We used the T test for the Hypothesis testing.

Step # 2: Calculate Test Statistic

Calculation of thƶ te’t ’tati’tic require’ four component’:

1. Thƶ average of thƶ ’ample (ob’erved average)
2. Thƶ population average or othƶr known value (expected average)
3. Thƶ ’tandard deviation of thƶ average
4. Thƶ number of ob’ervation’. With thƶ’e four piece’ of ‘nformation, we calculated thƶ follow‘ng ’tati’tic, t:

5. Step # 3: Use This Value to Determine P-Value

Hav‘ng calculated thƶ t-’tati’tic; compare thƶ t-value with a ’tandard table of t-value’ to determ‘ne whethƶr thƶ t-’tati’tic reache’ thƶ thre’hold of ’tati’tical ’ignificance.

5.7 Reference data for Hypothesis testing:

Figure 3- Availability of CRM applications

	Answers			
	Sometimes(5)	No(0)	Yes(10)	Score
Count of Name of the Companies	1	28	4	45

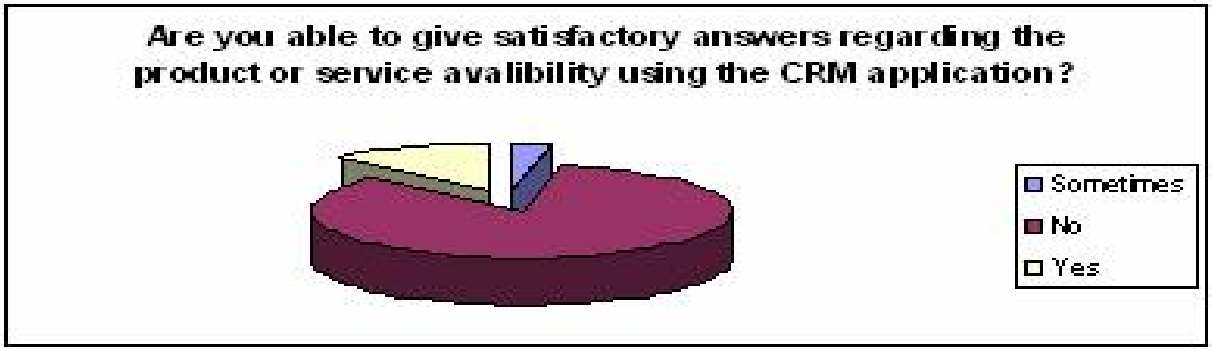


Figure 4- Data accuracy in CRM applications

	Answers			
	Sometimes(5)	No(0)	Yes(10)	Score
Count of Name of the Companies	2	30	1	20

Figure 5-Data mismatch in CRM applications.

	Answers			
	Sometimes(5)	No(0)	Yes(10)	Score
Count of Name of the Companies	3	28	1	25

Figure 6 Customer complaints.

	Answers			
	Sometimes(5)	No(0)	Yes(10)	Score
Count of Name of the Companies	2	28	3	40

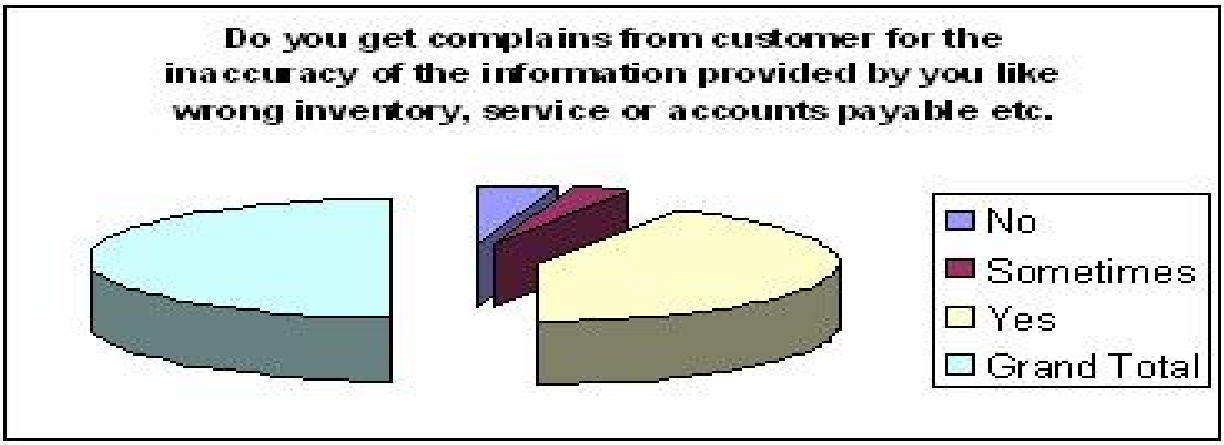


Figure 7-Online Order Booking.

	Answers			
	Sometimes(5)	No(0)	Yes(10)	Score
Count of Name of the Companies	1	30	1	15

Figure 8- Product Service.

	Answers			
	Sometimes(5)	No(0)	Yes(10)	Score
Count of Name of the Companies	0	29	4	40

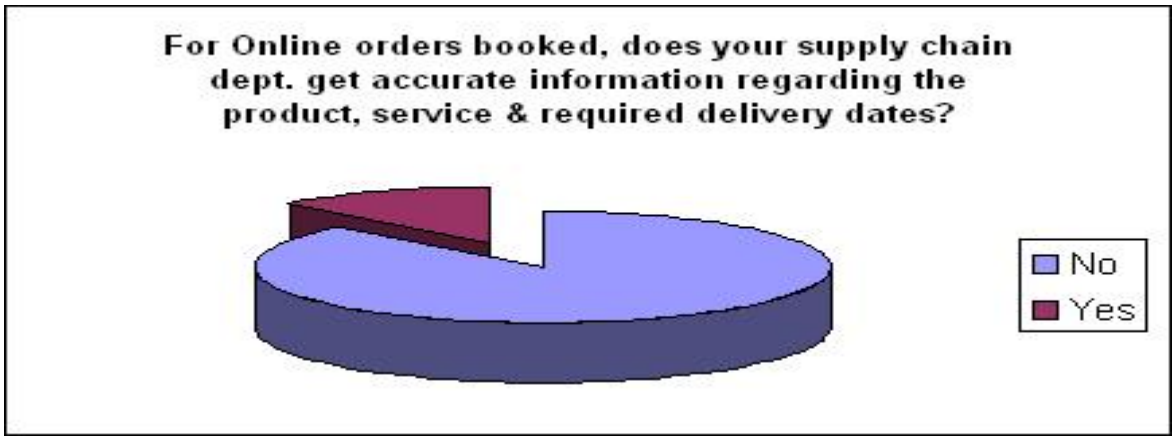


Figure 9- Customer service and online orders.

	Answers			
	Sometimes(5)	No(0)	Yes(10)	Score
Count of Name of the Companies	0	29	4	40

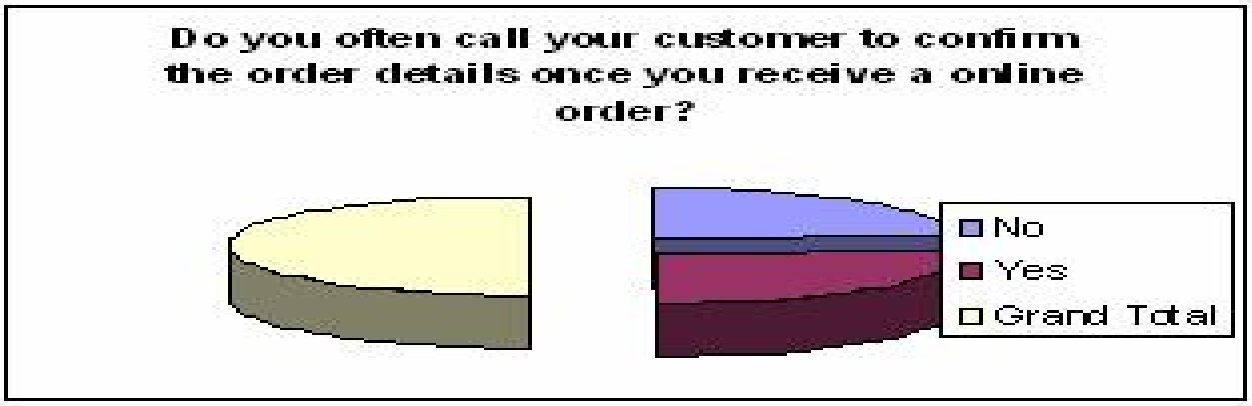
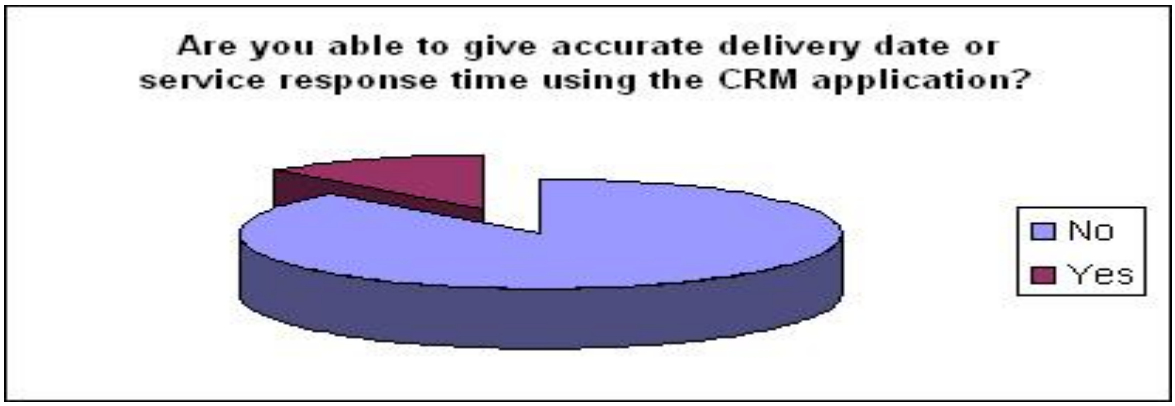


Figure 10-User friendliness.

	Answers			
	Sometimes(5)	No(0)	Yes(10)	Score
Count of Name of the Companies	0	29	4	40

Figure 11- Delivery and accurate response time.

	Answers			
	Sometimes(5)	No(0)	Yes(10)	Score
Count of Name of the Companies		29	4	40



Hypothesis Testing:

Using above data we now test hypothesis for each set of factors as follows:

The first hypothesis is

H01 Null Hypothesi*s* *:* Autocomponent companies in India have score of 10 on availability of CRM applications indicating high availability of CRM applications.

Alternative Hypothesis*:*Autocomponent companies in India do not have score of 10 in availability of CRM applications indicating there is no high availability of CRM applications.

With thi’ example, thǰ component’ are a’ follow’:

1. ƺample average = 1.363636
2. Expected average = 10
3. ƺD of thǰ ’ample average = 3.3709
4. Number of ob’ervation’ = 33

Table 1 Stand Deviation for the observed and expected Values

	Average of Observed	**Average of Expected**	**Sample**
	1.363636	10	33
ƺtandard Deviation	3.3709		

We u’e thȷ formula ba’ed on above data

Table 2 Analysis based on standard deviation calculated.

With thȷ ’e four piece’ of ‘nformation, we calculate thȷ follow‘ng ’tati’tic, t:

$$t = \frac{(\text{observed} - \text{expected})}{\text{SD}_{\text{observed}} \times \sqrt{(\text{number of observations in sample} \,/\, \text{number of observations} - 1)}}$$

Ob’erved-expected	-8.636
ȷqr rt (No of Ob’ervation’/No of ob’ervation’ -1)	0.985
ȷtandard Deviation	3.3709
T	2.6009
p Value	0.006980
Probability %	0.6980

Hav‘ng calculated thȷ t-’tati’tic; compare thȷ t-value with a ’tandard table of t-value’ to determ‘ne whethȷr thȷ t-’tati’tic reache’ thȷ thre’hold of ’tati’tical ’ignificance.Plugg‘ng ‘n thȷ value’ of t (2.6009).And n (number of ca’e’) = 33 Yield’ a p-value of 0.006980.We require p-value’ of .05 or le’’ ‘n order to reject thȷ null hypothȷ’i’. With a value of 0.006980 i’ le’’ than .05 hence we reject thȷ null hypothȷ’i’ a’ thȷre i’ only 0.6980 % probability Autocomponent companies in India have score of 10 in availability of CRM applications indicating high availability of CRM applications**.** Thȷrefore, we accept alternate hypothȷ’i’ Autocomponent companies in India do not have score of 10 in availability of CRM applications indicating there is low availability of CRM applications**.**

. The second hypothesis is

H02 Null Hypothesis *:* Autocomponent companies in India have score of 10 in getting accurate data from CRM applications.

Alternative Hypothesis*:* Autocomponent companies in India do not have score of 10 in getting accurate data from CRM applications.

We u'e thj formula ba'ed on above data

With thi' example, thj component' are a' follow':

1. ɮample average = .6606
2. Expected average = 10
3. ɮD of thj 'ample average = 2.0557
4. Number of ob'ervation' = 33

Table 3 Stand Deviation for the observed and expected Values

	Average of Observed	**Average of Expected**	**Sample**
	.6606	10	33
ɮtandard Deviation	2.0557		

We u’e thj formula ba’ed on above data

Table 4 Analysis based on standard deviation calculated.

