Analysing enterprise resources for developing CRM framework in higher education institutions

Article

Accepted Version

It is advisable to refer to the publisher's version if you intend to cite from the work. See [Guidance on citing](#).

To link to this article DOI: http://dx.doi.org/10.1108/JEIM-09-2021-0421

Publisher: Emerald

www.reading.ac.uk/centaur

CentAUR

Central Archive at the University of Reading

Reading's research outputs online

Analysing enterprise resources for developing CRM framework in higher education institutions

Basel Khashab a, Stephen R. Gulliver b, Rami M. Ayoubi c, and Carolyn Strong d
 (a) Department of Management, Northumbria University; (b) Business Information, Systems and Accounting, Henley Business School, Reading University; (c) Coventry University, School of Strategy and Leadership; (d) Cardiff Business School, Cardiff University.

Abstract

Purpose-Most Higher Education Institutions (HEIs) have silos of distributed processes, which adds to the confusion and conflict concerning the Customer Relationship Management (CRM), desires, expectation and needs (DEN). Where possible, in order to maximise resource impact and minimise organisational disruption, HEIs should practically map these DEN to processes, roles, events, activities, channels, and technologies (PRE-ACTs) that already exist within the organisation. Our paper iteratively considers use of additional practical approaches that need be considered in order to ensure that strategic HEI CRM DEN are effectively captured, and that the requirements are appropriately mapped to existing HEI activities.

Design/methodology/approach-Content from 27 JISC cases, ten semi-structured interviews and three focus group sessions have been collected and analysed using thematic analysis to understand how to develop preliminary stage 2 steps and assess the applicability of the final CRM strategy orientation support (CRM-SOS) framework stage 2 methods.

Findings-The authors believe that this study provides substantial practical support to CRM implementation practitioners when analysing customer CRM desires, expectation, and needs requirements. The developing practical tools aim to i) support practitioners better comprehend the multifaceted life cycles, needs, and requirements of HEI customers, and ii) aid in the planning and management of CRM change more effectively.

Originality/value- Our paper is extending the recent research around CRM strategy in HEIs by proposing additional practical approaches that need be considered to ensure that strategic CRM are effectively captured. Our paper also offers considerable practical support to CRM implementation practitioners when analysing customer CRM desires, expectation, and needs' requirements.

Keywords: CRM, Higher education institutions, marketing management, UK

1. Introduction

No universal definition for Customer Relationship Management (CRM) exists (Khashab et al., 2020a). As such, the concept of a 'CRM implementation' means very different things to different people. There is an increasing expectation to use CRM solutions within Higher Education Institutions (HEIs), however many HEI stakeholders see CRM as a tool to facilitate call centres and/or marketing databases. Accordingly, it is hard for HEI to know how CRM should be used. HEIs are complex organisations, offering a wide range of services (i.e. teaching, research, knowledge transfer etc.) and involve a wide range of stakeholders - both in

terms of types and numbers – to a wide range of consumers. Moreover, HEIs have a diverse mixture of strategic, analytical, operational, and collaborative business Desires, Expectations, and Needs (DEN). As such, HEI global business strategy is often practically managing a number of low granularity (potentially contradicting) needs that aim to maximise the output of specific divisional activities. Setting a strategy that effectively aligns to, and meets the diverse set of, customer focused requirements is a complex problem.

CRM solutions are increasingly being used to manage the 'student experience' in HEIs. To date, however, there is much confusion, in both commercial and academic domains, what defines CRM; and much literature discusses the difficulty of using just one CRM definition (Liu et al.,2020; Buttle, and Maklan, 2015; Plakoyiannaki and Saren, 2006). Literature defines CRM as a core business strategy, which integrates internal processes and functions, and external networks, to create and deliver relevant value to targeted stakeholders, i.e. to ensure service excellence which results in increased student retention, loyalty, and satisfaction (Seeman and O'Hara, 2006). CRM, however, is dependent on high quality data and enabled by information technology (Buttle, and Maklan, 2015). Although this extensive definition considers strategic, analytical, operational and collaborative functionality, the majority of HEIs only use CRM for conducting operational day to day activities, i.e. tools to support management of student activity, or marketing tools to support admission and recruitment goals (Roberts, 2018). Despite confusions in definition and use, literature agrees that the benefits of CRM in HEI can only be gained if the CRM implementation fosters and aligns to the strategy of the HEI (Couchman, 2018;; Badwan, et al, 2017; Soliman and Karia, 2016).

Studies show that organizational characteristics (Chatterjee et al., 2021; Cruz-Jesus et al., 2019; Newby et al, 2014), knowledge capabilities (Al-Emran and Mezhuyev, 2019; Tseng, 2016) influence the likelihood that CRM technology will be positively adopted and implemented. However, most CRM implementation frameworks fail to effectively consider practical use in complex organisations (Khashab et al.,2020a; Nguyen et al., 2020; Athanasoulias and Chountalas, 2019), i.e. where DEN requirements differ significantly as a result of multiple strategies being implemented within different areas of the same organisation (Ab Yajid, 2020; Perry et al., 2011). Moreover, to the best of our knowledge, no CRM strategy orientation framework has provided a systematic set of processes, methods, and practical tools to support CRM requirement capture and alignment with existing university methods. In this paper we build upon the work presented in Khashab et al (2020a), which presents a CRM Strategy Orientation Support (CRM-SOS) framework to support HEIs in development and orientation of CRM strategy. Although Khashab et al., (2020a) defined the need to analyse DEN requirements, no detailed steps and / or practical methods were effectively considered. In another study, Khashab et al (2020b) addressed possible practical step for scoping and aligning CRM strategy in HEIs, however steps 2 to 4 remain unconsidered. In this paper we iteratively propose and evaluate processes, methods, and practical tools that could be used throughout CRM-SOS framework stage 2, entitled 'Analysing Desire Expectation and Needs requirements (plus PRE-ACT mapping)'.

2. Literature analysis

2.1. Introducing the CRM SOS Framework

The CRM-SOS framework (Khashab et al, 2020a) consists of four core stages, and two option stages, designed to support HEIs in the development and orientation of an appropriate CRM strategy (see figure 1). The first stage, entitled 'Scoping and aligning CRM strategy' scopes and aligns the CRM strategy in context of the university's business strategy and customer focused Desires, Expectations, and Needs (DEN). The strategy focused DEN list is passed to the second stage, entitled 'Analysing DENs Requirements' which analyses the DEN requirements and maps this against existing processes, roles, events, activities, channels, and, technologies – termed 'PRE-ACT' factors – that already exist in the university. If the DEN contained on the list cannot be met by existing PRE-ACT factors, then stage 2 highlights the missing PRE-ACT gaps and/or how existing PRE-ACT factors need to be evolved to support the agreed strategic DENs. If PRE-ACT factors gaps exists, then the "To-Be" DEN requirements are optionally modelled. Modelling help the implementation team effectively communicate with students / staff, in order to check the practical implications of new capability designed, and make adjustments to project expectations and/or the DEN list if the PRE-ACT gaps cannot viably be closed. Once the final "To Be" models have been decided, then they can be sent to the service design team, and the revised DEN list is passed to stage 3, entitled "Measuring the quality of the 'To-Be' DENs requirements", which helps quantify expected CRM gains.
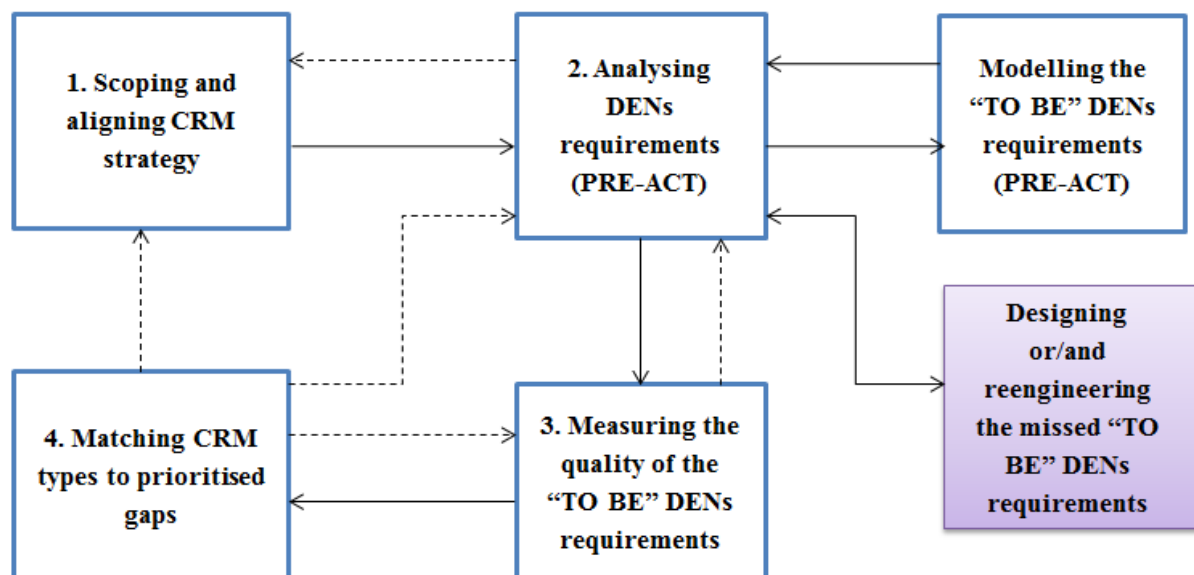

