A DISCUSSION OF UNIVERSITY SERVICE BLUEPRINTS

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Abstract – This paper discusses the service blueprint concept and its applicability for graduate students in IT-related subjects, attending a mid-sized,Swedish university. A previous study used a multidimensional (countries, subjects, and study levels) approach for exploring service blueprints in a universitysetting.Compared with earlier findings, a greater focus on the visualization of processes in inter action(withfaculty andstaff) and academic role models wasseen important for the students, as were early presentations of research resources, e.g. laboratories, the library, and current research (not really a "service"). Results are discussed in relation to other studies targeting the tertiary education sector, and where different techniques are used.

Keywords - Service Blueprint, University, Graduate Level Students, Information Technology, Sweden, Recruitment, Staff Interaction.

I. INTRODUCTION

Since its introduction in 1984 [1], the service blueprint conceptshas been widely used, debated, and explored in numerous service industries. Often cited are service blueprint applications in e.g. hotels, restaurants, hospitals, insurance and transportation.Alibrarysearchforkeywords"service blueprint" in traditional,academic databases (on February 25, 2019) rendered more than 157,000 hits. Adding "university" to the search (with an AND clause) decimated the count to 457 (!)

In a market (seen here as a Global Education System) claimed by commercial sources to be worth $1.36 Trillion in 2011 [2] it is interesting to note the lownumber of research articles (full-text, peer reviewed) that address the challenges from this perspective,given the estimated market value.Other sources havestudiedmoregeneraltopics(university turnover onnational level) mention UK universities [3] (with a $40 Billion turnoverin2013/2014, increasing by nearly 10%the year after) [4]. On a smaller scale, Sweden (with approximately 400,000 students and no tuition fees for EU students all through doctoral work) reported a turnover of about$7.6 Billion in 2017 [5]. Despitethesmallnumberofhitsintheabove-mentioned literaturesearch,therearemanyinitiativesongoingtoframe universities in a new setting, arguing that attending university is an experience, in more terms than education. "Learning journeys" [6] andaviewof"students as partners in learning and teaching" [7] are well-established paradigms in recent years' "new understanding"of students. The Times Higher Education (THE) rankingofstudentexperiences[8] shows it is not "prestigious" universities topping the list. The Teaching Excellence and Student Outcomes Framework initiative [9] also targets such concerns.

Besides service blueprinting, there have also been reportsonotherapproaches,aimedataddressingtheissues. TQM (Total Quality Management)[10], BPR (Business Process Reengineering) [11] and BPMN(Business Process Modeling Notation) [12], the latter an extended technique, based on a service blueprint foundation, all seem interesting and worthwhile considerations.In a more general discussion on public services [13], other design notations (persona techniques, mapping techniques, and observations supplemented by group discussions) have been explored. This study has however continued focusing on adopting a "traditional" service blueprint approach, to be consistent with earlier reported work [14].

II. SERVICE BLUEPRINTS

Originally used for service design and innovation purposes, the service blueprint concept is a technique which highlights visual values of services [15]. Over time, service blueprinting has become an often used tool to discuss and manage service operations, service design and service positioning. Visualization is shown in diagrams highlighting relationships between different service components such as people, props (physical or digital evidence), and processes – components which directly tiesinwithtouchpointsina specific customer (learner) journey.

Blueprints(an example shown in figure 1) will usually have several layers of components (sometimes referred to as "swim-lanes")[16].Mostdescriptionsofblueprintswill include avisual artefacts layer, outlining the physical evidence, a description layerfor the student's actions, and a layer for frontstage interaction with the university (the organization). Toseparate direct interactions between the student and the organization, a line of interactionwill come next.Underthat,alineofvisibilitywillbelistingbackstagei

nteractionssupporting the frontstage components.Under a line of internal interactionare listed support processes (and systems) supporting the backstage activities. The lines separate visible studentactivities from the non-visible, and staff with student contact from those who are not directly interacting with the students (customers) [14].

Anoften used example of a general service blueprint is shown in figure 1 (on next page). One may findseveral variations published (including e.g. time indications for the specific actions) but all (found) will have at leastfour, usuallyfive layers, and the three separating lines. Some are more graphic in design whereas the ones created in this and the previous study are not. The basic concept of different types of "journeys" [17-19] may however have diverseexplanations.Quality measures and emotional journey descriptions can also be included [16].