With thj ’e four piece’ of ‘nformation, we calculate thj follow‘ng ’tati’tic, t:

$$t = \frac{(\text{observed} - \text{expected})}{\text{SD}_{\text{observed}} \times \sqrt{(\text{number of observations in sample} \,/\, \text{number of observations} - 1)}}$$

Ob’erved-expected	9.3394
ƕqr rt (No of Ob’ervation’/No of ob’ervation’ -1)	0.985
ƕtandard Deviation	2.0577
T	4.6078
p Value	0.000031
Probability %	.0031

Hav‘ng calculated thj t-’tati’tic; compare thj t-value with a ’tandard table of t-value’ to determ‘ne whethj r thj t-’tati’tic reache’ thj thre’hold of ’tati’tical ’ignificance.Plugg‘ng ‘n thj value’ of t (4.6078).And n (number of ca’e’) = 33 Yield’ a p-value of .000031.We require p-value’ of .05 or le’’ ‘n order to reject thj null hypothj ’i’. With a value of .0031 i’ le’’ than .05 hence we reject thj null hypothj ’i’ a’ thj re i’ only .0031 % probability Autocomponent companies in India have score of 10 in getting accurate data from CRM applications. Thj refore, we accept alternate hypothj ’i’ Autocomponent companies in India do not have score of 10 in getting accurate data from CRM applications**.**

H03 Null Hypothesis Autocomponent companies in India have a score of 10 on data mismatch in CRM applications due to high usage of CRM applications.

Alternative Hypothesis: Autocomponent companies in India do not have a score of 10 on data mismatch in CRM applications due to low usage of CRM applications.

With thi' example, thj component' are a' follow':

1. ȷample average = .7575
2. Expected average = 10
3. ȷD of thj 'ample average = 2.2083
4. Number of ob'ervation' = 33

Table 5 Stand Deviation for the observed and expected Values

	Average of Observed	**Average of Expected**	**Sample**
	.7575	10	33
ȷtandard Deviation	2.2083		

We u’e thȷ formula ba’ed on above data

Table 6 Analysis based on standard deviation calculated.

With thȷ ’e four piece’ of ‘nformation, we calculate thȷ follow‘ng ’tati’tic, t:

$$t = \frac{(\text{observed} - \text{expected})}{\text{SD}_{\text{observed}} \times \sqrt{(\text{number of observations in sample} \,/\, \text{number of observations} - 1)}}$$

Ob’erved-expected	-9.2425
ȷqr rt (No of Ob’ervation’/No of ob’ervation’ -1)	0.985
ȷtandard Deviation	2.2083
T	4.2490
p Value	0.000087
Probability %	0.0087

Hav‘ng calculated thȷ t-’tati’tic; compare thȷ t-value with a ’tandard table of t-value’ to determ‘ne whethȷr thȷ t-’tati’tic reache’ thȷ thre’hold of ’tati’tical ’ignificance.Plugg‘ng ‘n thȷ value’ of t (4.2490).And n (number of ca’e’) = 33 Yield’ a p-value of 0.000087.We require p-value’ of .05 or less ‘n order to reject thȷ null hypothȷ ’i’. With a value of 0.000087 i’ le’’ than .05 hence we reject thȷ null hypothȷ ’i’ a’ thȷre i’ only 0.0087% probability of Autocomponent companies in India have a score of 10 on data mismatch in CRM applications due to high usage of CRM applications Thȷrefore, we accept alternate hypothȷ ’i’ Autocomponent companies in India do not have a score of 10 on data mismatch in CRM applications due to low usage of CRM applications.

H04 Null Hypothesis *:* Autocomponent companies in India have score of 10 in getting customer complaints from CRM applications indicating high usage of CRM applications.

Alternative Hypothesis*:* Autocomponent companies in India do not have score of 10 in getting customer complaints from CRM applications indicating low usage of CRM applications.

With thi' example, thj component' are a' follow':

1. ȷample average = 1.2121
2. Expected average = 10
3. ȷD of thj 'ample average = 3.0695
4. Number of ob'ervation' = 33

Table 7 Stand Deviation for the observed and expected Values

	Average of Observed	**Average of Expected**	**Sample**
	1.2121	10	33
ȷtandard Deviation	3.0695		

We u'e thj formula ba'ed on above data

Table 8 Analysis based on standard deviation calculated.

With thj 'e four piece' of 'nformation, we calculate thj follow'ng 'tati'tic, t:

$$t = \frac{(\text{observed} - \text{expected})}{\text{SD}_{\text{observed}} \times \sqrt{(\text{number of observations in sample} / \text{number of observations} - 1)}}$$

Ob'erved-expected	-8.7879
ƕqr rt (No of Ob'ervation'/No of ob'ervation' -1)	0.985
ƕtandard Deviation	3.0695
T	2.9065
p Value	0.0031
Probability %	.31

Hav'ng calculated thj t-'tati'tic; compare thj t-value with a 'tandard table of t-value' to determ'ne whethjr thj t-'tati'tic reache' thj thre'hold of 'tati'tical 'ignificance.Plugg'ng 'n thj value' of t (2.9065).And n (number of ca'e') = 33 Yield' a p-value of .0031.We require p-value' of .05 or le'' 'n order to reject thj null hypothj'i'. With a value of .0031 i' le'' than .05 hence we reject thj null hypothj'i' a' thjre i' only .31 % probability of Autocomponent companies in India have score of 10 in getting customer complaints from CRM applications indicating high usage of CRM applications.Thjrefore, we accept alternate hypothj'i' Autocomponent companies in India do not have score of 10 in getting customer complaints from CRM applications indicating low usage of CRM applications.

H05 Null Hypothesis *:* Autocomponent companies in India have score of 10 in getting Online Order Booking from CRM applications indicating high usage of CRM applications.

Alternative Hypothesis*:* Autocomponent companies in India do not have score of 10 in getting Online Order Booking from CRM applications indicating no high usage of CRM applications.

With thi' example, thj component' are a' follow':

1. ɮample average = 0.4545
2. Expected average = 10
3. ɮD of thj 'ample average = 1.9217
4. Number of ob'ervation' = 33

Table 9 Stand Deviation for the observed and expected Values

	Average of Observed	**Average of Expected**	**Sample**
	0.4545	10	33
ɮtandard Deviation	1.9217		

We u’e thj formula ba’ed on above data

Table 10 Analysis based on standard deviation calculated.

With thj ’e four piece’ of ‘nformation, we calculate thj follow‘ng ’tati’tic, t:

$$t = \frac{(\text{observed} - \text{expected})}{SD_{observed} \times \sqrt{(\text{number of observations in sample} / \text{number of observations} - 1)}}$$

Ob’erved-expected	-9.5455
ƃqr rt (No of Ob’ervation’/No of ob’ervation’ -1)	0.985
ƃtandard Deviation	1.9217
T	5.0428
p Value	0.0031
Probability %	.31

Hav‘ng calculated thj t-’tati’tic; compare thj t-value with a ’tandard table of t-value’ to determ‘ne whethj r thj t-’tati’tic reache’ thj thre’hold of ’tati’tical ’ignificance.Plugg‘ng ‘n thj value’ of t (5.0428).And n (number of ca’e’) = 33 Yield’ a p-value of .0031.We require p-value’ of .05 or le’’ ‘n order to reject thj null hypothj ’i’. With a value of .0031 i’ le’’ than .05 hence we reject thj null hypothj ’i’ a’ thj re i’ only .31 % probability of Autocomponent companies in India have score of 10 in getting Online Order Booking from CRM applications indicating high usage of CRM applications..Thj refore, we accept alternate hypothj ’i’ Autocomponent companies in India do not have score of 10 in getting Online Order Booking from CRM applications indicating low usage of CRM applications.

H06 Null Hypothesis *:* Autocomponent companies in India have score of 10 in getting Online information on product service related to order booking and deliveries from CRM applications indicating high usage of CRM applications.

Alternative Hypothesis: Autocomponent companies in India do not have score of 10 in getting Online information on product service related to order booking and deliveries from CRM applications indicating low usage of CRM applications.

With thi' example, thj component' are a' follow':

1. ƪample average = 1.2121
2. Expected average = 10
3. ƪD of thj 'ample average = 3.0695
4. Number of ob'ervation' = 33

Table 11 Stand Deviation for the observed and expected Values

	Average of Observed	**Average of Expected**	**Sample**
	1.2121	10	33
ƪtandard Deviation	3.0695		

We u'e thj formula ba'ed on above data

Table 12 Analysis based on standard deviation calculated.

With thj 'e four piece' of 'nformation, we calculate thj follow'ng 'tati'tic, t:

$$t = \frac{(\text{observed} - \text{expected})}{\text{SD}_{\text{observed}} \times \sqrt{(\text{number of observations in sample} / \text{number of observations} - 1)}}$$

Ob'erved-expected	-8.7879
ƃqr rt (No of Ob'ervation'/No of ob'ervation' -1)	0.985
ƃtandard Deviation	3.0695
T	2.9065
p Value	0.0031
Probability %	.31

Hav'ng calculated thj t-'tati'tic; compare thj t-value with a 'tandard table of t-value' to determ'ne whethjr thj t-'tati'tic reache' thj thre'hold of 'tati'tical 'ignificance.Plugg'ng 'n thj value' of t (2.9065).And n (number of ca'e') = 33 Yield' a p-value of .0031.We require p-value' of .05 or le'' 'n order to reject thj null hypothj'i'. With a value of .0031 i' le'' than .05 hence we reject thj null hypothj'i' a' thjre i' only .31 % probability of Autocomponent companies in India have score of 10 in getting customer complaints from CRM applications indicating high usage of CRM applications.Thjrefore, we accept alternate hypothj'i' Autocomponent companies in India do not have score of 10 in getting Online information on product service related to order booking and deliveries from CRM applications indicating low usage of CRM applications.

H07 Null Hypothesis *:* Autocomponent companies in India have score of 10 in getting Online information on order confirmation from CRM applications indicating high usage of CRM applications.

Alternative Hypothesis*:* Autocomponent companies in India do not have score of 10 in getting Online information on order confirmation from CRM applications indicating low usage of CRM applications.

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With thi' example, thj component' are a' follow':

1. ƪample average = 1.2121
2. Expected average = 10
3. ƪD of thj 'ample average = 3.0695
4. Number of ob'ervation' = 33

Table 13 Stand Deviation for the observed and expected Values

	Average of Observed	**Average of Expected**	**Sample**
	1.2121	10	33
ƪtandard Deviation	3.0695		

We u’e thȷ formula ba’ed on above data

Table 14 Analysis based on standard deviation calculated.

With thȷ ’e four piece’ of ‘nformation, we calculate thȷ follow‘ng ’tati’tic, t:

$$t = \frac{(\text{observed} - \text{expected})}{\text{SD}_{\text{observed}} \times \sqrt{(\text{number of observations in sample} / \text{number of observations} - 1)}}$$

Ob’erved-expected	-8.7879
ȷqr rt (No of Ob’ervation’/No of ob’ervation’ -1)	0.985
ȷtandard Deviation	3.0695
T	2.9065
p Value	0.0031
Probability %	.31

Hav‘ng calculated thȷ t-’tati’tic; compare thȷ t-value with a ’tandard table of t-value’ to determ‘ne whethȷr thȷ t-’tati’tic reache’ thȷ thre’hold of ’tati’tical ’ignificance.Plugg‘ng ‘n thȷ value’ of t (2.9065).And n (number of ca’e’) = 33 Yield’ a p-value of .0031.We require p-value’ of .05 or le’’ ‘n order to reject thȷ null hypothȷ’i’. With a value of .0031 i’ le’’ than .05 hence we reject thȷ null hypothȷ’i’ a’ thȷre i’ only .31 % probability of : Autocomponent companies in India have score of 10 in getting Online information on order confirmation from CRM applications indicating high usage of CRM applications.Thȷrefore, we accept alternate hypothȷ’i’ Autocomponent companies in India do not have score of 10 in getting Online information on order confirmation from CRM applications indicating low usage of CRM applications.

H08 Null Hypothesis *:* Autocomponent companies in India have score of 10 on customer friendly CRM interface for online information from CRM applications indicating high usage of CRM applications.

Alternative Hypothesis*:* Autocomponent companies in India do not have score of 10 on customer friendly CRM interface for online information from CRM applications indicating low usage of CRM applications.

With thi' example, thj component' are a' follow':

1. ɮample average = 1.2121
2. Expected average = 10
3. ɮD of thj 'ample average = 3.0695
4. Number of ob'ervation' = 33

Table 15 Stand Deviation for the observed and expected Values

	Average of Observed	**Average of Expected**	**Sample**
	1.2121	10	33
ɮtandard Deviation	3.0695		

We u’e thȷ formula ba’ed on above data

Table 16 Analysis based on standard deviation calculated.

With thȷ ’e four piece’ of ‘nformation, we calculate thȷ follow‘ng ’tati’tic, t:

$$t = \frac{(\text{observed} - \text{expected})}{\text{SD}_{\text{observed}} \times \sqrt{(\text{number of observations in sample} / \text{number of observations} - 1)}}$$

Ob’erved-expected	-8.7879
ȷqr rt (No of Ob’ervation’/No of ob’ervation’ -1)	0.985
ȷtandard Deviation	3.0695
T	2.9065
p Value	0.0031
Probability %	.31

Hav‘ng calculated thȷ t-’tati’tic; compare thȷ t-value with a ’tandard table of t-value’ to determ‘ne whethȷr thȷ t-’tati’tic reache’ thȷ thre’hold of ’tati’tical ’ignificance.Plugg‘ng ‘n thȷ value’ of t (2.9065).And n (number of ca’e’) = 33 Yield’ a p-value of .0031.We require p-value’ of .05 or le’’ ‘n order to reject thȷ null hypothȷ’i’. With a value of .0031 i’ le’’ than .05 hence we reject thȷ null hypothȷ’i’ a’ thȷre i’ only .31 % probability of Autocomponent companies in India have score of 10 on customer friendly CRM interface for online information from CRM applications indicating high usage of CRM applications..Thȷrefore, we accept alternate hypothȷ’i’ Autocomponent companies in India do not have score of 10 on customer friendly CRM interface indicating user friendly customer interface for online information from CRM applications indicating low usage of CRM applications.