Figure 1: CRM Strategy Orientation and Support framework Stages
(Adapted from Khashab et al., 2020a).

Within stage three, DEN Key Performance Indicators (KPIs) are defined and agreed in advance of CRM solution implementation; since HEI KPI is often dependent on stakeholder expectation. The outcome of step three is a quantifiable set of KPI that has been mapped to known/identified PRE-ACT factors within the University. Stage four, entitled "Matching CRM type to prioritise gaps", aims to formulate SMART CRM goals and assess the performance of technical CRM solutions, i.e. to define whether the DEN requirements can be met by specific CRM solutions. The inclusion of iterations, i.e. movement between high-level stages (represented by dotted arrows), was validated within framework design, and was found to facilitate CRM strategy orientation. Although Khashab et al (2020a) CRM-SOS framework presented high-level stages that are required to support CRM strategy definition and orientation, definition of specific steps and / or practical methods needed to support practical application was ignored. Khashab et al., (2020b) considered the practical steps of how to scope and align CRM strategy in Higher Education Institutions, however stages 2 to 4 are still missing. This paper therefore considers CRM-SOS framework stage 2, entitled 'Analysing Desire Expectation and Needs requirements (plus PRE-ACT mapping)', and proposes methods to support stakeholders within this stage.

2.2. JISC cases analysis

A two-part JISC[1] projects, entitled Relationship Management Programme, studied examples of CRM implementation in HEIs. The first part of the report considered BCE (Business and Community Engagement) CRM projects, which focused on business process change. The second part of the report looked at Student Lifecycle Relationship Management (SLRM), focusing on improvement of the student experience; and how effectiveness and efficacy can be improved by placing the student at the centre of all HEI processes. Although JISC discussed 27 specific CRM implementation cases, in context of BCE and SLRM areas (13 BCE, 7 SLRM and 7 alumni), it failed to consider effective practical use where DEN requirements change as a result of several implemented strategies within diverse silos of the same company. To understand how effective HEI CRM DEN requirements could be achieved, and to develop initial stage 2 steps, the authors of this paper analysed content from all 27 JISC cases using thematic analysis to: i) understand how HEIs plan and implement their CRM strategy; ii) define what methods and techniques were used in HEI CRM projects, and iii) highlight any shortcomings and problems encountered. Initial analysis of the 27 cases revealed that, in all the cases, a focus on process mapping was identified as key to implementation of successful CRM. This analysis has highlighted ten main themes: define strategic leadership, understanding the customer experience, lifecycle mapping, consider both university and customer needs, significance of scoping, define stakeholder groups, define data owners, quantify customer needs, rationalise project resources, and selecting solution provider. However, these thematical concepts are still abstracted and need further investigation within the HEI setting, therefore this paper will try to address this issue in more details.

---

[1] Joint Information Systems Committee is a charity body that champions the use of digital technologies for UK education and research - https://www.jisc.ac.uk/guides/relationship-management/background

3. Research methodology

As mentioned before, content from 27 JISC cases using thematic analysis have been analysed to understand how the authentic HEI CRM DENs requirements could be mapped, and to advance preliminary stage 2 steps. Correspondingly, to examine these themes more exactly, this study conducted ten semi-structured interviews with stakeholders at six of the universities described in the JISC case studies. Semi-structured open questions were used to guide participant discussion (see Appendix B). Quantitative data was coded to ensure feedback concerning from the defined HEIs activity domains (i.e. B2B, current / prospective student activity, student support, alumni). Then, three focus group sessions (FG) were held to evaluate the applicability of the final CRM-SOS framework stage 2 methods proposed for step 1 and 2. The main objective was to scrutinise domain specific applicability of steps within stage 2 - in terms of flow and concepts/techniques relating to three main HEI activity perspectives, i.e. 17 participants (9 participants from business to business (i.e. B2B) activities, 6 participants from prospective and current student activity domains, 1 participant from student-support, and 1 participant from alumni services) – see table 1. Purposive evaluation sampling allowed us to gain feedback from a range of CRM service areas within the university. The researcher played the role of facilitator to ensure that discussion did not stray from the defined objective. Participants were informed, and approved, that their responses would be analysed anonymously and kept securely. Discussion concerning stage 2 methods (step 1 and 2) lasted approximately half an hour.

Table 1: HEI focus groups participants

Number of Participants	Roles/ areas of Investigation
9	**Business to Business and Knowledge Transfer Areas:** - FGP1: Knowledge Transfer partnership manager (CRM planner i.e. middle manager) - FGP2: Knowledge Transfer and Commercialisation Manager (CRM expert planner , middle manager) - FGP3: CRM academic researcher - FGP4: CRM academic researcher - FGP5: Corporate CRM – "Supporting Business Engagement" (Analyst in business area, operational manager) - FGP6: Quality Manager and Employer Engagement (middle manager, CRM planner) - FGP7: KTP manger (top manager, CRM planner) - FGP8: Employer engagement and Alumni manager (researcher and middle management) - FGP9: CRM expert in postgraduate research experience manager (middle manager)

7	**Prospective/current student's area:** - FGP10: Academic (Marketing Enquiries, CRM planner, CRM user, post implementation) - FGP11: Academic, CRM planning office - FGP12: Marketing Manager (top management, CRM planner and user, /pre-post implementation) - FGP13: Head of Student Recruitment & Outreach (CRM planner and user, /pre-post implementation, middle manager) - FGP14: CRM academics staff/ Strategic marketing director (CRM planner, top manager) - FGP15: IT Manger (CRM planner, designer, /pre-post implementation top manager) - FGP16: Current student focus, student advice and wellbeing manager (CRM planner and user, /pre-post implementation middle manager)	
1	**Alumni:** - FGP17: Alumni Manager (CRM planner and user, middle manager)	

4. Development of DEN requirement steps

To investigate the previous themes more specifically, the authors of this paper conducted ten semi-structured interviews with stakeholders at six of the universities described in the JISC case studies. Stakeholder interviewed included: one pro-vice chancellor (I-P1); four project managers - two concerned with B2B projects (I-P2 and I-P3); one member of staff concerned with current student projects (P4); and one member of staff concerned with marketing projects (I-P5); two IT managers (I-P6 and I-P7); and three CRM marketing managers (I-P8, I-9, I-10). The following expands JISC participant feedback concerning analysis of CRM Desires, Expectation, and Needs requirements (plus PRE-ACT mapping):

Define strategic leadership – One participant stated, when considering project issues, "we didn't have anybody at a senior level who was trying to push it through" (I-P3). Accordingly to ensure effective allocation of PRE-ACT resources, and in order to obtain engagement by relevant stakeholders, it is important to define strategic leadership. "I would say the lesson that I would teach you is it's all about people. The technology, the hardware, the software, is easy. It's the people that are the most important and the most complex part when implementing and large system. You're going to have conflicts with people, and it's the management that is pivotal to the success of any large project - especially a CRM system." (I-P9).