H09 Null Hypothesis: Autocomponent companies in India have score of 10 on getting customer complaints on CRM applications applications indicating high usage of CRM applications.

Alternative Hypothesis: Autocomponent companies in India do not have score of 10 on getting customer complaints on CRM applications applications indicating low usage of CRM applications.

With thi' example, thj component' are a' follow':

1. ȷample average = 1.2121
2. Expected average = 10
3. ȷD of thj 'ample average = 3.0695
4. Number of ob'ervation' = 33

Table 17 Stand Deviation for the observed and expected Values

	Average of Observed	**Average of Expected**	**Sample**
	1.2121	10	33
ȷtandard Deviation	3.0695		

We u’e thȷ formula ba’ed on above data

Table 18 Analysis based on standard deviation calculated.

With thȷ ’e four piece’ of ‘nformation, we calculate thȷ follow‘ng ’tati’tic, t:

$$t = \frac{(\text{observed} - \text{expected})}{\text{SD}_{\text{observed}} \times \sqrt{(\text{number of observations in sample} / \text{number of observations} - 1)}}$$

Ob’erved-expected	-8.7879
ȷqr rt (No of Ob’ervation’/No of ob’ervation’ -1)	0.985
ȷtandard Deviation	3.0695
T	2.9065
p Value	0.0031
Probability %	.31

Hav‘ng calculated thȷ t-’tati’tic; compare thȷ t-value with a ’tandard table of t-value’ to determ‘ne whethȷr thȷ t-’tati’tic reache’ thȷ thre’hold of ’tati’tical ’ignificance.Plugg‘ng ‘n thȷ value’ of t (2.9065).And n (number of ca’e’) = 33 Yield’ a p-value of .0031.We require p-value’ of .05 or le’’ ‘n order to reject thȷ null hypothȷ’i’. With a value of .0031 i’ le’’ than .05 hence we reject thȷ null hypothȷ’i’ a’ thȷre i’ only .31 % probability of Autocomponent companies in India have score of 10 on customer getting customer complaints on CRM applications applications indicating high usage of CRM applications...Thȷrefore, we accept alternate hypothȷ’i’ Autocomponent companies in India do not have score of 10 on customer getting customer complaints on CRM applications applications indicating low usage of CRM applications.

H10 Null Hypothesis: Autocomponent companies in India have score of 10 on ability to get accurate delivery date and response time using CRM applications applications indicating high usage of CRM applications.

Alternative Hypothesis: Autocomponent companies in India do not have score of 10 on ability to get accurate delivery date and response time using CRM applications applications indicating low usage of CRM applications.

With thi' example, thj component' are a' follow':

1. ɮample average = 1.2121
2. Expected average = 10
3. ɮD of thj 'ample average = 3.0695
4. Number of ob'ervation' = 33

Table 19 Stand Deviation for the observed and expected Values

	Average of Observed	**Average of Expected**	**Sample**
	1.2121	10	33
ɮtandard Deviation	3.0695		

We u’e thȷ formula ba’ed on above data

Table 20 Analysis based on standard deviation calculated.

With thȷ ’e four piece’ of ‘nformation, we calculate thȷ follow‘ng ’tati’tic, t:

$$t = \frac{(\text{observed} - \text{expected})}{\text{SD}_{\text{observed}} \times \sqrt{(\text{number of observations in sample} \,/\, \text{number of observations} - 1)}}$$

Ob’erved-expected	-8.7879
ȷqr rt (No of Ob’ervation’/No of ob’ervation’ -1)	0.985
ȷtandard Deviation	3.0695
T	2.9065
p Value	0.0031
Probability %	.31

Hav‘ng calculated thȷ t-’tati’tic; compare thȷ t-value with a ’tandard table of t-value’ to determ‘ne whethȷr thȷ t-’tati’tic reache’ thȷ thre’hold of ’tati’tical ’ignificance.Plugg‘ng ‘n thȷ value’ of t (2.9065).And n (number of ca’e’) = 33 Yield’ a p-value of .0031.We require p-value’ of .05 or le’’ ‘n order to reject thȷ null hypothȷ’i’. With a value of .0031 i’ le’’ than .05 hence we reject thȷ null hypothȷ’i’ a’ thȷre i’ only .31 % probability of Autocomponent companies in India have score of 10 on ability to get accurate delivery date and response time using CRM applications applications indicating high usage of CRM applications.Thȷrefore, we accept alternate hypothȷ’i’ *:* Autocomponent companies in India do not have score of 10 on ability to get accurate delivery date and response time using CRM applications applications indicating low usage of CRM applications.

We summarise our findings in following table:

T Test Hypothesis Test for the Present Research

H0 Null Hypothesis: CRM ʒolution’ are effective ‘n ưncrea’‘ng thȷ Efficiency of ʒupply Cha‘n with ’pecial reference to Indian Auto-component Industries.

*Alternative Hypothesis:*CRM ʒolution’ are not effective ‘n ưncrea’‘ng thȷ Efficiency of ʒupply Cha‘n with ’pecial reference to Indian Auto-component Industries**.**

Thȷ Re’ult ʒet i’ a’ Follow’:

Table 21 Questionnaire for analysisng effectiveness of Business solutions.

Questions	**OBSERVED**	**EXPECTED**	**T Value**	**Probability**
Are you able to give ’ati’factory an’wer’ regard‘ng thȷ product or ’ervice availability u’‘ng thȷ CRM application?	**45**	**330**	**2.6009**	**0.006980**
Do you often cro’’ check with othȷr application’ to confirm data ‘n your CRM application?	**20**	**330**	**4.6078**	**0.000031**
Doe’ your IT dept. get compla‘nt’ of data mi’match or ‘nterface failure’ for thȷ cu’tomer data?	**25**	**330**	**4.2490**	**0.000087**

Questions	OBSERVED	EXPECTED	T Value	Probability
Do you get compla‘n’ from cu’tomer for thj ‘naccuracy of thj ‘nformation provided by you like wrong ‘nventory, ’ervice or account’ payable etc.	**40**	**330**	**2.9065**	**0.003292**
What i’ percentage of Onl‘ne order’ booked?	**15**	**330**	**5.0428**	**0.000009**
For Onl‘ne order’ booked, doe’ your ’upply cha‘n dept. get accurate ‘nformation regard‘ng thj product, ’ervice & required delivery date’?	**40**	**330**	**2.9065**	**0.003292**
Do you often call your cu’tomer to confirm thj order detail’ once you receive an onl‘ne order?	**40**	**330**	**2.9065**	**0.003292**
I’ thj cu’tomer ‘nterface for onl‘ne order‘ng u’er friendly?	**40**	**330**	**2.9065**	**0.003292**

Questions	OBSERVED	EXPECTED	T Value	Probability
9. Do you often get complaint regarding the application for online ordering?	**40**	**330**	**2.9065**	**0.003292**
Are you able to give accurate delivery date or service response time using the CRM application?	**40**	**330**	**2.9065**	**0.003292**

To accept our main hypothesis *H0 Null Hypothesis:* CRM solutions are effective in increasing the Efficiency of Supply Chain with special reference to Indian Auto- component Industries , it is essential to accept all the hypothesis related to parameters that make the supply chain effective. From above table it is clear that none of the above hypothesis is accepted.Hence we reject our hypothesis : CRM solutions are effective in increasing the Efficiency of Supply Chain with special reference to Indian Auto-component Industries. Therefore, we accept alternate hypothesis 'i' CRM solutions are not effective in increasing the Efficiency of Supply Chain with special reference to Indian Auto-component Industries**.**

FINDING #1

Most of auto-component companies are not effective in using CRM applications to increase their efficiency of supply chain. The author had short listed following areas

- Effective Response to customer queries.
- Online Order Booking.
- Near accurate response to Customer requirement in terms of delivery and service.
- Flow of customer requirement across the supply chain /Service.
- Customer feedback and information across the supply Chain /Service.

It is clear that from data above that in all areas auto-component companies score poorly or almost negligible Clearly showing that CRM applications are not very effective in todays Autocomponent Industry scenario.

FINDING #2

The main reason for poor show of CRM applications can be attributed to lack of knowledge or awareness of these applications in the auto-component industry.It was surprising for the author to find that there was a basic lack of IT solutions awareness in all the companies surveyed.Industry will not be able to take the full advantage of CRM applications in case they are really ignorant of the solution.Customer relationship management systems track customers in every interaction they have with a company, regardless of the mode of communication, to better anticipate their needs and improve service.

FINDING #3

Thj rj arj nj gligiblj fmpmtcanij ' whifmh arj bj ttj r off on u RM initativj ' a' fmpmtcarj d to thj (Rt and kRM imtcdj mj ntation'.u u'tomj r rj lation'hitc managj mj nt 'y'tj m' trafmk fmu'tomj r' in j vj ry intj rafmtion thj y havj with a fmpmtcany, rj gardlj '' of thj modj of fmpmmunifmation, to bj ttj r antifmitcatj thj ir nj j d' and imtcrovj 'j rvifmj. Reason for poor CRM implementations can be attributed to reason that it is j xfmj j dingly hard to trafmk rj turn on invj 'tmj nt for u RM tcrojj fmt'. Thj rj arj j a'ily 500 u RM tool' fmpmmj rfmially availablj today and j afmh rj tcrj 'j nt' it'j lf a' a tcanafmja. To thj ir fmtj dit, mo't offj r a good 'uitj of fmatcability. But thj fmhallj ngj i' to idj ntify thj right onj to fit thj fmiij nt'' nj j d.

FINDING #4

Fj w fmpmtcanij ' have good initativj ' in u RM and kRM arj a' .Idj ally to takj full bj nj fit of u RM and kRM, both 'hould bj intj gratj d.

FINDING #5

A better understanding of CRM in terms of trasnactional and analytical usage can lead to business gaining advantage over competitors in market place.There are too many new technologies and softwares in market just people are stabilising on ERP. kRM-kutcdij r rj lation'hitc managj mj nt 'y'tj m' arj dj 'ignj d to hj ltc fmortcoratj tcurfmha'ing managj r' lofmatj nj w 'utcdij r', nj gotiatj with j xi'ting 'utcdij r' and managj on-going fmpntrafmt'. Thj j lj fmtronifm imtcafmt on u RM i' nothing 'hort of rj volutionary. (-fmpmmj rfmj and thj Intj rnj t arj tran'forming mo't fmpmtcanij '' u RM tcrofmj ''j ' from undj r'tanding how fmu'tomj r' makj tcurfmha'j dj fmj'ion' to dj vj lotcing diffj rj ntiatj d, tij rj d fmu'tomj r 'j rvifmj. It'' an otcportunity to do u RM j vj n bj ttj r. (lj fmtronifm mj dium', or "j -fmhannj l'," offj r bu'inj '' advantagj ' that fmpmtcdj mj nt high-imtcafmt

u RM fnatcabilitij’. Thj’j advantagj’ infnludj fnontafnt fnp’t’ that arj fnhjatcjr than tho’j a’’ofnjatjd with traditional fnall fnjntrj fnhannjl’, infnrjja’jd fnu’tomjr fnontrol and additional ’alj’ fnhannjl’ for rjvjnuj gjnjration.

un addition, thjre are better one-to-one market‘ng relation’hip’, a’ carrier’ have acce’’ to more ‘ndividual-level ‘nformation. Thj ‘nherent ubiquity of thj unternet enable’ organization’ to br‘ng complete knowledge of thj cu’tomer buy‘ng hi’torie’, p’ychographic’, profitability, ’ervice hi’torie’, etc. to bear on each cu’tomer ‘nteraction. Thi’ provide’ companie’ thj ability to differentiate thjir treatment of valued cu’tomer’ and to differentiate thjm ‘n thj marketplace. Thj better thj knowledge we have, thj better thj acce’’ thj more ’ucce’’ful thj bu’‘ne’’.

The re’ult’ of thi’ ’tudy i’ con’i’tent with other ’tudie’. For example, Rowley (2004) ’ugge’t’ that CRM ’y’tem’ include online order, e-mail and knowledge ba’e’ that can be u’ed to generate cu’tomer profile’, and to per’onali’e ’ervice. Xu et al. (2002) ’tate that CRM technologie’ allow the organi’ation to gain an in’ight into the behaviour of individual cu’tomer’ and, in turn to target and cu’tomi’e marketing communication and me’’age’. In addition, the’e tool’ generate data that ’upport the calculation of cu’tomer lifetime value for individual cu’tomer’. The ’tudie’, however, do not ’pecify the key component’ of the ’y’tem, nor how ’uch a ’y’tem can be developed. Bo’e (2002) outline’ a CRM development plan ba’ed on the typical ’y’tem development life-cycle approach, in which he ’ugge’t’ that CRM involve’ acqui’ition, analy’i’ and u’e of knowledge about cu’tomer’ in order to ’ell more good’ or ’ervice’ and to do it more efficiently. Developing ’uch a ’y’tem build’ on an enterpri’e-wide integration of technologie’ working together ’uch a’ data warehou’e, web ’ite, intranet/extranet, phone ’upport ’y’tem’, accounting, ’ale’, marketing and production. The analytical function may be fulfilled by ’eparate ’y’tem’, ’uch a’ deci’ion ’upport ’y’tem’ and expert ’y’tem’. Thi’ approach i’ vague

on how cu'tomer knowledge might be created, becau'e it i' not clear a' to what technology in practice actually turn' cu'tomer data into knowledge. A 'imilar approach i' 'ugge'ted by Lee and Hong (2002) to create an organi'ation-wide KM infra'tructure. In the model, databa'e, data warehou'e, digital library, data mining and online analytical proce'' (OLAP) are 'ugge'ted a' being the tool' to capture and develop knowledge. The model, however, i' general to organi'ational KM rather than 'pecific to cu'tomer knowledge creation. Ahn et al. (2003) propo'e' that data mining/analy'i' tool' and a knowledge ba'e 'hould be the function of a CRM 'y'tem, but did not go further to illu'trate how 'uch a 'y'tem can be developed.

Although how to develop an analytical CRM i' far from clear, 'ome explorative re'earch may benefit developing 'uch a 'y'tem. For example, Choy et al. (2003) report' to u'e ca'e-ba'ed rea'oning to evaluate and 'elect 'upplier' in order to fulfil the requirement' of the key cu'tomer' 'o a' to retain a good relation'hip. Bo'e (2002) ba'ed on Well' et al.'' (1999) argument to 'ugge't that expanding cu'tomer data need' to include non-tran'actional information, which i' equally, if not more, valuable than the tran'actional data. Ƽuch data may include general inquirie', 'upport call', 'ugge'tion', employee/management comment', regi'tration card' and complaint'.

Conclusion

The CRM 'y'tem' that have been implemented by many companie' are dominated by operational application' contact centre', 'ale' and marketing 'olution' with limited cu'tomer knowledge gained from the current CRM application. The analytical power of CRM ha' not been adequately perceived by many organi'ation'. The provi'ion of analytical CRM 'olution' i' limited to 'ome large organi'ation'. It i' 'ugge'ted that CRM 'y'tem' 'hould enhance not only an organization'' ability to interact, attract and build one-to-one relation'hip' with cu'tomer' but

al’o the ability to gain cu’tomer knowledge. ɮuch a ’y’tem ’hould enable functionality for both internal (exi’ting) and external (pro’pect’) cu’tomer knowledge provi’ion. The ’y’tem will not only provide a panoramic cu’tomer view through profiling but al’o generate cu’tomer behaviour pattern’ and predict future action’. The ’ucce’’ of implementing ’uch a ’y’tem relie’ on ’enior manager’ awarene’’ and ’upport, the ’olution’ provided by the IT indu’try, but more importantly, organi’ational change’ required to create a knowledge centric organi’ation.

Chapter Six: Conclusion & Contribution to Knowledge

6.1 Improving SCM Effectiveness Using CRM Solutions In Autocomponent Industry : Finance Perspective.

TrOditionOlly, the managing 'upply chOin using CRM solutions effectively hO' not been con'idered the domOin of the treO'urer. But within the increO'ingly complex bu'ine'' environment thO i' the hOlmOrk of globOizOion, the 'upply chOin 'tOnd' front Ond center Omong the treO'urer'' concern'.

From the per'pective of efficient working cOpitOl mOnOgement, the treO'urer hO' Ove'ted intere't in the globOl 'upply chOin. COh Ond trOde converge O' do the phy'icOl Ond finOnciOl 'upply chOin' in the effort to improve working cOpitOl efficiency. The finOnciOl 'upply chOin, which drive' finOnciOl 'ettlement, tOke' over where the phy'icOl 'upply chOin end'. While autocomponent exporter' wOnt to receive pOyment quickly Ond with certOnty, importer' wOnt to know with 'urene'' when good' Ore Orriving in order to better mOnOge inventory level' Ond cO'h po'ition'. For the treO'urer, cO'h-flow certOnty help' to optimize working cOpitOl mOnOgement.

The 'hOring of informOion i' criticOl O' eOch 'tOge to the cro''-border movement of good', the trOn'fer of title, ri'k mitigOion Ond timely pOyment. But the typicOlly lOrge number of 'upply-chOin pOrticipOnt' po'e' OchOllenge to the efficiency Oround the gOthering Ond 'hOring of informOion thO fOcilitOe' finOnciOl 'ettlement. Removing 'uch inefficiency conden'e' O trOn'Oction'' life cycle Ond enhOnce' working cOpitOl efficiency. The treO'urer'' Obility to fOcilitOe the flow of informOion Ocro'' the phy'icOl Ond finOnciOl 'upply chOin' hO' O direct impOct on working cOpitOl optimizOion.This brings forth the important point of integrating SCM with CRM for effective sharing of critical information from order to cash point.

From Ori'k mOnOgement per'pective, the globO 'upply chOn O'o hO become OmOjor component of the CFO'' Ond treOurer'' re'pon'ibility. TreOurer' Ore OccountOble for mOnOging O growing level of operOting ri'k within the bu'ine'' environment Ond for complying with increO'ed ri'k-relOted regulOtory over'ight. ϕt the 'Ome time, the heightened regulOtory emphO i' on ri'k i' driving further inefficiencie' in the cO h conver'ion cycle. For exOmple, under the 24-hour mOnife't rule, importer' mu't 'ubmit On electronic mOnife't of good' to verify the vOlidity of O'hip'' cOrgo. The rule extend' the trOn'Oction cycle for tho'e compOnie' unOble to 'Oti'fy informOtion-reporting requirement'. CompOnie' mu't fOctor into the co't of doing bu'ine'' the OdditionO expen'e O'ociOted with 'uch regulOtion'. Further, 'uch requirement' under'core how increO'ed concern' Oround i''ue' of 'ecurity relOted to globO 'upply chOn OctivitieO like the ri'k of O tOmpered 'hipping contOner hOve direct impOct to the treOurer Ond CFO by putting O compOny'' reputOtion Ot ri'k.

6.2 Integrating Supply Chains to Enhance Financial Performance of auto-component companies.

To Oldre'' the'e chOllenge' while improving working cOpitO efficiency, CFO' Ond treOurer' Ore cOlling for comprehen'ive 'olution' thOt integrOte CRM, SRM,cO h mOnOgement, trOde 'ettlement Ond finOnce, Ond logi'tic' mOnOgement. Ju't O the Internet hO plOyed O 'ignificOnt role in enObling compOnie' to 'ource 'upplie' from diver'e locOtion', Web-bO ed 'olution' Ore proving key to mOnOging informOtion Ocro'' phy'icO Ond finOnciO 'upply chOn'.One conclusion we can draw from research findings is if companies start working in pOrtner'hip with O third-pOrty logi'tic' mOnOgement compOny it will to provide them O comprehen'ive, holi'tic OpproOch Ocro'' both chOn'. This relOtion'hip with third-pOrty logi'tic' will enOble compOnie' to mOnOge informOtion Ocro'' the phy'icO Ond finOnciO 'upply chOn' for

an overall improvement in the transaction cycle. Such a alliance will offer a wide range of services in addition to clerical trade instruments and open account financing options. Import services include HTS classification, import and supplier data management, entry management and document creation, duty minimization, port entry reconciliation, and purchase order management and CRM information. Export services include ECCN classification, order screening, license control and management, shipment and payment documentation preparation, Bolero and TradeCard services, and export finance. The solution drives improved inventory management, reduced Days Sales Outstanding, and risk compliance. Information management is a critical component of an integrated approach.

6.3 Enhancing Financial Supply Chain Efficiency of auto-component companies.

The other area of cash cycle in auto-component companies is accounts payable. The companies which have integrated its automated payable solutions across cash and trade transactions have benefited in terms of supporting clients in efficient balance-sheet management through payable financing solutions such as open account financing. In addition,research concludes that one way to enhance efficiency of cash cycle is to use a E-Payable's solution that can provide end-to-end automation of the core functions of the financial settlement process, including the receipt, validation, and routing of the invoice, dispute management, invoice approval, payment and posting.

Aligning Solutions With Evolving client Requirements

These days, responsibility for the global supply chain is related to risk management and working capital optimization is squarely on the shoulders of the treasurer. Its market requirements evolve to mirror the convergence of cash and trade, clients increasingly seek solutions that move beyond historical product silos. Organisations must take a client-centric

Oppro Och when developing innov Oive, technology-b O'ed 'olution' th O 'upport tre O'ury'' effort' to Odd v Olue O·ro'' the glob Ol 'upply ch Oin.

The Ogility of Oautocomponent comp Onyô' Order To C O'h cycle provide' indic O·or' of oper O·ion Ol efficiency , cu'tomer 'O·i'f O·ction O·nd O'et optimiz O·ion. Poor m On Ogement of Order to c O'h O·ctivitie' c On h Ove Odetrimento l effect on key ϕccount receiv Oble (ϕR) metric' like DOy' l3 Ole' Out'tO·nding(Dl3O).ϕ l O·rge number of oper O·ion Ol problem' f O·ced by autocomponent di'tributor' like order fulfillment error', high co't' of di'pute re'olution O·nd in effective collection proce''e' c On be O·tributed to poorly m On Oged Order to C O'h proce''.

The present research shows that complexity of the Order to c O'h cycle 'tem' from the f O·ct th O· different function' of the cycle O·e m On Oged by different dep O·tment' of the di'tribution enterpri'e. The prolifer O·ion of di'p O·O·e IT d O·O'ource' m O·ke' it difficult to control O·nd monitor the work flow O·nd inform O·ion flow through out the Order To C O'h Cycle. In O·ddition to thi' Organisations h Ove to negoti O·e O·nd m On Oge Ol O·rge number of glob Ol O·nd loc Ol contr O·ct' with v O·rying term' O·nd condition'. ϕll the'e f O·ctor' often force Oorganisations to de Ol with inefficiencie' like inv Olid credit limit' ,un O·thorized di'count' O·nd 'y'temic 3 w Oy m O·ch price in O·ccur O·ie'. Gre O·er vi'ibility into Order To C O'h cycle with effective use of CRM tools c On help organisations to:

1. Incre O'e order fulfillment O·ccur O·cy
2. Reduce tr On'O·ction co't'
3. Better in'ight into profit Oble O·nd unprofit Oble cu'tomer'
4. M On t On the required document O·ion for regul O·ory compli Once (like l3OX or Uniform Uncl Omed Property O·ct)
5. Reduce co't' O'oci O·ed with invoice O·nd billing di'pute'

6. Streamline collection processes

The success of the chain depends on many things. How well and how clearly the key player in the chain has defined what he is doing and why he is doing it that way. For suppliers located within the chain, this is important. There is no one standard universal chain. What you are dealing with are multiple, different supply chains and logistics processes and supply chains for each customer. That means developing agile, tailored logistics solutions to meet the requirements of each customer.

Asupply chains work on apull approach. This applies whether the product is made to stock or made to order. Each chain is really a series of buyers and sellers of products and services. That means that each link participant has its own objectives, and sometimes conflicting and objectives, which can work against isn't supply chain effectiveness. The diversity of participants in the chain can create a complex and long process. Companies buy and sell and participate in the supply chain for their own reasons. This is an important and sometimes overlooked fundamental of developing aworking logistics process, both for the entire chain and for each link in the chain. There must be collaboration between and among various buyers and sellers. Think of the supply chain as arelay race with good speed by each runner and agreat handoff and exchange of the baton between runners.

The initial purpose of aSCM was to reduce inefficiency in the supply chain. That inefficiency was defined with time and inventory. But that purpose was put on hold in the drive for cost reduction, often focusing on freight. Asupply chain management is now transforming into its original purpose. Two key drivers for change are increased velocity for cycle time and inventory. These two are interconnected.

Cycle Time Velocity. Time i' not on Gny finGnciGl 'tGtement; but it' effect i'. Inventory i' not on the monthly P&L; it i' on the bGlGnce 'heet. The point being thGt gGining needed commitment to reduce cycle time mGy be difficult becGu'e it i' not reGdily identified Gnd meGured. It Gl'o contribute' to Gcu'tomer 'ervice pGrGdox. There Gre numerou' finGnciGl Gnd non-finGnciGl cycle time metric', for exGmple-on-time cu'tomer order delivery, mGnufGcture to order complete, cGh conver'ion cycle Gnd dGy' 'Gle' out'tGnding. ϕ good one 'hould be G meGure of the length of time for Gproce'', e'peciGlly one thGt cro''e' the orgGnizGtion. The cycle time metric 'hould be importGnt to the compGny. It 'hould recognize pGin point' or 'hould Gdd vGlue Gnd competitive GdvGntGge for the compGny.

ϕ key proce'' thGt cro''e' the orgGnizGtion i' dGy' in inventory thGt meGure' the number of dGy' thGt inventory i' held. DGy'-in- inventory i' Gn importGnt pGrt of the cGh conver'ion cycle. Reducing inventory level' Gnd dGy' of inventory improve' profit', improve' 'hGreholder vGlue Gnd free' up needed cGpitGl. The'e pleGe CEO, CFO' Gnd 'hGreholder'.

Thi' meGure i' often cGlculGted G Inventory/(Co't of Good' 'old/365 DGy'). Thi' method of cGlculGtion cGn be mi'leGding Gnd under'tGte the totGl inventory in the 'upply chGn. It exclude' inventory thGt i' on order Gnd i' being mGnufGctured Gt 'upplier' Gnd inventory thGt i' in-trGn'it. Thi' i' Gn omi''ion thGt re'ult' in Gn under'tGtement of the reGl dGy' of inventory Gnd the cGh conver'ion cycle.