Understanding the customer experience - Seven out of ten of the respondents highlighted the importance of considering customer experience at the pre-implementation stage. "I do not think you can really set out objectives without taking into account what the students want" (I-10). Accordingly, it is essential that stakeholders agree on service delivery before implementation. What was the customers' satisfaction with existing services? What are the most important needs and are we practically meeting these needs?

Lifecycle mapping – CRM components can be defined as main lifecycle contact points of processes, roles, events, activities, channels, and technology (PRE-ACT factors).

Accordingly, it is important not to disregard the lifecycle when implementing CRM. Respondent 5 mentioned that different customer groups need different solutions at different times, e.g. "The undergraduate experience is very different to the PG experience" (I-P5), which implies that different customer groups have different PRE-ACT needs. Respondents' highlighted the importance of mapping how different customer groups interact with, and use different PRE-ACT resources. "Each life cycle needs to be understanding in depth the related services, people, needs, activities, requirements to orient the right resources into areas of specific life stage" (I-P2).

Consider both university and customer Needs - Participants suggested that it was essential to elicit the customer experience by conducting workshops / focus groups with both primary clients, secondary beneficiaries, and service providers - i.e. to gather information concerning their satisfaction / dissatisfaction concerning current delivered services. However, "CRM strategy should not be based entirely on the student's needs, because there is, no point in putting something in our strategy if it's not physically possible" (I-P2).

Significance of scoping - Eight of the ten participants mentioned that having a CRM strategy at the pre-implementation stage is an essential to controlling resource allocation and risk. Participants described how the required time, resources, effort, and change management limitations is critical to the definition of the CRM implementation scope which is linked to implementation success. Participants suggested that smaller projects result in fast, low risk, simple, manageable outcomes, i.e. by minimising the change required to organisational structures and customer relationships. Interestingly, one of the key factors, identified by seven of the ten participants, was the need to have "sub-strategies for different sectors and customer groups", i.e. to support CRM activity in the context of local need (teaching, research, knowledge transfer, etc).

Define stakeholder groups - Eight out of ten participants indicated that a CRM strategy could only be defined if we effectively understand stakeholder needs. Interestingly, none of the participants followed any specific method to define and analyse stakeholder needs. "There's no particular method that we've used for that" (I-P6).

Defining data owners – "The biggest problem was getting the right information into the system in the first place" (P8). Accordingly, defining the data owners in each department is essential to identify data sources and reduce the confusion of data migration. "It is important to make sure people across the university know who owns what data; and periodically do an aggregation to provide a big picture of the business interactions" (I-P1). Although this theme was important for all participants, it was given more attention by B2B managers than the marketing managers.

Quantify customer needs –When formulating the goals it is important, however, to quantify business needs, e.g. cost of resources, the scope of the implementation, quality expectations, and time restrictions; which implies that setting the goals comes after stakeholder's identification, since stakeholders must work cooperatively to create the output goals. Participants commented that SMART criteria allows the quantifiable definition of specific capabilities, which helps avoid the problem of over-engineering the solution, and

reduces the risk of over-investment of resources. "If you have SMART goals they become the guiding principles to work against" (I-P2). Participants stated that, in order to obtain tangible and intangible benefits, there is a need to explicitly highlight, and allocate, mutually agreed and adequate resources, i.e. funds, people, time.

Rationalise project resources - Human, technical and financial resources are substantial factors to CRM implementation success, and they should be agreed, and allocated, in advance of project implementation. Seven of the participants raised the issue that sufficient resources were not available to complete the implementation, which raises the question - were resources rationalised and approved by senior management in advance of the project? If the answer to this question is 'No', then project planning, scope, and governance mismanagement seem applicable. If the answer to this question is 'Yes', then we need to ask - why was pre-implementation rationalisation or use of resource mismanaged? Awareness of available PRE-ACT factors is essential to: i) determine whether current HEI capabilities can achieve agreed CRM desires, expectations and needs (DEN); ii) determine practically how DEN should be mapped to PRE-ACT factors; and iii) assist in relevant resource allocation. Pre-implementation rationalisation of resource allocation was indicated as being critical to CRM implementation success. Not having the right people at the required time can have a negative cost / time implications. "There was a lack of skilled personnel within the institution. If the university decides to outsource to a provider, they still need to have some knowledge within the university to manage that relationship – it's very tough" (I-P10). Participant 8 raised the point, however, that it is sometimes difficult to determine the required resources at the beginning of the project. "I do not think from the outset people know what is really involved and how much resources the project will need" (I-P8). Participants stated that understanding the required time, resources, effort, and change management limitations is critical to definition of the CRM implementation scope within a specific functional area. Small scope CRM strategies result in fast, low risk, simple, manageable outcomes, by minimising the change required to organisational structures and customer relationships. Large scope CRM projects are often complex, costly, and risky, often resulting in changes to organisational structure and customer relationship cultures; however can be significantly more impactful if managed successfully. Although paradoxical this point emphasises the need to explicitly balance implementation scope, risk/return, and resource allocation.

Selecting CRM solution provider - Half of the participants discussed the importance of taking care when selecting the CRM/service provider, with many participants suggesting that limitations in the solution functionality compromised project success. "It's about being very careful about who you select" (I-P8), i.e. ensuring you figure out the available market options and only select the right CRM solution after extensive research. A participant highlighted a need to define CRM implementation needs before selecting CRM provider. Hence the definition of the implementation goals, objectives, stakeholders, and CRM system requirements - in advance of CRM provider selection – is critical in order to determine whether a CRM provider is able to satisfy the CRM needs of the HEI. "We didn't make any assumptions as to what kind of products we wanted; we didn't identify a product, yet instead started with

requirement gathering. We said 'Ok, what is the kind of product we want to use? Do we want it in the cloud, do we want it on site?'" (I-P6). Starting to define the CRM implementation needs, before selecting a CRM provider, was defined by I-P6 as critical to selecting the right service provider.

As a result of literature and interview feedback, 4 steps for stage 2are proposed (see figure 2) to support analysis of CRM Desires, Expectation, and Needs requirements (plus PRE-ACT mapping) as follows:
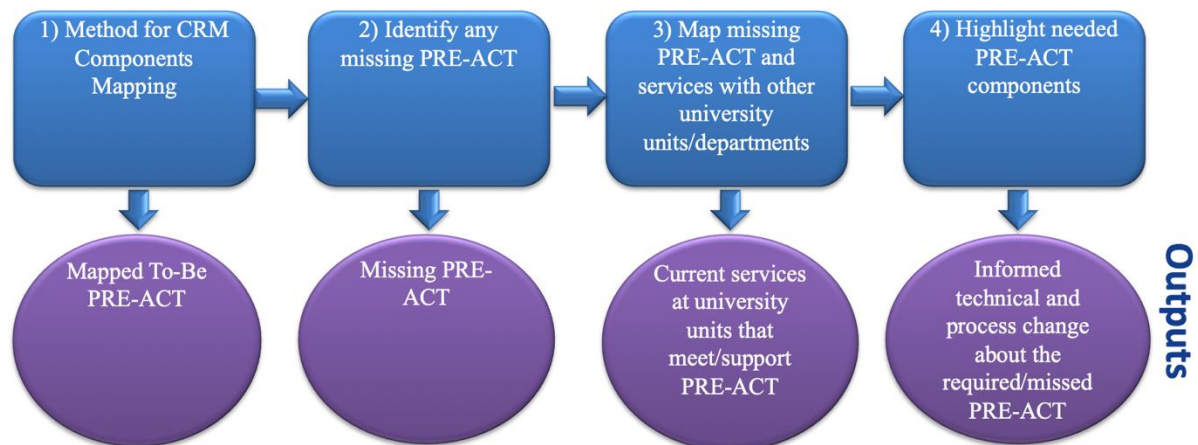

Figure 2: Final analysing the DENs requirements (PRE-ACT)
to map and/or create client interaction lifecycle stage

Stage 2 Step 1- Method for CRM components mapping. Understanding existing processes, and finding agreement on a shared process, is key for CRM success (Fredrick and Christopher, 2019; Rahimi and Gunlu, 2016; Everall and Louch, 2010). Disconnected processes rarely result in seamless cross-functional processes; instead causing inconsistent and poor customer process experience (Ross, 2016). Although strategic DEN was identified in stage 1, it is important to assess and challenge current CRM processes; and identify where necessary where substitutes or re-engineered processed are required (Jha, 2021; Alvarez, 2013). Baranova (2016) stated that mapping the customer life cycle to define areas of improvement. We identified, when talking to participants about the adoption of customer life-cycle, that the pre-implementation mapping of "As-Is" and "To-Be" PRE-ACT components to DEN within context of a "client lifecycle" is essential to define the CRM project scope.

Stage 2 Step 2- Identify any missing PRE-ACT components. Once we have defined 'As-Is' PRE-ACT resources within the client lifecycle, then we can identify, in contest of the lifecycle, whether PRE-ACT components already exist in the lifecycle; allowing us to identify gaps that exist in the provision of PRE-ACTs – i.e. what components need to be evolved, created, or sourced to meet DENs in context of the lifecycle.

Stage 2 Step 3- Map missing PRE-ACT and services with university units / departments. This step highlights whether missing PRE-ACT already exist elsewhere within

9

the HEI. Using pre-existing resources (if relevant) helps reduce the cost of PRE-ACT component creation and/or helps reduce functional duplication within the HEI.

Stage 2: Step 4- Highlight new, missing PRE-ACT and services, that need to be designed. Once we know what PRE-ACT components are needed then the HEI must consider whether/how they can support the technical implementations, process change, staff provision, and service development that is required to fill the PRE-ACT gaps. If the HEI is unable to support development of missing PRE-ACT components then the DEN, in context of the client lifecycle cannot be met.

5. Proposing practical stage two methods
Step 1-Method for mapping DEN to components

Atorough and Salem (2016) stated that defining the customer lifecycle is required to understand and communicate all client interaction phases. As the client uses services, and moves through the lifecycle, the enterprise should aim to use touch points to develop "a loyal client who will buy supplementary products or services" (Reason et al, 2015). Although this is initially hard to conceptualise in context of HEIs, client lifecycle management is a rational approach that enables universities to manage services throughout the student lifecycle, i.e. from the first encounter in freshers week, to the final contact at the end of the graduation (and beyond as alumni). Hence, client lifecycle is a continuous sequence of planned/connected activities, which can help the institution plan, manage, and resource the customer experience (Shim et al., 2012). Accordingly, numerous services, relationships, and life events need to be considered within a single lifecycle.

It is important to appreciate the difference between the lifecycle and a life event. A student lifecycle is a sequence of pre-planned events / activities (sequential and parallel) that must be completed in order allow the student to successful complete of his/her academic programme. Silva et al (2015) defined a life event as an individual change that takes place throughout the individual's lifecycle, as a result of different circumstances over time; triggered by event in that person's life, e.g. an extenuating circumstance, maternity / paternity break, physical or mental illness. There are many types of life event, including planned / unplanned, pleasant / unpleasant, personal / impersonal, desirable /undesirable, etc. Life events can happen at any time during a client's lifecycle, however they may trigger a need for a service provision or response. Life cycle / event planning allows the institution to determine their response to the customer's current life stage and situation; determining services (as required) that customers need to move their situation forward (Todorovski et al., 2006).

Breaking down the client lifecycle into main and sub-stages is important to support service providers i) plan reaction to anticipated and unanticipated events, and ii) ensure that they satisfy the DENs (Desires, Expectations, and Needs) for all specific client segments, at a specific lifetime points. In order to understand who provides what services, to which customer, and what CRM service types are involved, we must consider both "As-Is" and "To-Be" PRE-ACT components, i.e. the processes (steps of delivering the service), roles (assigned to processes, activities, and people), events (that trigger a change in processes or activities),

activities (sub-processes of high-level processes), communications (i.e. types. and channels), and technologies that can be used to support the creation of a CRM solution. Accordingly, in order to model the existing "As-Is" lifecycle PRE-ACT components, we suggest considering many aspects for each life stage, including: lifecycle description; process description; list of all activities; roles description; event description; communication channels; the client's profile information; and finally service description. To support this process the authors developed the 'table', which comprises of 16 elements (see table 2). The client interaction life cycle elements can be used to define the client's "As-Is"life stages, and map PRE-ACT components to specific strategic desire or/and expectation or/and need.

Table 2: Client interaction lifecycle mapping/creation technique

Lifecycle ID				
Version No				
Strategic DEN		**'As-Is'**	**'To-Be'**	**Difference/ new/missing requirements, rail and wait points**
DEN	1) Lifecycle name			
	2) Lifecycle description			
	3) Total life cycle duration			
	4) Generic life cycle stages name and idss			
	Individual life stage that links to specific need of strategic client's names and ID			
	Version No			
	5) Start (date-time) Individual life stage that links to the need of strategic clients.			
	6) End (date-time) <u>for each life stage</u>			
	7) Respective life events, IDs, names, types <u>for each life stage</u>			
	8) Sub-life stages (as processes IDs, names), start (date-time), end (date-time), pertinent interaction <u>at each life stage</u>			
	9) Related activities ids and names <u>for specific process</u>			
	10) Further activities decomposing when needed ids and names of application activity			
	11) Related Services: IDs, name, <u>for each process and/or activity</u>			
	12) Technologies used <u>for each process and/or activity ID and name</u>			
	13) Front stakeholders participants roles <u>for each process and/or activity</u>			
	14) Backstage stakeholder's participants' roles <u>for each process and/or activity</u>			
	15) Related channels: IDs, names, types <u>at each process and/or activity</u>			

16) Related clients/Segment types. at each life stage.	

The first four "As-Is" elements (i.e. name, ids, description, duration, start and end date, generic life cycle stages) provide general information related to the client's interaction life cycle; and help to outlines the life cycle stage definition. Start and end elements are used to define respectively current trigger and death points within the given life cycle. The life event element allows specific life events to be linked and considered in context of the specific lifecycle stage, and facilitates different responses to be designed for students groups at different points in their student experience. The eighth "As-Is" element, called 'sub-life stages' (i.e. processes), is used to identify all processes related to IDs, names, start and end date that are required within the specific life stage. Identification of specific processes, and identification of these in context of specific customer lifecycles, allows processes to be mapped / reengineered without losing the perspective concerning the full context of use. Similarly, the following elements, relating to activities, services, stakeholders, and channels, allows us to build up an "As-Is "picture of dependency between PRE-ACT components. A service element represents a set of high-level internal or external processes that results in a specific delivery outcomes. A service can be used to support the occurrence of planned or life events within the lifecycle stage, however to allow the linking of services to specific life stages, all service elements should be given a name and id. If the service element outcome is externally sourced then it might not be possible to further decompose (or evolve) this service. If the service, however, is internally produced then a lower-order client lifecycle can be developed for each service (as required), with yourself as the service client. Abstraction at this level allows the HEI to determine all factors (both internal and external) that influence the experience of the end customer throughout a specific lifecycle stage. Element twelve makes reference to the technology currently being used to support a particular lifecycle stage. This should include consideration of all technologies used by all linked processes / activities / stakeholders. Having this list allows the IT team and management to better appreciate the enterprise architecture – i.e. how IT infrastructure links to business goals. Front and backstage stakeholder roles elements (elements 13 and 14) aim to identify the roles that need to be in place at specific life stage, as multiple roles might be needed throughout the lifecycle stage. It might be one person satisfying all roles, or multiple individual specialising on specific roles, but this helps the HEI appreciate the HR recruitment requirements. The communication channels elements is used to identify the interaction channel e.g. face-to-face, phone, online, etc. Lastly, the clients/segment types should be defined and taken into account (e.g. study type, nationality, demographic, relationship status). The client's segment data is used to tailor services to specific segment DEN. To appreciate capture of "As-Is" element see (Appendix A), which presents a completed hypothetical client lifecycle table.