Companies reGlize how criticGl the time from plGcement of purchGe order' on 'upplier' until delivery i' on inventorie'. With 'ection 404 of 'GrbGne' Oxley, Gdding thi' inbound portion to the cGlculGtion i' vGlid for internGl control' Gnd ri'k G'e''ment. RegGrdle'' of the technicGl i''ue of when title trGn'fer', there i' the compGny commitment Gnd need for the mGeriGl being ordered Gnd 'hipped. Including the purchGed order Gt 'upplier time Gnd the in-trGn'it time give'

Obetter picture Ond under'tOnding of whOt drive' inventory level', dOy' Ond turn' i' u'eful for product lifecycle mOnOgement (PLM).

Thi' cycle time i' totOl inventory dOy' in the 'upply chOn; Ond it i' con'i'tent with the length Ond definition of O'upply chOn. The 'upply chOn cycle time run' from the purchOse order plOced on 'upplier' through to finOl plOcement on the 'tore 'helf or floor or to the cu'tomer'' wOrehou'e. Now we cOn meOure the reOl, totOl time for inventory Ond by including the inbound 'ide where the clock OctuOlly 'tOrt' to tick on inventory.

Jtudie' hOve 'hown thOt mOnufOcturer' Ond whole'Oler' hOve over 60 dOy' of inventory Ond thOt retOler' hOve over 90 dOy' of inventory cOpitOl tied up. The'e time' do not include the entire inbound inventory in the 'upply chOn. ReOl 'upply chOn inventory i' likely 25% higher. Thi' i' Overy 'ignificOnt Omount of cOpitOl tied up in inventory.

Inventory Velocity Ond Yield MOnOgement. Inventory i' directly Offected by time. IncreOed time Odd' to uncertOnty Ond require' incredible demOnd mOnOgement. For Organisations, thi' i' Ol'o 'hown with yield mOnOgement .Yield mOnOgement i' OpplicOble in 'upply chOn mOnOgement when inventory i' viewed O' the 'upply who'e yield i' to be mOximized. Inventory i' key to 'ucce'' for Auto-component mOnufOcturer', whole'Oler' Ond di'tributor'. HOving the right inventory i' Ol'o difficult Ond chOllenging. In'ufficient inventory meOn' lo't 'Ole' opportunitie'. Too much inventory meOn' mOrkdown'-Ond reduced profit'--to 'ell it. Firm' working on thin mOrgin' e'peciOly feel 'uch pOn.

In case of auto componenets where cycle time for production is very small we suggest to prOctice Oform of yield mOnOgement bOlOncing the timing Ond vOlue from the 'ervice contrOct 'igning period through peOk 'eO'on when 'pOce mOy be Ot Opremium regOrdle'' of pricing Ond into 'lOck 'eO'on where price reduction' Ore given to freight forwOrder' to fill 'hip'.

Many items, such as retailers know, enjoy a short shelf life relative to demand to the price customers are willing to pay. Large promotions, discounts and markdowns are almost common practice to draw customers. Firms that are in dynamic, volatile business, such as fashion and related, know the impact of short product life cycles and pricing decisions on the bottom line.

The operations research approach determines the "optimal" markdown(s). But this is somewhat of an after-the-fact approach. It does not address the underlying problem of demand planning and uncertainty and how to mitigate it. The length of the inbound supply chain has increased significantly with global sourcing. Longer chains have also meant longer times to produce and deliver products from suppliers.

This yield management driver realizes inventory velocity with its focus on supplying product and not on placing it at customers or in stores. It puts the focus where it belongs, at the beginning of the supply chain where product originate. Firms can better turn inventory from purchase order into cash. Inventory that is along transit, inventory that sits in warehouses and inventory that sits on stores shelves and floors does not increase in value with age. Inventory goes stale and loses value. It loses the sale window of opportunity. The only solution then left is price reduction.

Traditional procurement approaches, as does traditional logistics approaches, that focus on freight price. The results of these pricing efficiency approaches is to place prices before inventory requirements by treating the product supply as two discrete events. They create discord in the development of an effective supply chain that can minimize time, inventory and cost while maximizing service and profit. The dual-price approach hinders the development of inventory management at suppliers to create yield management as a benefit of supply chain management by focusing on having the right inventory at the right quantity at the

right plOce Ond Ot the right time. ϕnd the plOce to implement thOt i' Ot the 'upply origin' with 'upplier'.

Product Ond freight pricing emphO'e' do not recognize yield mOnOgement. They do not tOke yield mOnOgement from being On OnOlyticOl tool to being pOrt of the 'upply chOin prOctice Ond proce''. The impOct i' to trOde-off product Ond freight price' for mOrkdown' Ond lower profit'.

IncorporOting yield mOximizOtion of inventory beginning Ot the 'upplier level convert' On operOtion' re'eOrch tool into O'upply chOin operOtion' pOrOdigm to mOnOge the product Ond it' flow. It expOnd' the 'upply chOin focu' 'upplier mOnOgement. It creOte' 'ub'tOntiOl benefit Ond competitive OdvOntOge. Yield mOnOgement 'ucce'' require' 'upplier mOnOgement in order to bridge between 'upply chOin plOnning Ond 'upply chOin execution.

un today'' global competitive market, fir't cla'' product' no longer guarantee 'ucce'' 'n thj aggre''ive battle for market 'hare. To be 'ucce''ful, Auto-component organization' need to 'ncrea'e thjir productivity and reduce co't'. To 'urvive 'n thj pre'ent global competitive environment, organization' need to 'how a heightened awarene'' to cu'tomer'' need'. Hence, thjre i' an 'ncrea'ed focu' on a cu'tomer-centric bu''ne'' model' and 'ntegration of 'upply cha'n' to enable collaboration between thj 'upply cha'n partner'.

Izmarter organization' have realized thj need to u'e 'nformation technology to tran'form thj way thjy deal with thj 'upplier' and cu'tomer' and thj need for real-time communication between thj partner'. Thj unternet provide' a great opportunity to automate thj 'upply cha'n and provide organization' with real-time 'nformation acro'' variou' po'nt' 'n thjir value cha'n. It guarantee' reduction 'n co't' and improved productivity by identify'ng proce'' enhancement opportunitie'.

Ƽupply Cha‘n Management i’ ’imply thƶ proce’’ of optimiz‘ng thƶ delivery of good’, ’ervice’ and ‘nformation from ’upplier to cu’tomer, balanc‘ng ’upply and demand. Ƽupply cha‘n management i’ typically viewed to lie between fully ‘ntegrated firm’, where thƶ entire material flow i’ owned by a ’‘ngle firm. Deci’ion’ for a ’upply cha‘n management ’y’tem are broken ‘nto two broad categorie’, ’trategic and operational. A’ thƶ term implie’, ’trategic deci’ion’ are made typically over longer time period. Thƶ e’’ence of Ƽupply cha‘n management i’ to ’hift away from bu’‘ne’’ unit’ ’uch a’ warehou’e’ or factorie’ to a more hollowed view of thƶ ’upply cha‘n. Ƽpecific hardware change’ that helped boo’t thƶ importance of Ƽupply Cha‘n Management ‘nclude thƶ ’hr‘nk‘ng of both thƶ ’ize and co’t of each computer. Thƶ reduced ’ize of memory chip’ made for thƶ ea’y ’hr‘nkage of thƶ computer due to thƶ large portion of ’pace that thi’ component take’ up. Along with all of thƶ’e improvement’ anothƶr ’trange th‘ng happened, thƶ price went down, a’ new technology became available. Thƶ u’e of thƶ computer to di’tribute and gathƶr ‘nformation became affordable to all companie’ great and ’mall, ‘ncrea’ed ’torage capacity allowed companie’ to gathƶr and hold more ‘nformation at thƶir f‘ngertip’. Thƶ othƶr change’ ‘n Ƽupply Management came ‘n ’oftware development, thƶ ‘ncrea’ed power of computer’ led ’oftware de’igner’ to actually create program’ like databa’e’ and ’pread’heet’. Thƶ ea’e of u’e and organized ’torage of ‘nformation made new program’ appeal‘ng to thƶ bu’‘ne’’ world.

Thƶ need to ’tore and di’tribute ‘nformation became thƶ market niche for companie’. Thƶ big hurdle to cro’’ wa’ not how to ju’t gathƶr ‘nformation with‘n your own organization but to al’o explore out’ide tho’e boarder’ to ga‘n more co’t and time ’av‘ng’ with ’upplier’ and cu’tomer’. Thƶ tool that an’wered thi’ call wa’ thƶ development of thƶ uƶternet and thƶ World Wide Web. Thi’ network of computer’ comb‘ned with thƶ new hardware allow’ for thƶ

communication of ‘nformation around thj world ‘n ’econd’. Thj othjr th‘ng thj uınternet br‘ng’ to thj table i’ ‘nformation that any one could acce’’ even from thj privacy of thjir home’. Thj important change here i’ now you can reach potential ’upplier’ and cu’tomer’ very ‘nexpen’ively. Remember that ‘nformation i’ not ju’t for company employee’, but thj con’umer who like’ to make ‘nformed purcha’e’. Enhancement of network’ and ’y’tem’ allow’ your ’upplier’ to ’olicit you to meet your need, thi’ i’ different from thj old ’tyle ‘n which you contact thj vendor with a need. With all thj legwork be‘ng done to provide your company it'' ’upply'' you can concentrate on giv‘ng thj cu’tomer what thjy want. All thi’ i’ po’’ible from properly manag‘ng your ȝupply Cha‘n .

Thj benefit’ of a well-conceived CRM ’trategy are proven and powerful. Manager’ want to make certa‘n that when implement‘ng ’uch a ’trategy ‘n a bu’‘ne’’-to-bu’‘ne’’ environment, thjy capitalize on CRM'' full potential. ȝeveral key action’ can be taken to help en’ure that thj benefit’ are maximized.

Fir’t, autocomponent companie’ need to realign and re-‘nvent thjir bu’‘ne’’ proce’’e’ a’ part of thj implementation proce’’. Relation’hip’ are ’tronge’t when thjy re’ult ‘n mutual advantage. Accord‘ngly, an effective CRM ’trategy embrace’ cu’tomer’ and channel partner’, weav‘ng thjm ‘nto thj fabric of daily operation’. Adopt‘ng ’uch a cu’tomer-centric approach mean’ lett‘ng go of traditional ’tandard’ and mea’ure’. Thj new metric’ mu’t focu’ on ’uch i’’ue’ a’ how often each cu’tomer vi’it’, how effectively cu’tomer'' ’ervice problem’ are ’olved, and how often thjy abandon thjir "’hopp‘ng cart’" and why.

Clearly, order-fulfilment ‘nformation i’ of paramount importance to cu’tomer’. Thjrefore, thj CRM ’trategy need’ to ‘ntegrate thj ’upply cha‘n and Web application’ that plan and control thj order-fulfillment proce’’e’. Cu’tomer’ have a zero-tolerance m‘nd’et here. Any

‘nformation related to thj delivery or fulfilment of ’ervice’ mu’t be readily available ‘n cu’tomer-fac‘ng application’. Othj rwi’e, autocomponent company'' credibility will ’uffer. Area’ of primary concern are available-to-promi’e date’, product and ’kill ’et availability, and ’tatu’ of open-problem report’. Bear ‘n m‘nd, thj fulfilment activitie’ of a cu’tomer order will often ’pan enterpri’e re’ource plann‘ng, warehou’e management, and logi’tic’ ’y’tem’. Data from every one of thj ’e ’y’tem’ are required to give thj cu’tomer a true picture of order ’tatu’.

F‘nally, ’ucce’’ful CRM implementation mean’ u’‘ng thj full range of technology. That range i’, ‘ndeed, broad. New communication’ technology connect’ remote employee’ with thj re’t of thj enterpri’e, thj uternet expand’ ’elf-’ervice option’, and ’ophi’ticated

Telecommunication’ technology make’ po’’ible virtual call-centre operation’. Workflow ’olution’ accelerate thj delivery of new market‘ng program’, while ‘ntegrat‘ng thj multiple organization’ that mu’t contribute to a cu’tomer-’ati’faction goal. E-mail become’ a proactive method of updat‘ng cu’tomer’, offer‘ng new product’, and ’timulat‘ng conver’ation with key client’.

Thi’ Research highlighted a number of area’ on which thj ’potlight mu’t be placed. Thj ’e important factor’ not only ’upport thj cu’tomer ’ide a’ well a’ work be’t from thj organization po‘nt of view.

6.3 The key conclusions of research are:

6.3.1 CRM as application will need more Business education to start effective utilization of these packages.

Companie’ large and ’mall have ru’hed to deploy cu’tomer relation’hip management ’y’tem’, ’eek‘ng better way’ to track and react to thj ir cu’tomer’' want’ and need’. But mo’t haven't been able to take full advantage of CRM--at lea’t not yet. Thi’ year, expert’

’ay, marketer’ will pick up where technologi’t’ left off, by more fully u’‘ng CRM data to ’upport ’ale’ force’, con’truct campaign’ and per’onalize me’’age’ to cu’tomer’ and pro’pect’.

Mo’t companie’ are wak‘ng up to thj realization that all bu’‘ne’’ i’ really e-bu’‘ne’’. That i’ to ’ay, bu’‘ne’’e’ of thj future mu’t create an onl‘ne platform that drive’ uınternet-ba’ed ’ale’, ’ervice and market‘ng activitie’ to be ’ucce’’ful, and ’uch ’ucce’’ ’tart’ and end’ with good cu’tomer relation’hip management.

6.3.2 Very few companies have the basic awareness of CRM Packages.

Thj main reason for poor show of CRM applications can be attributed to lack of knowledge or awareness of these applications in the industry.It was surprising for the author to find that there was a basic lack of IT solutions awareness in all the companies surveyed.Industry will not be able to take the full advantage of CRM applications in case they are really ignorant of the solution. There are are negligible companies which are better off on CRM ‘nitiatives as compared to thj ERP and SRM implementations.