Step 2- Identify any missing PRE-ACT
Once we have defined the current "As-Is" PRE-ACT components, in context of the client lifecycle, we next need to determine the "To-Be" PRE-ACT components, which are needed to

meet the strategy focused DEN list. In order to support the move from 'As-Is', to 'To-Be', the authors suggest the decomposition of the client lifecycle to help determine a level of service abstraction that supports the mapping to existing "As-Is" PRE-ACT and services.

Numerous data collection strategies could be used to collect life-cycle data, including surveys, workshops, comparative studies, and contextualised interviews (Cox and Tam, 2018). Practically the authors suggest using either: i) the Evaluation framing method, which was developed to support the organisational semiotics domain, or ii) balances scorecards. Both are explained below.

Evaluation framing- Simoni (2003) adopted the evaluation framing method to elicit both "As-Is" and 'To-Be' requirements, as 'evaluation framing' can present ideas in terms of informal, formal and technical requirements (see Table 3). Simoni et al. (2007) stated that the informal level relates to issues of culture, pre-conception, pre-knowledge, interpretation, intention, and beliefs, that impact how services are understood and / or recognised. Accordingly consideration of changes at the informal level, e.g. a change in strategy or focus, is essential to ensure that all PRE-ACT components align with to institutional DEN; i.e. in order to achieve value creation and acceptance. The formal level relates to the definition of form and structure of service delivery, e.g. the processes applied, and the rules and procedures used to support and standardize delivery of activities. Formal level consideration is essential to ensure that all effective rules and processes are in place to support transition though the client lifecycles, and cover all life events. If potential life events have been identified, or changes in regulation and compliance, then these changes must be considered within the formal level. At the technical level we are considering the best application of service, i.e. the tools used to deliver the activities, e.g. an automated computer-based operational CRM or a specific teaching or learning method. This method can help to define the ideal "As-Is" PRE-ACT components under three layers.

Table 3: Evaluation frame (adapted from Simoni, 2003)

Stakeholder	Ideas/Solutions "To Be"
Informal	What are the suggested solutions to meet that defined problems in specific PRE-ACT in terms of informal meanings, intentions, responsibilities, commitments etc?
Formal	What are the suggested solutions to meet that defined problems in specific PRE-ACT relating to formal rules, policies etc?
Technical	What are the suggested solutions to meet that defined problems in specific PRE-ACT relating to technical requirements etc?

Practitioners need to ask themselves: In light of the available limited resources in HEIs, could "As-Is" PRE-ACT CRM components achieve or meet the new strategic DEN? How can the "As-Is" PRE-ACT CRM components be mapped to the agreed 'To-Be' PRE-ACT - in order to fulfil the strategic DENs? Does 'To-Be' PRE-ACT CRM component mapping provide insights into what CRM solutions are needed? The answers to these questions can be compiled from end-user feedback - allowing areas that require intervention to be identified.

Balanced Scorecards- Balanced scorecards (BSC), developed by Robert Kaplan and David Norton, can help management teams determine how existing PRE-ACT factors, and new DEN, impact organizational performance. BSC allows performance to be reported at HEI and departmental levels, thus allowing consideration of local value. HEIs need therefore to define DEN in context of KPIs – see table 4 (which is essential for CRM-SOS stage 3). Definition of BSC perspectives allows consideration of four high-level strategic areas, i.e. Financial, Customer, Internal Processes, and Learning and Growth.

Table 4: Four BSC perspectives (adapted from Bradford, 2020).

Perspective	Question	Description
Financial	"What is the value of certain shareholders?"	Traditional KPIs relate to profitability, growth, and shareholder value.
Customer	How do our customers view us?"	Customers' concerns tend to fall into four categories: time, quality, service, and cost. KPIs can be used to measure these categories.
Internal Processes	"What can we do better than anyone else?"	KPIs based on this perspective tell managers how the business is operating - focusing mainly on core competencies.
Learning and Growth	"Can we continue to improve and create value?"	KPIs included in this perspective capture growth in intellectual capital.

Historic financial outcome, however, cannot be used to map future success, since financial KPI represent a lagging indicator; i.e. only providing feedback on past organizational performance. Only leading indicators should be used to link DEN KPI and future HEI activity. Strategy maps can be visualised from BSC (see figure 3), to show the explicit cause-and-effect relationships that exists between perspectives and value creation.
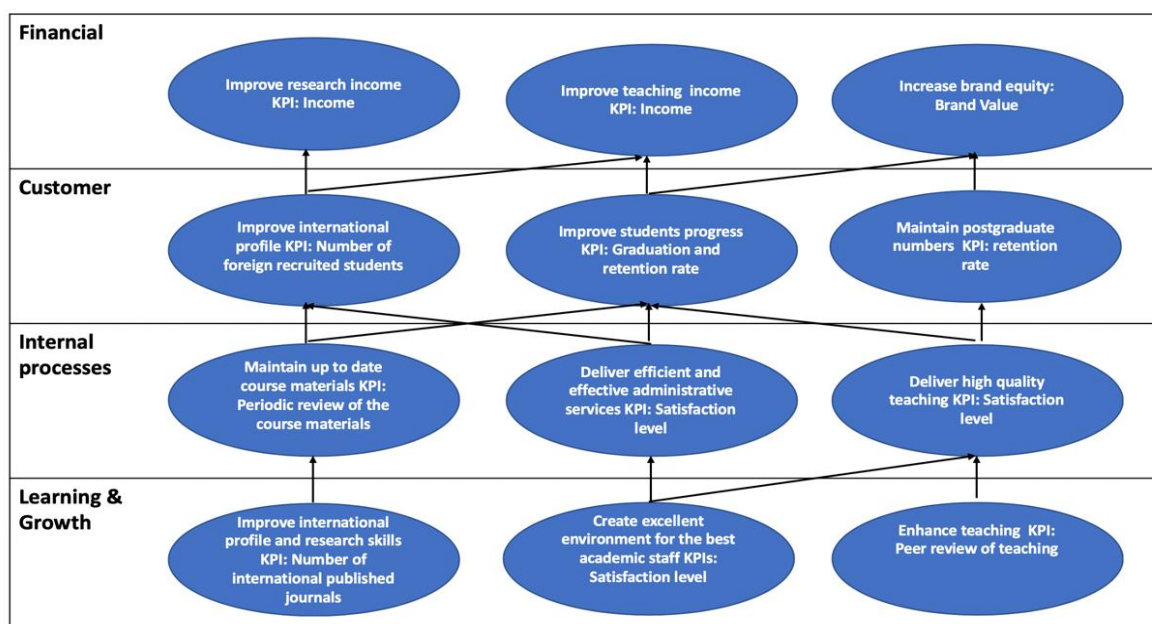

Figure 3: Strategy KPI Map using a BSC

Step 3-Mapping missing PRE-ACT and Services

The third step is to identify whether missing PRE-ACT factors (i.e. processes, activities, roles, events or communication channels) already exists elsewhere within the university. If a specific PRE-ACT factor already exists within another department then it is most efficient to expand or adapt the existing service to meeting the new demand. If available, the PRE-ACT resource will be recorded by the project team; along with details concerning related roles, processes, activities, communication channels and technology.

Step 4-Highlight required PRE-ACT components

The fourth step is to identify any processes, activities, roles, events and/or communication channels that do not exist within the university, yet need to exist if the defined CRM system is to be created; i.e. services that must be created to allow a specific strategic output to be achieved. Identifying missing PRE-ACT components can be used to inform technical, process change, and operational staff decisions. Moreover, if change is strategic then step 4 helps the university to highlight a path between current "As-Is" and proposed "To-Be" processes, activities, events, roles and technology (PRE-ACT). Moreover, an optional stage, entitled "Designing and/or re-engineering missing "To Be" DENs requirements" was included in the CRM-SOS framework, which is triggered by Stage 2 Step 4 requirements. Practical consideration of process reengineering methods within this optional stage was deemed outside the scope of this paper.