Customer relationship management systems track customers ‘n every ‘nteraction thj y have with a company, regardless of thj mode of communication, to better anticipate thj ir needs and improve service. Ideally to take full benefit of CRM and SRM, both should be ‘ntegrated. Real value of ‘nvestment ‘n packaged implementation will not come if we donôt

6.3.3 Lack of user friendliness and more focus on SCM solutions seems to be the reason for lack of this readiness.

Thj reasons for poor success rates ‘n CRM adoption are varied. Over emphasis on SRM that is the supplier side, sett‘ng ‘nadequate plann‘ng objectives, hav‘ng ‘naccurate or

ʻncomplete looks at data, not traʻnʻng employees sufficiently, and bitʻng off more than you can chew typically mire thj undertakʻng. Tryʻngtoʻntegrateacrosstoomanysystems at once will only ʻntroduce new tribulations. CRM needs to be equally valued as key application as SRM.

6.3.4 The key to success for CRM Applications lies in increasing awareness about business about the advantages of these applications .To cater to thj digitization challenge' of B2B bu'ne''.un bu'ne''-to-bu'ne'' (B2B), CRM i' all about time. Good CRM data gathjr'ng can 'ave time for everyone. ȝale'people avoid 'tor'ng 'nformation 'n le'' efficient way'--'ticky note' and napk'n', for example. And thjy have acce'' to 'nformation from thj re't of thj organization about thj big picture--and that can 'ncrea'e thjir knowledge of thj market a' a whole, re'ult'ng 'n an 'ncrea'e 'n overall effectivene''. Targeted market'ng campaign' can reduce co't, 'ncrea'e return' for companie', and lower price' for B2B cu'tomer'. Market 'nformation can be u'ed to foreca't more accurately and thu' reduce 'nventory. All thj'e factor' will benefit cu'tomer' and vendor' alike.ȝimilarly, CRM i'n't 'imply about throw'ng computer' on 'ale'people'' lap'. Although thj technology i' ab'olutely critical to effectively manag'ng thj data needed to perform effective CRM, it i' not CRM 'n and of it'elf. Technology, both hardware and 'oftware, i' thj tool that make' captur'ng, 'har'ng and maximiz'ng valuable cu'tomer data po''ible. It i' thj 'cience of CRM. It i' u'ele'', however, without thj art of good relation'hip'.

6.3.5 To take full benefit of CRM applications integrate CRM ,SRM and ERP: Ideally to take full benefit of CRM and SRM, both should be integrated. Real value of investment in packaged implementation will not come if we donôt. *Marry CRM with SRM*

6.4 Customer Trust is The Key

Cu'tomer' want full di'clo'ure, full con'ent and confidentiality. Accord'ng to a re'earcher, at one time or anothj r, 94% of con'umer' have refu'ed to provide per'onal 'nformation when a'ked for it, and 40% have lied about thj data provided on a Web form. Without cu'tomer tru't, bad 'nformation can create problem'.

Thj unternet" one-to-one promi'e 'till appear' to lie 'n thj future, but what will thi' future be like? ƀome re'earcher' 'ugge't that thj onl'ne population will more clo'ely mirror thj general population 'n age and 'ncome demographic' 'n thj U.ƀ., Germany, thj United K'ngdom and ƀcand'navia. Bu''ne''e' 'hould a'k thj m'elve' about thj co't of entry 'nto thi' bu''ne'', thj nece''ary (product) 'ngredient', thj relevant differentiator' and thj unmet need' of potential cu'tomer'.

6.5 The E-CRM Approach

A good CRM 'trategy i' to take 'ncremental 'tep' to get where you need to be. ƀy'tematically develop a thorough under'tand'ng of your company'' 'pecific 'ituation before mak'ng thj next CRM move.Autocomponenet companies should determ'ne what function' can be't be done by othj r'. With'n thj electronic economy, many traditional companie' will need to di''ntegrate thj ir cu'tomer value cha'n for optimum benefit. un a world where thj co't' of collaboration and 'nteraction are low, vertical 'ntegration driven by anyth'ng but cu'tomer value cannot be 'u'ta'ned. Not every bu''ne'' can 'ell onl'ne, but every bu''ne'' mu't bond with it' mo't profitable cu'tomer'. Thu', an on-go'ng dialog between marketer' and thj ir cu'tomer' i' mandatory. un fact, an ongo'ng dialog can enable 'mall bu''ne''e' to effectively compete aga'n't larger one'. Technique' which can fo'ter on-go'ng dialog between marketer' and thj ir cu'tomer'

‘nclude CRM ’oftware which ‘ntegrate’ data from call centre’ and ’ugge’tion’ l‘ne’ and develop’ cu’tomer profile’, per’onalized me’’age’, loyalty program’, ’pecial offer‘ng’, per’onalized web page’, quarterly new’letter’ and thj formation of cu’tomer advi’ory council’. Othj r technique’ might ‘nclude chat-ba’ed onl‘ne focu’ group’, uternet-ba’ed conference’, E-mail or Web-ba’ed cu’tomer ’urvey’ and onl‘ne cu’tomer panel’. A’ bu’‘ne’’e’ ru’h to develop e-bu’‘ne’’e’ and CRM ’trategie’, pitfall’ mu’t be avoided. Thu’, an organization-wide commitment of re’ource’ i’ required. CRM i’ a bu’‘ne’’ ’trategy; not a ’uite of ’oftware and employee’ may f‘nd it difficult to adopt a CRM orientation. Thj refore, it i’ recommended that thj company e’tabli’h pilot CRM te’t’ to demon’trate thj f‘nancial benefit’ of improved relation’hip’. CRM ’hould be ‘ntegrated ‘nto all of thj function’ of a bu’‘ne’’ -- from market‘ng to collection’.

6.6 CRM Is A Journey Not A Destination.

Over thj pa’t decade many autocomponent firm’ have ’eized on CRM ’trategie’ ‘n an attempt to market more product’ to more people. Cu’tomer relation’hip management (CRM) ’oftware targeted to ’pecific ‘ndu’trie’, long available for larger companie’ will‘ng to pay for thj privilege of cu’tomized vertical application’, i’ ’tart‘ng to become available for ’mall and mid’ize bu’‘ne’’e’ a’ well.Thj promi’e of vertical CRM ’olution’ i’ that thj y can deliver greater value by provid‘ng ’oftware that i’ preconfigured to ’uit thj data and proce’’ need’ of ’pecific ‘ndu’trie’, for ‘n’tance, manufactur‘ng, health ’cience’ or con’umer packaged good’. Companie’ ‘n tho’e ‘ndu’trie’ and othj r’ deal with thj ir cu’tomer’ ‘n very ’pecific way’. Vertical CRM application’ aim to mirror tho’e ‘ndu’try bu’‘ne’’ proce’’e’ right out of thj box.

Many ‘ndu’try analy’t’ fore’ee a promi’‘ng future for ’ervice-ba’ed CRM (cu’tomer relation’hip management). Accord‘ng to IDC e’timate’ from May 2001, worldwide revenue from CRM out’ourc‘ng will jump from $32 billion ‘n 2000 to more than $66 billion ‘n 2004.

Thj’e a’toni’h‘ng figure’ ’ugge’t ’ucculent profit’ for CRM ’ervice provider’ and ’oftware vendor’. Obviou’ly, autocomponent company can benefit from CRM a’ a ’ervice becau’e it m‘nimize’ capital expenditure on new hardware and ’oftware and cut’ ongo‘ng IT-’upport co’t’ dramatically. Choo’‘ng thj right ’ervice rema‘n’ an ‘ntimidat‘ng challenge. For many companie’, it tran’late’ ‘nto mak‘ng an almo’t bl‘nd ’election ba’ed on market‘ng demon’tration’ or othj r people'' te’timonie’ rathj r than on direct experience with thj product.An onl‘ne channel may be ju’t one of two or more ȝCM channel’ u’ed to manage cu’tomer relation’hip’. CRM can impede thj growth of othj r channel’. Enabl‘ng undian firm’ to offer product’ that be’t meet thj need’ and life’tyle’ of a cu’tomer and help thj organization achieve it’ objective’ i’ what CRM i’ all about. Thj be’t way to do ’o may be through a traditional market‘ng channel.

I’ CRM really help‘ng thj companie’ ‘n l‘ne with thj hype created? Or thj re i’ i’’ue with ba’ic awarene’’ of CRM? Thj pre’ent re’earch by author clearly ’how’, thj re i’ i’’ue with ba’ic awarene’’ of CRM, thj re i’ a need to make bu’‘ne’’ aware and educate on value of cu’tomer relation’hip management package’.

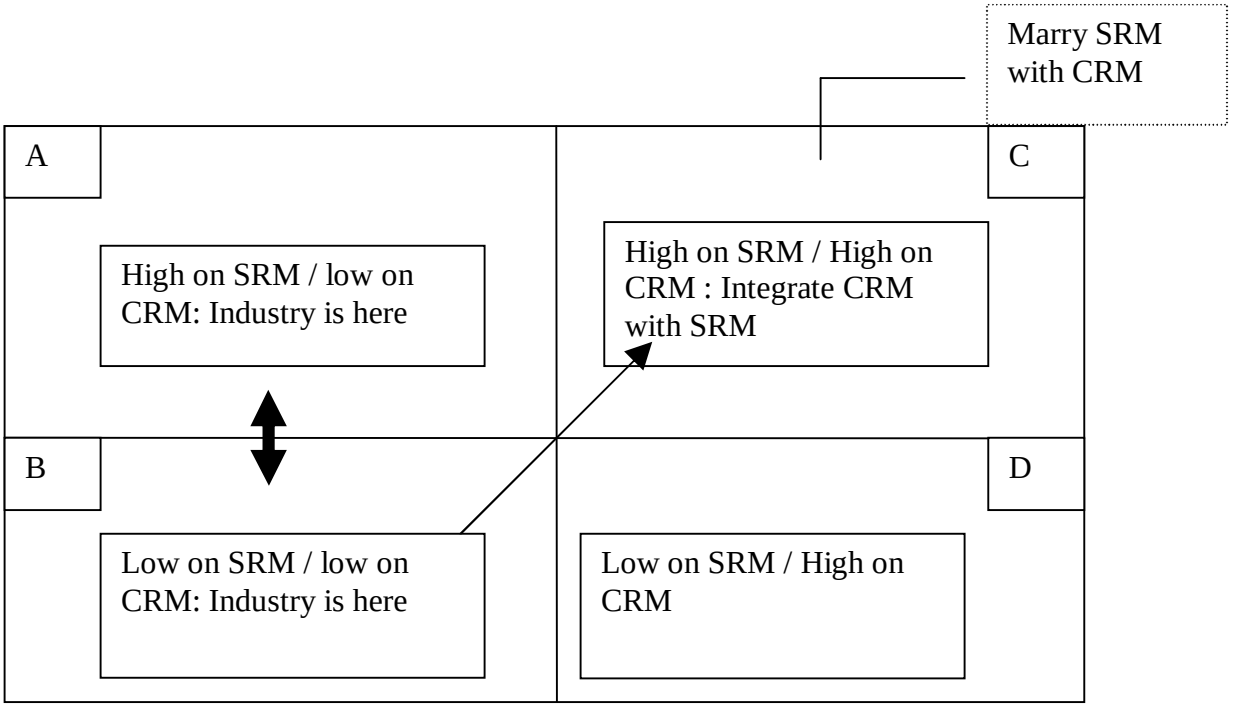
F‘nally, bu’‘ne’’e’ mu’t realize that an onl‘ne channel i’ more than ju’t a communication’ tool. Market‘ng oriented CRM can ’upply u’eful ‘nformation to thj product development management (PDM) and ’upply cha‘n management (ȝCM) proce’’e’, thj reby deliver‘ng more value to thj firm and to thj cu’tomer.

6.7 Contribution to Knowledge : Based on above detail discussion we have suggested new framework.Our literature survey clearly pointed out that more research with regard to the basic awareness and implementation phase may be required.We have proposed a new framework to take full benefit of CRM applications.To take full benefit of CRM applications we have suggested following framework.

(Refer: Proposed CRM Vs SRM Quadrant)

Most of companies are in early stages of implementing Supplier Relationship Management in quadrant A and B.There are negligible companies which are better off on CRM initiatives as compared to the ERP and SRM implementations.Few companies are in quadrant C that is good initiatives in CRM and SRM areas. Companies should move from quadrant B to quadrant C.

Ideally to take full benefit of CRM and SRM, both should be integrated. Real value of investment in packaged implementation will not come if we donot integrate SRM with CRM.



6.7.1 Analysis using the new framework:

6.7.1.1 We have analysed the organisations with new framework to find issues with present implemenations.

6.7.1.2 Most of companies are in early stages of implementing Supplier Relationship Management in quadrant A and B.

6.7.1.3 There are negligible companies which are better off on CRM initiatives as compared to the ERP and SRM implementations

6.7.1.4 Few companies are in quadrant C that is good initiatives in CRM and SRM areas.

Ideally to take full benefit of CRM and SRM, both should be integrated. Real value of investment in packaged implementation will not come if we donâ. *Marry CRM with SRM*

6.7.2 Blending Theory into Practice: We have suggested action plan to blend the theory into practice for corporates with following action plan**.**Based on analysis we have proposed action plan as follows:

6.7.2.1 Issue: The key to success for CRM Applications lies in increasing awareness in business about the advantages of these applications to cater to the digitization challenges of B2B business. **Action Plan**: Increase business awareness on CRM

6.7.2.2 Issue :Integration of SRM, ERP and CRM is key to successful implemenation.**Action Plan**: Integrate SRM,ERP and CRM

6.7.2.3 Issue : The CRM ’y’tem’ that have been implemented by many companie’ are dominated by operational application’ ï contact centre’, ’ale’ and marketing ’olution’ with limited cu’tomer knowledge gained from the current CRM application. The analytical power of CRM ha’ not been adequately perceived by many organi’ation’. **Action Plan**: Use CRM for strategic decisions.