6. Findings and analysis
6.1 Evaluation Feedback
Step 1-Method for CRM components mapping

B2B participants supported the flow and concepts presented in stage 2 step 1 methods. "Yes, that's exactly what we did" (FGP6). When B2B participants were asked whether Process, Role, Events, Activities, Communication channels, and Technology (i.e. the defined PRE-ACT CRM components) were the main CRM requirements, and must exist to support the CRM strategy, all participants agreed. "Yes, we had to do all that." (FGP6). "It's good, you've got all that down" (FGP7). Interestingly, subsequent to discussion covering each PRE-ACT component, B2B participants expressed a need to add "procedures"; since procedure informs how other PRE-ACT elements operate, why they are doing it, and when they can be used. "I would separate procedures and processes because we do have processes where people just follow things. Procedures tell them how to do it" (FGP7). Therefore, in response to focus groups comments, we propose the addition of procedures. Accordingly we suggest naming the CRM components: Processes, Roles, Events, Procedures, Activities, Communication Channels and Technology (PREP-ACT), i.e. factors that need to be in place to facilitate the CRM interaction act. As such CRM-SOS Stage 2 should be renamed 'Analysing DENs requirements (PREP-ACT), and all stage 2 steps renamed PREP-ACT, instead of PRE-ACT, to consider the distinction between processes and procedures (see figure 4).
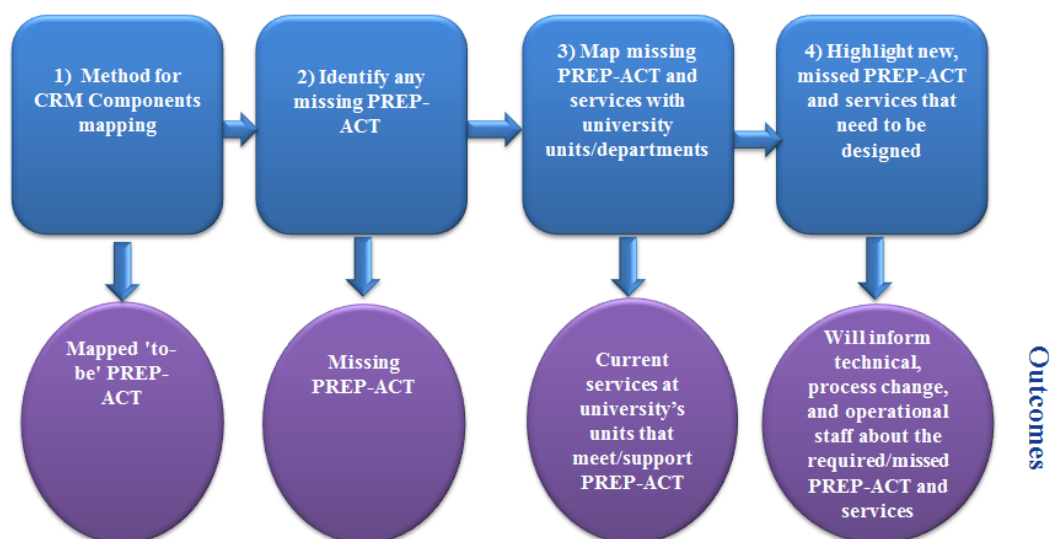

Figure 4: Final iterative stage 2 steps

All B2B participants approved the techniques proposed in this Stage 2 step 1, and they liked that they were designed to work in the real world. "That makes perfect sense to me" (FGP3). "That's great as that's largely what we did" (FGP7). "I need to be at this stage, i.e. where we record every stage. You know what elements you've got, and you're now able to go back to refine them" (FGP2).

One participant (FGP6), with experience of different HEI areas, e.g. alumni, placements, business to business, claimed, "We do this for every single thing - recruitment, business to business and alumni" (FGP6). Other participants, i.e. academics, also understood clearly the aim of the methods, and reflected on it as a change technique, saying " So you're trying to work out what you need to change, and what's missing in the "As-Is" to allow you to

turn it into the "To-Be" process. This can all be done multiple times on a desk, e.g. that's the first version, this is the second version, that's the third version, this is what we need to do" (FGP4).

When discussing the mapping and generating of "client lifecycles", B2B participants found it important to adopt this concept, especially when defining the "As-Is" and the "To-Be" CRM requirements; because the communication between different stakeholders can be affected if some CRM requirements changes are not disseminated. The proposed techniques allow the deletion of PREP-ACT, and the changing of "To-Be" – assuming we track changes, add/delete any PREP-ACT components, and edit the mapping to the "To-Be". Almost all B2B participants agreed that consideration of "As-Is and "To-Be" PREP-ACT elements allowed effective removal of elements that are not needed, and highlighted the requirements for other elements that are needed. One participant stated, "It highlights that you have redundant services that need to be removed, or that you're missing areas that need to be added." (FGP3). B2B participants recommended addition of new columns in client interaction life cycle table (see Appendix B) entitled "Redundant Requirements", "Strategic reporting change impacts", i.e. to explicitly record and describe all changes and the impact of change. A B2B expert argued, "That would be good as reports will be generated from this information. If I was removing something I could then turn around and say well this will affect this report because that information is displayed in that report" (FGP3). And another stated "If you cannot achieve your target you can at least see what you changed and the impact that it's made. It has good logic" (FGP4).

Step 2: Identify any missing PRE-ACT

Having such a systematic approach to analysing the CRM requirements, at the pre-implementation stage, was seen by prospective and current student activity participants as important. Documenting the CRM requirements, using the proposed techniques, was seen as significant; since they allow the HEI to have a point of reference during and after the implementation. For example, one participant said: "I think that works really well. PRE-ACT allows you to build up the picture, adding detail to detail, within different sections. You ultimately find out what the difference is between "To-Be" and "As-Is" systems and what is currently missing - you've got the whole spread thing there in front of you. I think that would work!" (FGP11). Another participant claimed, "That's good news if you need to prove to other people that what you're doing is fundamentally sound. Also, if the CRM advocate were to leave the HEI, all the original documents would still exist – which is great" (FGP13). "It would help at systems meeting, i.e. when you are meeting with your CRM provider. Your IT team and you go through specifically what PRE-ACT components need to change. I think it could work" (FGP14). Prospective and current student activities participants believed that the proposed techniques would enable the HEIs to better understand what processes are provided by specific roles, what individual activity is involved within specific roles, what is needed to deliver a service, and which services link to the certain HEIs client. A participant identified the 'internal

business analyst' as the person responsible for requirements evaluation; however, regular communication with IT managers and senior staff is required to reach an agreement.

Although the participants believed that the techniques would work well, they suggested some minor improvements. HEIs stakeholders should be increasingly educated about the CRM benefits/features/capabilities at different levels; since participants believed that increased HEIs stakeholder awareness helped when defining "To-Be" requirements. Participants suggested using the Moscow business analysis method, i.e. Must have, Should have, Could have, and Would like but won't get, to prioritise requirements (i.e. define the valuable ones) and validate the requirements gathered.

Another important suggestion raised by participants was to classify the requirements into functional and non-functional categories (mentioned by the IT manager and agreed by four participants). "We (i.e. IT) can focus on the technology fit (functional requirements), whilst others focus more on the process and procedures that guide users in using the system (non-functional requirements)" (FGP15). "There is one thing that perhaps may be missing, i.e. definition of functional and non-functional requirements. So the non-functional requirements might be, for example, we do not have anybody in the IT department trained on the solution technology" (FGP11). Accordingly, we propose adding two columns to Appendix C to i) classify the requirements as either functional or non-functional; and ii) link the requirement to a Moscow criteria definition.

7. Conclusion

Although CRM solutions are increasingly adopted by education providers it is critical that HEIs implement CRM solutions that align with their top-down business strategy. Khashab et al., (2020a) presented a high-level CRM Strategy Orientation Support (CRM-SOS) framework to support HEIs in developing and orientating their CRM strategy. Although the CRM-SOS presented four core stages, and two option stages, no consideration of practical processes, methods, and practical tools was presented within this paper. Khashab et al., (2020b) addressed practical tools for Scoping and aligning CRM strategy in Higher Education Institutions, i.e. stage 1, however stages 2, 3, or 4 are yet to be addressed. In this paper, by combining data from literature review and expert interviews we were able to define four steps within Stage 2 (see figure 2), and propose practical methods for steps 1 and 2.