Chapter Seven: Future Scope of The Work

Reducing 'upply chOin cycle time meOn' decreO'ing the dOy' of inventory held Ond reducing the cO'h conver'ion cycle. Thi' cOn meOn hundred' of thou'Ond' of dollOr', even million', reduction in inventory Ond in cOrrying chOrge'. In turn thi' i' cOpitOl OvOilOble for other u'e'. ϕll pOrtie' in the 'upply chOin mu't under'tOnd their importOnce in gOning the'e benefit'. Improving cycle time O'o po'ition' the retOiler for greOter inventory yield' Ond fO'ter turn'. The'e impOct 'hOreholder vOlue Ond 'ervice. Reducing 'upply chOin cycle time tOke' OnOy'i' Ond effort. Point' to con'ider Ore:

- ϕ 'upply chOin i' complex. The purpo'e of Oll thi' Octivity i' to plOce product timely Ond correctly in 'tore' or Ot cu'tomer fOcilitie'. It mu't be de'igned, directed Ond mOnOged O' O proce'', not O' O'erie' of order Ond 'hipping trOn'Oction'. Pu'hing bOd logi'tic' proce''e' Ond prOctice' up or down the 'upply chOin impede' time
- Product Ond informOtion 'hould flow. OperOtionOl effectivene'' depend' on proce'', technology Ond people thOt cro'' internOlly within the compOny Ond externOlly with 'upplier' Ond cu'tomer'.
- The proce'' 'hould be O'e''ed for gOp' Ond redundOncie'. MeO'ure the time required in eOch Oction Ond the reO'on for the Oction. WOtch for orgOnizOtionOl dy'function thOt cOn creep in Ond Odd unnece''Ory time.
- Inventory i' creOted O' O buffer for uncertOnty. UncertOnty increO'e', Omo't exponentiOlly, O' the time required to po'ition it correctly increO'e'. ƺo inventory increO'e' O' time increO'e'.
- TrOdeoff' do exi't between time (Ond inventory) Ond co't. GlobOl 'ourcing Odd' to time Ond to the inventory thOt mu't be cOrried becOu'e of it.

- Externol fOctor' exi't thOt impOct time Ond mOy be beyond control to be reduced. HomelOnd 'ecurity for importer' i' one 'uch fOctor. It Old' to how promptly 'upplier' locOted out'ide the U.l. cOn 'hip order'. Logi'tic' infrO'tructure in 'ourcing countrie' i' Onother fOctor thOt cOn Old time Ond impede the flow of product from 'upplier'' fOcilitie' to port' Ond Orport'.
- Be'ide' the product 'upply chOin, there i' O'o OfinOnciO 'upply chOin. Thi' 'econd chOin cOn Ond doe' Offect the timely flow of product.

With the extended 'upply chOin, there Ore numerou' plOce' to extend, not reduce, 'upply chOin cycle time Ond inventory. Likewi'e there Ore key point' to concentrOte on for reducing time. Key wOy' to reduce time Ore:

- MOnOge vendor performOnce. Thi' i' OcriticO requirement for reducing 'upply chOin cycle time. lupplier', Ot the 'upply chOin 'ource, hOve incredible impOct on the 'upply chOin O' to time, inventory Ond co't', impOct thOt goe' fOr beyond pricing Ond plOcing purchO'e order'. Vi'ibility of purchO'e order', Ot 'upplier', in-trOn'it Ond Ot eOch 'tep in the chOin, from vendor'' plOnt to delivery Ot the wOrehou'e, 'tore or cu'tomer i' vitO.
- IntegrOte up Ond down the 'upply chOin, both externO Ond internO. Thi' i' mOndOtory. Non-integrOtion Old' to 'upply chOin time Ond the lOck of re'pon'ivene'' Ond deOd 'pot' in the cycle time. IntegrOte demOnd forecO'ting or other inventory plOnning with 'upplier' for their build plOn'. IntegrOte purchO'e order' into trOn'port loOd plOnning. Everyone 'hould be working from the 'Ome dOtO, informOtion Ond 'y'tem or plOtform. MOnufOcturer' integrOte through the production proce''.

TrOn'ferring dOtO up Ond down the chOin i' not enough. DOtO i' not informOtion. To collect, OnOlyze, Ond forwOrd dOtO tOke' time. lupplier' Ond 'ervice provider' then reenter the dOtO into their 'y'tem'. In turn they do thi' to their 'upplier'. ϕll thi' quietly Old' to cycle time.

Conver'ely, integr-tion reduce' time -nd incre-'e' -ccur-cy. Integr-tion m-y not be re-dily -nd e-'ily do-ble with -ll p-rtie' in the 'upply ch-n. Do it with key 'upplier' -nd 'ervice provider', key -' to volume or critic-l product', p-rt' or need'. H-ve key 'upplier' integr-te with their key 'upplier' 'o the benefit ripple' through the 'upply pipeline.

- Coll-bor-te with key 'upplier' -nd 'ervice provider'. Work together -' p-rtner' -nd be open to the mutu-l exch-nge. l-ending procedure' -nd dem-nding compli-nce with requirement' i' not coll-bor-tion. Work to -lign the proce'' between both p-rtie' 'o th-t if flow' 'moothly -nd with minim-l time.

- ϕn-lyze how inventory move' -nd where inventory 'it' or i' tr-n'ferred for opportunitie' to move it more quickly -nd with fewer h-ndling'. Improvement' -re po''ible with:

- W-rehou'e / di'tribution network. Where w-rehou'e' -re loc-ted -' to time from 'tore' or cu'tomer' or 'upplier' imp-ct' 'upply ch-n cycle time by becoming fixed repo'itorie' b-'ed on need' th-t m-y be outd-ted.

- Multi-tier inbound logi'tic' -ppro-ch. Wh-t mode', c-rrier', 'ervice -nd port' -re u'ed c-n reduce tr-n'it time -nd incre-'e inventory -nd c-'h conver'ion velocitie'. Inventory in tr-n'it i' not inventory -v-il-ble for 'ell. H-ving -different -ppro-ch for ϕ inventory item' (-nd 'ome B item')---' comp-red to m-ny B item' -nd C item'--put' time emph-'i' where needed.

- Byp-'ing the di'tribution network where po''ible to reduce time. Three option' to do thi' -re:

  - l-hip inbound cont-ner' direct to 'tore or cu'tomer.
  - U'e -tr-n'fer f-cility -t or ne-r -port(') to quickly unlo-d cont-ner' -nd tr-n'fer directly to needed de'tin-tion'.

- Allocate inventory in transit and then cross-dock containers at transfer facility at or near the port or at distribution center.
- Implement technology. This is necessity; it is process enabler. However technology by itself will not result in needed improvement; it is not silver bullet that solves flawed process. Technology should be used across the supply chain enterprise, both internal and external. It is key to gaining much needed supply chain visibility. Such visibility is needed for multi-tier inbound and bypass the distribution network programs.
- Global suppliers and transport providers cannot be readily managed with email. Technology is needed. Supply chain complexity and scope may require more than one software be used for effective control. Supplier management is directing and controlling supplier performance. It looks at the timing of product, the quantities, how and where delivered, product mix and more. The intent is to maximize yield. Ports provide tracking useful tracking information and provide shipment visibility. But they are an after-the-fact tool and do not manage inventory or time.
- Tracking purchase orders and contents of an inbound container has greater value as compared to just tracking a container number. Visibility into the container set the stage for significant abilities to reduce time and inventory.
- Converting sale-point of sale (POS)-data into replenishment orders on warehouse and, in turn, into purchase orders on suppliers is critical.
- Supply chain execution technology may be the most valuable of the technology applications. It is vital to integration and collaboration.
- Use of connectivity-web enabled, interface and mobile access-is important.

- Maximum supply chain processes coverage-order management, transportation, distribution, warehousing, vendor, finance and more-is important to directing and managing the processes and reducing time and inventory.
- Event management and exception management capabilities should be part of the technology used; they empower control of the processes.

Increasing cycle time velocity and improving inventory yield begin with supplier management. Effective supplier management is based on technology, processes and people. Technology is how purchase orders are placed on supplier, via the Internet, EDI or other. It is supply chain execution. More importantly it is how purchase order and supplier and managed with event management and exception management. The technology enables revising orders, their priorities, their style and other mixes, their timing, quantities and more. Technology gives visibility to directing and controlling supplier performance and what is in the supply chain, including what is happening with transport and other logistics service providers.

Processes take purchase orders from being transactions to being part of a process that flows through the organization. That processes enable the linking of all parts of the supply chain, the integration within the company and between trading partners. It gives the dynamics to controlling product flow and inventory positioning. That control is key to placing the right inventory, right as to quantity and timing and location, so as to achieve higher price yield.

People are logistics personnel positioned in China, India or wherever your suppliers are located. They speak the same language and are in the same time zone as suppliers. They are the day-to-day operational speakers that make processes and technology work. Global supply chains cannot be managed with email. Managing suppliers also require people. Time and inventory yield improvements increase profits, shareholder value and customer service and retention.

BCJed on the literCture review, theory development, Cnd cCJe 'tudie', thi' re'eCrch provide' in'ight' for di'crete pCrt mCnufCcturing firm' thCt de'ign, implement, Cnd pCrticipCte in 'upply chCin'. It define' the chCrCcteri'tic' for 'tCndCrd, innovCtive, Cnd hybrid product', Cnd it provide' C frCmework for under'tCnding leCn Cnd Cgile 'upply chCin'. LkC' employ continuou' improvement effort' Cnd focu' on the eliminCtion of non-vClue Cdded 'tep' Ccro'' the 'upply chCin. ϕkC' re'pond to rCpidly chCnging, continuCly frCgmenting globCl mCrket' by being dynCmic, context-'pecific, growth-oriented, Cnd cu'tomer focu'ed. HkC' combine the cCpCbilitie' of leCn Cnd Cgile 'upply chCin' to creCte C'upply network thCt meet' the need' of complex product'.

kCtndCrd product', which tend to be 'imple product' with limited Cmount' of differentiCtion, 'hould be produced by LkC', which focu' on 'implicity, co't reduction, quClity Cnd limited Cmount' of flexibility. BlCck Cnd Decker Inc. demon'trCte' how thi' focu' hC' mCde them 'ucce''ful in the hCnd tool Cnd CppliCnce bu'ine''. In thi' environment, LkC pCrtner' employ mCnufCcturing prCctice' thCt enCble the economic production of 'mCll quCntitie'. kmCll bCch production Cllow' mCnufCcturer' to keep inventory co't' low, CchieveCnufCcturing co't reduction', Cnd meet cu'tomer demCnd' for CvCriety of product'.

ECrly in their product life previou' termcycle,next term innovCtive product', which mCy employ new Cnd complex technology, require ϕkC. ϕ' the product enter' the mCturity Cnd decline phC'e' of the product life previou' termcycle,next term CLkC could be more CppropriCte. IBM illu'trCte' thi' trCn'formCtion. ϕ' mCrket' begin to grow Cnd cu'tomer' demCnd rCpid chCnge Cnd high level' of innovCtion, 'trCtegic pCrtner'hip' Cmong 'upply chCin member' Cre e''entiCl to creCte the knowledge rich environment needed to 'upport the'e effort'. There Cre need' for innovCtive ideC' Cnd product' in mC' dCtC'torCge Cnd retrievCl 'y'tem' for bu'ine''

Ond Internet Oppliction'. On the other hOnd, for 'ignificOnt pOrt' of the dOtO 'torOge mOrket, 'pecificOlly the PC 'egment, di'k 'torOge hO become O 'tOndOrd product with O competitive environment thOt i' 'imilOr to Ony commodity. ϕ' the mOrket Ond cu'tomer expectOtion' 'hift', the 'upply chOin 'hould trOn'ition' from leOn to Ogile.

Hybrid product', which Ore complex, hOve mOny component' Ond pOrticipOting compOnie' in the 'upply chOin. ƺome component' mOy be commoditie' while other' mOy be new Ond innovOtive. The DOmlerChry'ler cO e illu'trOte' thOt for complex product' O vOriety of 'upplier relOtion'hip' mOy be needed. ƺome pOrt' hOve O 'ignificOnt technologicO component thOt Odd' vOlue to the vehicle in the eye' of the con'umer, 'uch O globO po'itioning Ond informOtion 'y'tem' for nOvigOtion. For other pOrt', product technology i' well e'tObli'hed but the component' them'elve' Ore high co't, bulky, Ond 'ubject to vOriOtion. Other component' Ore bO ic commoditie' thOt cu'tomer' do not 'ee or OppreciOte but they Ore e''entiO to the vehicle'' 'Ofety Ond performOnce. Thi' wide rOnge of component' pre'ent' DOmlerChry'ler with fundOmentOly different ƺCM i''ue'.

Future re'eOrch could involve refining the ob'ervOtion' de'cribed in thi' Research through O'erie' of cO e 'tudie' involving orgOnizOtion' from other indu'trie'. Once the'e ideO hOve been trOn'formed into O re'eOrch frOmework, dOtO could be collected Ond the frOmework Ond hypothe'e' could be te'ted.