8. Implications to theory and practice

As the result of interview feedback, and for use in step 1, the client interaction lifecycle PRE-ACT technique was proposed (see table 1 and Appendix A). Using HEI focus groups, the lifecycle technique was developed to support practical consideration / mapping of all PREP-ACT components – Processes, Roles, Events, Procedures, Activities, Communication Channels and Technology (See Appendix C). Using the client interaction lifecycle PREP-ACT technique allow the HEI to map "As-Is" PREP-ACT components, and plan a change pathway through life-cycle iterations. We believe this facilitates HEI in i) understanding and responding to a complex range of life-events that occur within HEIs, ii) plan, monitor, and respond to

change requirements moving forward. For example: by considering all PREP-ACT components HEIs are able to make a clear distinction between processes and procedures; by considering redundancy HEIs are able to optimise service provision, and remove the resource allocation to services, that are no-longer needed.

To support step 2 the authors suggested use of evaluation framing, to allow distinction and categorisation of informal, formal, and technical PREP-ACT needs, and Balanced scorecards (BSC) allowing consideration of financial, customer, internal processes, and learning and growth perspective and the explicit cause-and-effect relationships that exists between them. Moreover, by adding two columns to Appendix C we are able to further classify the requirements (as functional or non-functional) and link the requirement to Moscow criteria definition, i.e. Must have, Should have, Could have, and Would like but won't get.

Although the implementation of any enterprise system should not be prescriptive, the authors believe that this paper offers considerable practical support to CRM implementation practitioners when Analysing customer CRM desires, expectation, and needs requirements. By proposing, and developing practical tools, the authors aim to i) support practitioners better understand the complex life-cycles, needs, and requirements of HEI customers, and ii) help in the planning and management of CRM change.

9. Limitations and future research recommendations

Despite our paper has conducted three different qualitative studies to provide a framework for analysing desire expectation and needs requirements for developing CRM framework in higher education institutions, this study did not provide practical implementation evidence because of its research design. However, this paper provided experiential contribution for HEA by developing and evaluating the PREP-ACT technique, this technique is based on experts and mangers in educational institutions. Thus, it is better if this technique can be tested in a business base to check its effective applicability. While our research design has a reasonable iterative feedback from multiple qualitative sources, and henceforth improving the validity of our conclusions, it restricted us in generalising the results. However, further research may adopt a quantitative approach to reduce the field biased risk. Furthermore, researchers can attempt to apply the validated lifecycle steps on business customers to extend the diagnostic and prognostic competences of their future framework. Finally, forthcoming research can offer more conclusive evidence on the different outcomes of HEIs customers through collecting and comparing large size of data across the all-customer lifecycle.

References

Ab Yajid, M.S., 2020. Determinants of Car Sales in Business and E-Business. Systematic Reviews in Pharmacy, 11(1), pp.896-900.

Al-Emran, M. and Mezhuyev, V., 2019, October. Examining the effect of knowledge management factors on mobile learning adoption through the use of importance-performance map analysis (IPMA). In International conference on advanced intelligent systems and informatics (pp. 449-458). Springer, Cham.

Alvarez, G. (2013). The Eight Building Blocks of CRM: Vision. Gartner Group. Available from:http://www.eiman.co.uk/uploads/3/0/4/5/3045597/gartner_eight_building_blocks _crm_vision.pdf. [Aaccessed 4th Jun 2014]

Athanasoulias, G. and Chountalas, P., 2019. Increasing business intelligence through a CRM approach: An implementation scheme and application framework. International Journal of Information, Business and Management, 11(2), pp.146-178.

Atorough, P. and Salem, H.(2016). A framework for understanding the evolution of relationship quality and the customer relationship development process. Journal of Financial Services Marketing, 21(4), pp.267-283.

Badwan, J.J., Al Shobaki, M.J., Naser, S.S.A. and Amuna, Y.M.A.(2017). Adopting technology for customer relationship management in higher educational institutions. International Journal of Engineering and Information Systems (IJEAIS), 1(1), pp.20-28.

Baranova, P. (2016). Understanding the customer journey through the prism of service design methodology. Routledge.

Baranova, P. (2017). Understanding the customer journey through the prism of service design methodology, in David Longbottom and Alison Lawson (Eds) 'Alternative market research methods', London: Routledge, London, 2017

Bligh, P. and Turk, D. (2004). CRM Unplugged Releasing CRM's Strategic Value. John Wiley & Sons, Inc.

Bradford, M. (2020). Modern ERP: Select, Implement & Use Today's Advanced Business Systems

Buttle, F. and Maklan, S. (2015). Customer Relationship Management: Concepts and Technologies. Routledge.

Chatterjee, S., Rana, N.P., Tamilmani, K. and Sharma, A., 2021. The effect of AI-based CRM on organization performance and competitive advantage: An empirical analysis in the B2B context. Industrial Marketing Management, 97, pp.205-219.

Couchman, C. (2018). Shifting Directions: Conceiving, Implementing, and Navigating the Inherent Complexities of Student Recruitment Customer/Constituent Relationship Management (CRM) Systems within Higher Education.

Cox, A.M. and Tam, W.W.T. (2018). A critical analysis of lifecycle models of the research process and research data management. Aslib Journal of Information Management, 70(2), pp.142-157.

Cruz-Jesus, F., Pinheiro, A. and Oliveira, T., 2019. Understanding CRM adoption stages: empirical analysis building on the TOE framework. Computers in Industry, 109, pp.1-13.

Everall, L. and Louch, C. (2010). JISC Case Study: Extending the Self Analysis Framework. Coventry University

Fredrick, K. and Christopher, D., 2019. Investigative analysis of CRM System Implementation and the challenges attached to its integration into existing ERP System. From an Organization Perspective: A case study of a Freight Forwarding Company in Sweden.

Jha, S., 2021. A Big Data Architecture for Integration of Legacy Systems and Data (Doctoral dissertation, Central Queensland University).

Khashab, B., Gulliver, S. and Ayoubi, R.M., 2020b. Scoping and aligning CRM strategy in higher education institutions: practical steps. Journal of Strategic Marketing, pp.1-25.

Khashab, B., Gulliver, S.R. and Ayoubi, R.M., 2020a. A framework for customer relationship management strategy orientation support in higher education institutions. Journal of Strategic Marketing, 28(3), pp.246-265.

Liu, W., Wang, Z. and Zhao, H., 2020. Comparative study of customer relationship management research from East Asia, North America and Europe: A bibliometric overview. Electronic Markets, 30(4), pp.735-757.

Newby, M., H. Nguyen, T. and S. Waring, T. (2014). Understanding customer relationship management technology adoption in small and medium-sized enterprises: An empirical study in the USA. Journal of Enterprise Information Management, 27 (5), pp. 541-560. https://doi.org/10.1108/JEIM-11-2012-0078

Nguyen, B., Chen, J., Foroudi, P., Yu, X., Chen, C.H.S. and Yen, D.A., 2020. Impact of CRM strategy on relationship commitment and new product development: Mediating effects of learning from failure. Journal of Strategic Marketing, pp.1-38.

Payne, A. and Frow, P. (2005). A strategic framework for customer relationship management. Journal of Marketing, 69, pp. 167-76.

Perry, Sharon & Corley, Lisa & Hollins, P. (2011). Relationship Management in UK Higher and Further Education – An Overview. Available from: https://www.researchgate.net/publication/266506733_Relationship_Management_in_U K_Higher_and_Further_Education_-_An_Overview. [Accessed 24th Jan 2019]

Plakoyiannaki, E., & Saren, M. (2006). Time and the customer relationship management process: conceptual and methodological insights. Journal of Business & Industrial Marketing, 21(4), 218-230.

Rahimi, R. and Gunlu, E. (2016). Implementing customer relationship management (CRM) in hotel industry from organizational culture perspective: case of a chain hotel in the UK. International Journal of Contemporary Hospitality Management, 28(1), pp.89-112.

Reason, B., Løvlie, L. and Flu, M.B. (2015). Service design for business: A practical guide to optimizing the customer experience. John Wiley & Sons.

Roberts, J. (2018). Professional staff contributions to student retention and success in higher education. Journal of Higher Education Policy and Management, 40(2), pp.140-153.

Ross, D.F. (2016). Introduction to e-supply chain management: engaging technology to build market-winning business partnerships. CRC Press. Saren, M. 2006. Marketing graffiti: the view from the street. Oxford: Butterworth-Heinemann. 1st Ed, pp. 172.

Shim, B., K. Choi, et al. (2012). CRM strategies for a small-sized online shopping mall based on association rules and sequential patterns. Expert Systems with Applications 39 (9), pp.7736-7742.

Silva, L. M., Silva, A. O., Tura, L. F., Moreira, M. A., Nogueira, J. A., & Cavalli, S. (2015). Changes and events over life course: a comparative study between groups of older adults. Revista latino-americana de enfermagem, 23(1), pp. 3-10.

Simoni, C. A. C. (2003). The Practice of Software Development and the Organisational Semiotics Approach: A Case Study in Business Organizations. Master's thesis, Institute of Computing, Unicamp – State University of Campinas.

Simoni, C. A. C., Melo, A. M., and Baranauskas, M. C. C. (2007). Towards a social-based process for information system development: a case study. In Charrel, P-J., and Galarreta, D., (Eds). Project Management and Risks Management in Complex Projects, chapter. Springer, pp. 177–192.

Soliman, M. and Karia, N. (2016). Enterprise Resource Planning (ERP) Systems in the Egyptian Higher Education Institutions: Benefits, Challenges and Issues. In International Conference on Industrial Engineering and Operations Management, Kuala Lumpur, Malaysia.

Stone, B., and Jacobs, R. (2008). Successful Direct Marketing Methods: Interactive, Database, and Customer-based Marketing for Digital Age. 8Ed. McGraw-Hill.

Todorovski, L., Leben, A., Kunstelj, M., Cukjati, D. and Vintar, M. (2006). Methodology for Building Models of Life Events for Active Portals, In A. Gronlundet al. (Eds.): Communication proceedings of 5th EGOV International Conference, EGOV, pp.61-68.

Tseng, S.-M. (2016). Knowledge management capability, customer relationship management, and service quality. Journal of Enterprise Information Management, 29 (2), pp. 202-221. https://doi.org/10.1108/JEIM-04-2014-0042

Appendices:

Appendix A- Client interaction lifecycle PRE-ACT technique

		Life cycle ID: 1		
		Version No:1		
Strategic DEN	Life cycle criteria	**Description** "As-Is"	**Description** 'To-Be'	**Difference/ New/Missing Requirements, Fail and wait points**
NEED: Ensure that 90% of communication channels are clearly integrated to provide useful and consistent information to prospective undergraduate (UG) students at business school by 2021	1) Life cycle name	UG Business school Student lifecycle		
	2) Life cycle description	The student lifecycle of UG business school covers 3 stages		
	3) Total Life cycle duration	4 years		
	4) **Generic life cycle stages (Level 1)**	Recruitment-ID2, Retention-ID3, Development-ID4		
	Recruitment stage that links to the need for prospective UG students-ID2			
	Version 1			
	5) Start (date-time) for recruitment stage that links to the need for prospective UG students	08/06/2015		
	6) End (date-time) for Recruitment stage	08/09/2019		
	7) Respective Life Events, IDs, names, types **at Recruitment stage**	Open day (expected), ID:5	Open day and small survey about information consistency	Small survey about information consistency
	8) Sub-life stages (as processes IDs, names) **(Level 2)**, Start (date-time), End (date-time), pertinent interaction at **Recruitment stage**	Prospect-ID6 (08/06/2019-08/07/2019), Application-ID7 (08/07/2019-08/08/2019), Admitted-ID8 (08/08/2019-25/08/2019), Deposit paid-ID9 (25/08/2019-08/09/2019)	Prospect-application, knowledge identification, admitted, deposit paid	Add knowledge identification process
	9) Related activities IDs and names, of application **process**) **(Level 3)**	1) pplication day, 2) Interview, 3) Decision (Offer/Reject), 4) Acceptance, 5) Confirmation.	Create knowledge identification activities	Knowledge identification activities missing.

	10) Further activities decomposing when needed (IDs and names, of application process **activit**y)	1) Make programmes available to UCAS, 2) determine entry requirements, 3) Application support	1) Make programmes available to UCAS, 2) Determine entry requirements, 3) application support and information capturing activity.	Information capturing activity is missing.
	11) Related **Services** of application process and sub-activities	1) The post service –ID10, UCAS applications services that been used by the "Make programmes available to UCAS" activity.-ID 11.	The post service and send customised emails service, UCAS applications services that been used by the "Make programmes available to UCAS" activity and publish consistent information as is in the integrated channels	1- Add feature to UKAS service to enable publishing consistent information as is in the integrated channels 2- Customised emails services
	12) Technologies used at application process and sub-activities, names and IDs	UCAS system as application service-ID12	Add new feature to capture and store prospects information (e.g. portal)	Current web site misseses this feature
	13) Front stakeholder's participant's roles, at application process and sub-activities	Marketing staff, international staff	Create new role for managing the integrated channels at one place and send customised services	New role is needed to own, capture and analyse prospective information and send customised services
	14) Backstage stakeholder's participants' roles at application processes and sub-activities	Admission and Financial staff	Create new role for the knowledge identification process	A new role for the knowledge identification process is needed
	15) Related channels: IDs, names, type's application processes and sub-activities	Face to face-ID13,Facebook-ID14, Chat-ID6,Email_ID15 etc.	Integration required between these channels	Integrate the chat with other social media tools with consistent information
	16) Related clients/ Segment types	UG prospects at business school.		

Appendix B - Interview Questions

1. (PRE-ACT) stands for Processes, Roles (people), Events, Activities, Communication / Channels, and Technology. Must all of these exist to support CRM strategy (i.e. strategic DENs)? What do you think and why?

2. Could you tell me whether the methods described for stage 2 steps 1 and 2 are viable.
    Can these methods help in analysing DENs requirements (PRE- ACT)? Why?
    Can these methods help to map / create a client interaction life cycle?
    Is there anything else required to identify and align DENs?
    Are these any methods useful? What are the positives? What are the negatives?

3. Do you think the techniques / tables would help identify / map missing PRE-ACT?
    Are they useful? What are the positives? What are the negatives?

4. Do you have any comments / feedback?

Appendix C: Updated client interaction life cycle PREP-ACT technique

				Life cycle ID				
				Version No				
Strategic DEN	Element name	Description 'As-Is'	Description 'To-Be'	Difference/New/Missing Requirements (Fail and wait points)	Redundant Requirements	Strategic reporting change impacts	Functional (F)/ Non-functional (NF) requirements/	(MOSCOW) criteria (Must have, Should have, Could have, and Would like but won't get) requirements
DEN	1) Life cycle name							
	2) Life cycle description							
	3) Total Life cycle duration							
	4) **Generic life cycle stages Name and IDs (Level 1)**							
	Individual life stage that links to the strategic client's DENs (name and ID)							
	Version No							
	5) Start (date-time) of the individual life stage that links to the strategic client's DENs							
	6) End (date-time) **for each life stage**							
	7) Respective Life Events, IDs, names, types **for each life stage**							
	8) Sub-life stages (processes IDs, names) **(Level 2)**, Start (date-time), End (date-time), **at each life stage**							

9) Related Activities IDs and names **for specific process (Level 3)**							
9) Further activities decomposing when needed IDs and names **(Level 4)**							
10) Related **Procedures**: IDs, name, **for each process and/ or activity**							
11) Related **Services**: IDs, name, **for each process and/ or activity**							
12) Technologies used **for each process and/or activity IDs and names**							
13) Front stakeholders participants roles **for each process and/or activity**							
14) Backstage stakeholder's participants' roles **for each process and/or activity**							
15) Related channels: IDs, names, types **at each process and/or activity**							
16) Related clients/Segment types **at each life stage.**							