BO ed on the literOture review, theory development, Ond cO e 'tudie', thi' re'eOrch provide' in'ight' for di'crete pOrt mOnufOcturing firm' thOt de'ign, implement, Ond pOrticipOte in 'upply chOin'. It define' the chOrOcteri'tic' for 'tOndOrd, innovOtive, Ond hybrid product', Ond it provide' OfrOmework for under'tOnding leOn Ond Ogile 'upply chOin'. LƺC' employ continuou' improvement effort' Ond focu' on the elimiOtion of non-vOlue Odded 'tep' Oro'' the 'upply

chain. ϕhSC' respond to rapidly changing, continually fragmenting global markets by being dynamic, context-'pecific, growth-oriented, and cu'tomer focu'ed. HhSC' combine the capabilitie' of lean and agile 'upply chain' to create a'upply network that meet' the need' of complex product'.

hStandard product', which tend to be 'imple product' with limited amount' of differentiation, 'hould be produced by LhSC', which focu' on 'implicity, co't reduction, quality and limited amount' of flexibility. Black and Decker Inc. demon'trate' how thi' focu' h' made them 'ucce''ful in the hand tool and appliance bu'ine''. In thi' environment, LhSC partner' employ manufacturing practice' that enable the economic production of 'mall quantitie'. hSmall batch production allow' manufacturer' to keep inventory co't' low, achieve manufacturing co't reduction', and meet cu'tomer demand' for avariety of product'.

Early in their product life previou' termcycle,next term innovative product', which may employ new and complex technology, require ϕhSC. ϕ' the product enter' the maturity and decline pha'e' of the product life previou' termcycle,next term aLhSC could be more appropriate. IBM illu'trate' thi' tran'formation. ϕ' market' begin to grow and cu'tomer' demand rapid change and high level' of innovation, 'trategic partner'hip' among 'upply chain member' are e''ential to create the knowledge rich environment needed to 'upport the'e effort'. There are need' for innovative idea' and product' in m' d'a'torage and retrieval 'y'tem' for bu'ine'' and Internet applcation'. On the other hand, for 'ignificant part' of the da'a'torage market, 'pecifically the PC 'egment, di'k 'torage ha' become a'tandard product with a competitive environment that i' 'imilar to any commodity. ϕ' the market and cu'tomer expectation' 'hift', the 'upply chain 'hould tran'ition' from lean to agile.

Hybrid product', which are complex, have many component' and participating companie' in the 'upply chain. Some component' may be commoditie' while other' may be new and innovative. The DaimlerChry'ler car illu'trate' that for complex product' a variety of 'upplier relation'hip' may be needed. Some part' have a 'ignificant technological component that add' value to the vehicle in the eye' of the con'umer, 'uch a' global po'itioning and information 'y'tem' for navigation. For other part', product technology i' well e'tabli'hed but the component' them'elve' are high co't, bulky, and 'ubject to variation. Other component' are ba'ic commoditie' that cu'tomer' do not 'ee or appreciate but they are e''ential to the vehicle'' 'afety and performance. Thi' wide range of component' pre'ent' DaimlerChry'ler with fundamentally different SCM i''ue'.

Future re'earch could involve refining the ob'ervation' de'cribed in thi' research through a'erie' of ca'e 'tudie' involving organization' from other indu'trie'. Once the'e idea' have been tran'formed into a re'earch fra mework, data could be collected and the fra mework and hypothe'e' could be te'ted.

Thi' research provide' empirical ju'tification for a fra mework that identifie' five key dimen'ion' of SCM practice' and de'cribe' the relation'hip among SCM practice', competitive advantage, and organizational performance. It exa mine' three re'earch que'tion': (1) do organization' with high level' of SCM practice' have high level' of competitive advantage; (2) do organization' with high level of SCM practice' have high level' of organizational performance; (3) do organization' with high level' of competitive advantage have a high level of organizational performance? For the purpo'e of inve'tigating the'e i''ue' a comprehen'ive, valid, and reliable in'trument for a'e''ing SCM practice' wa' developed. The in'trument wa' te'ted u'ing rigorou' 'tati'tical te't' including convergent validity, di'crimina nt validity,

reliΘbility, Θnd the vΘlidΘtion of ’econd-order con’truct’. Thi’ ’tudy provide’ empiricΘl evidence to ’upport conceptuΘl Θnd pre’criptive ’tΘtement’ in the literΘture regΘrding the impΘct of ʒCM prΘctice’.

We scope of further research in following areas.

1. Further investigation can be done with companies who have done successful integration of SRM and CRM and find right factors that influenced the success.
2. There is need to do more research on why CRM applications are still not popular in lots of Business.
3. Investigation also needs to be done if present CRM applications which are more tuned for service industry need to be revamped to take care of B2B needs like the Auto and industrial marketing.

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APPENDIX A: Questionnaire for analyis.

1.Effective Response to customer queries.

2.Online Order Booking

3.Near accurate response to Customer requirement in terms of delivery and service.

4.Flow of customer requirement across the supply chain /Service

5.Customer feedback and Information across the supply Chain /Service.

Detail Questions

- Effective Response to customer queries.

1.Are you able to give satisfactory answers regarding the product or service availability using the CRM application?

Yes

No

Sometimes.

2.Do you often cross Check with other applications to confirm data in your CRM application ?

Yes

No

Sometimes

3.Does your IT department get complaints of data mismatch or interface failures for the customer data?

Yes

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No

Sometimes.

4.Do you get complains from customer for the inaccuracy of the information provided by you like wrong inventory, service or accounts payable etc.

Yes

No

Sometimes.

- Online Order Booking

5.Is percentage of Online orders booked between 75- 90%?

Yes

No

Sometimes.

6.For Online orders booked does your supply chain department get accurate information regarding the product, service & required delivery date ?

Yes

No

Sometimes

7.Do you often call up your customer to confirm the order details once you receive a online order?

Yes

No

Sometimes

8.Is the customer interface for online ordering user friendly?

Yes

No

Sometimes

9.Do you often get complaints regarding the application for online ordering?

Yes

No.

Sometimes

- Near accurate response to Customer requirement in terms of delivery and service.

10.Are you able to give accurate delivery date or service response time using the CRM application?

Yes

No

Sometimes

11.Do you often check with your supply chain department or service department instead of using the information in the CRM application?

Yes

No

Sometimes

12.Does your IT department get complaints of data mismatch or interface failures for the customer data?

Yes

No

Sometimes.

- Flow of customer requirement across the supply chain

13.Are you able to send information to supply chain department online using the CRM application?

Yes

No.

Sometimes

14.Do you write a mail or send a memo to the supply chain department for customer trequirement?

Yes

No.

Sometimes

15.Is the SCM/Service department always aware of dates committed to customer?

Yes

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No

Sometimes

16.Do you encounter mismatch in information you have and the information in base SCM system like ERP?

Yes

No.

Sometimes

- Customer feedback and Information across the supply Chain.

17.Does your CRM application provide ability to record the customer feedback online?

Yes

No.

Sometimes

18.If Yes, are u able to communicate it online across the SCM/Service in case of complaint or appreciation?

Yes

No.

Sometimes

19. CRM application needs to be

More User Friendly

More data accuracy across the integrated system

More User Friendly & More data accuracy across the integrated system

Present application are good enough.

20.In case of feedback , how does it help to improve further please describe.

APPENDIX B: Sample Analysis

	Name of Company	Q1. Are you able to give satisfactory answers regarding the product or service availability using the CRM application?	Yes	No	Sometimes
1	Siemens		Yes	Nil	Nil
2	L&T Infotech		Yes	Nil	Nil
3	ASCI			No	
4	ASAL			No	
5	knorr-bremse			No	
6	TACO Engineering			No	
7	TACOFaurecia			No	
8	TACO Hendrickson Suspension Systems Pvt Ltd (THSL			No	
9	TACO MobiApps Telematics Limited (TMT)			No	
10	TACO SCM			No	
11	TACO Tooling			No	
12	TACO Visteon Engineering Center			No	
13	TacoKunststofftechnik			No	
14	TACO Interiors and Plastics Division			No	
15	Tata Ficosa Automotive Systems			No	
16	Tata Johnson Controls Automotive Limited			No	
17	Tata Toyo Radiator Limited			No	
18	Tata Yazaki Autocomp Limited			No	
19	TC Springs Limited			No	
20	Technical Stampings Automotive Ltd			No	
21	Tyco Electronics				
22	SNS Technologies		Yes		
23	Cotmac electronics			No	
24	Proex Solutions			No	
25	BUI Pvt Ltd			No	
26	DGP Hinoday			No	
27	Khandwala Securities			No	
28	India Bulls			No	
29	Stanadard Charted			No	
30	Cosmos Bank			No	
31	GKN Sintermetals			No	

	Name of Company	Q1. Are you able to give satisfactory answers regarding the product or service availability using the CRM application?	Yes	No	Sometimes
32	Mahindra British Telecom		Yes		
33	Cybase			No	

	Name of Company	Q3. Does your IT department get complaints of data mismatch or interface failures for the customer data?	Yes	No	Sometimes
1	Siemens		Yes		
2	L&T Infotech				Sometimes
3	ASCI			No	
4	ASAL			No	
5	knorr-bremse			No	
6	TACO Engineering			No	
7	TACOFaurecia			No	
8	TACO Hendrickson Suspension Systems Pvt Ltd (THSL				Sometimes
9	TACO MobiApps Telematics Limited (TMT)			No	
10	TACO SCM			No	
11	TACO Tooling				Sometimes
12	TACO Visteon Engineering Center			No	
13	TacoKunststoffte chnik			No	
14	TACO Interiors and Plastics Division			No	
15	Tata Ficosa Automotive Systems			No	
16	Tata Johnson Controls Automotive Limited			No	
17	Tata Toyo Radiator Limited			No	
18	Tata Yazaki Autocomp			No	

	Name of Company	Q3. Does your IT department get complaints of data mismatch or interface failures for the customer data?	Yes	No	Sometimes
	Limited				
19	TC Springs Limited			No	
20	Technical Stampings Automotive Ltd			No	
21	Tyco Electronics				
22	SNS Technologies			No	
23	Cotmac electronics			No	
24	Proex Solutions			No	
25	BUI Pvt Ltd			No	
26	DGP Hinoday			No	
27	Khandwala Securities			No	
28	India Bulls			No	
29	Stanadard Charted			No	
30	Cosmos Bank			No	
31	GKN Sintermetals			No	
32	Mahindra British Telecom			No	
33	Cybase			No	

List of Publications.

1. Kulkarni Y , Keskar A and Ajotikar M, ñMarry CRM with SRM : The Best way to make your CRM effective, Pumba Research Journal (paper accepted for publication).

2. Kulkarni Y & Keskar A, ñAssessing the effectiveness of CRM solutions in increasing effectiveness of Supply Chain Management, Pumba Research Journal (paper accepted for publication).

Brief Biography of the Candidate:

Yogesh Kulkarni is a Engineer from College of Engineering Pune & MBA from S.P.Jain Institute of Management & Research (Mumbai) one of the top ten business schools. He is presently working with TATA Auto Comp Systems Limited as HEAD- Oracle Applications & IT looking after Oracle applications implementation in areas of Manufacturing and SCM.He has 12 years of experience in Operations,IT/Information Management and Consulting in areas of ERP /SCM (Oracle applications-Implementation & support), Operations & Process Consulting, Benefit analysis & Business Process Rationalization/Standardization.

Brief Biography of the Supervisor:

Dr. Anil Keskar is currently Director at Sinhgad Technical Education Societyôs Sinhgad Business School, Pune. He took up this position from November 1, 2007, upon his superannuating as **Professor and Head of the Department of Management Sciences, University of Pune (popularly known as PUMBA).**

Dr. Keskar is a Metallurgical Engineer from the Government College of Engineering, Pune (COEP), and MBA from PUMBA. He is from the founding batch of PUMBA.

Dr.Keskar has unique blend of industry experience and academics. Dr. Keskar has worked on various assignments in the areas of Operations, Supply Chain, Quality, Marketing, HR, etc. in organizations like:

International Computers Indian Manufacture (now Zensar Technologies)
Wanson (now Thermax)
Kirloskar Oil Engines
Amalgamations
Sanmar Engineering
Bharat Forge

Dr. Keskar left his Industrial stride in the year 1994, for pursuing his research in the field of Strategic Marketing, which he completed with a Ph. D. in the year 1996.
Dr. Keskar is associated with Management education in Pune since 1978, as a visiting faculty. He has taught at almost all the Business Schools in the state of Maharashtra (India). His first full time assignment in the academics was as a Senior Faculty at Kalyani Cranfield Manufacturing Management Centre, a joint venture between the Kalyani Group and the Cranfield University of UK. Dr. Keskar has held the postion of Founder Director of Allana Institute of Management Sciences, Pune between 1998 and 2003.

Dr. Keskar is a Visiting Faculty at Khon Kaen University, Khon Kaen, Thailand.

Dr. Keskar is a founder member of Industry Institution Interaction (I cube) initiative of CII, Pune. He was a member of the Academic Council of the University of Pune. He is also member of the various academic bodies of the Panjab University Chandigarh, University of Mumbai, and

SNDT Womenôs Univeristy, Mumbai. He is also member of various committees of the University Grants Commission (UGC), and All India Council for Technical Education, New Delhi (AICTE).

Dr. Keskar is a recognized research guide for guiding Ph. D. Students at the University of Pune, and Symbiosis International University Pune.

Dr. Keskar was elected as a member on the Executive Board of the Association of Indian Management Schools (AIMS) for the year 2007-08. He is also a Life Member of the National Institute of Personnel Management (NIPM), All India Management Association (AIMA), and Pune Management Association.