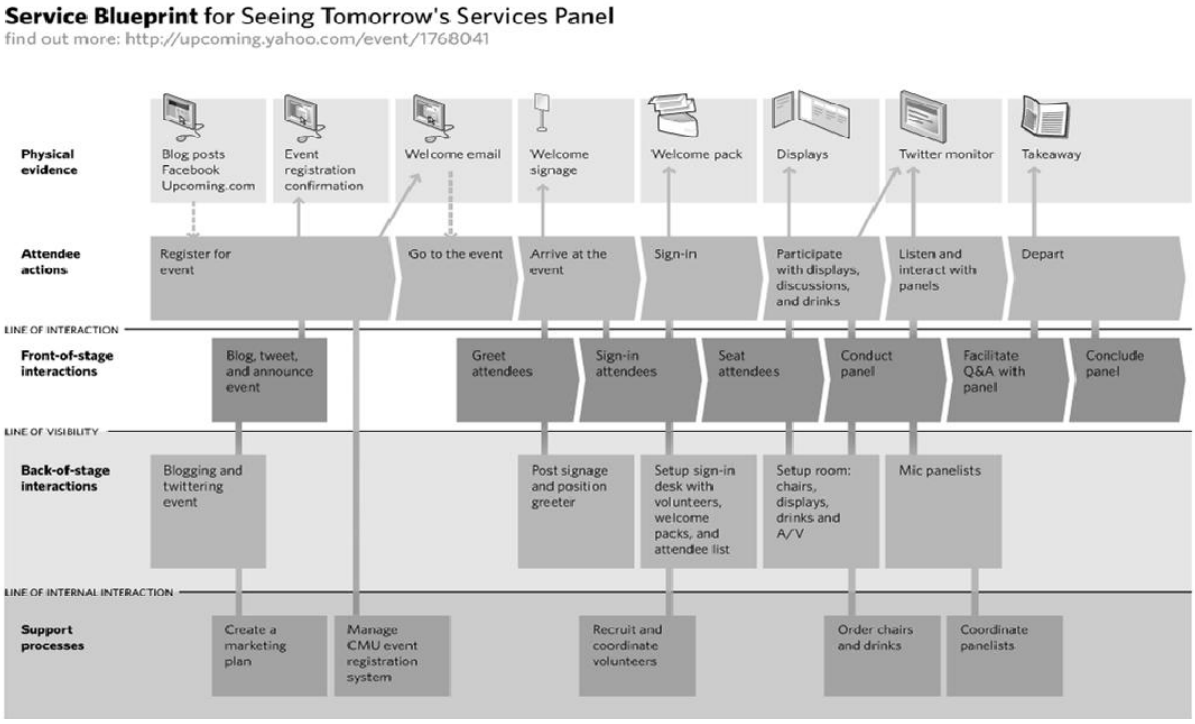


Figure 1: Example of service blueprint (CC license, source Brandon Schauer).

III. THE UNIVERSITY SETTING

From originally having been communities of ecclesiasticalscholars[20],universitiesnowadaysaremultimillion-poundbusinesses with complex leadership teams, HR departments,missionstatements,international strategies, communicationsexecutivesanddirectorsofenterprise[ibid.].In debate, questions such as should universities be run like businesses?are not uncommon,where advocates (forboth sides) may come bothfromuniversitymanagement,theresearchcommunity,andsociety atlarge[21].Froma quality perspective, it has also been argued that universitiesdo not differ from other industries [10]. Other work label universities as part of a(broader) service sector ([22-23]).

What most seem to agree on is a mission to provide interesting, productive and developing environments - for studies, and for students. Creating atmosphere – part of theuser experience(UX) in more modern terms – where the student feels welcome andconfident,istriggeredbyacademicchallenges,andfeels her/hisneedsareputinfocusis important. Initially, much of the inputmaycomefromwhattheeyesees.Onespecificunit within a universityisthelibrary.Many studies report on qualityand user experiences([24-26])althoughnotallinvolveserviceblueprintingtechniques.Conclusionsfromthese studies may also bear relevance for blueprinting other university activities, e.g. information gathering, presentation and availability.

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Different from many other areasusing service blueprints, a university engagement is a long-term commitment.Compared to visiting a hotel, a restaurant, or a hairdresser, choosing your academic institution is far more complex. From the university side, a paradigm shift has also occurred. Departing from a more traditional understanding of the student experience, seen predominantly as delivered through teaching and learning activities,morefocushasbeenput on facilitating students in a wider sense, e.g. through enabling and enhancing administrative andsupportive services [27].Acknowledging the learning/learner journey [6] and partnering with students [7](more than merely viewing them as "attendants") is also part of this new view.

In conclusion, universities share many similarities with other industries (found globally, offering

basically the same concept everywhere, considerable financial turnover), but are also different.The long-term commitment,lastingthroughlifeat best when including the alumni phase, distinguishes the parameters in the model(s) compared to blueprints covering short-time experiences.Apartner view on students (more than merely consumers of provided knowledge) in the education setting has also brought much discussion (restaurant guests are rarely seen as "partners"). Finally, the"modern" view onthe student/customerjourneyoutsidetheclassroom (as compared to aprevalent/traditionalcustomer view incommercial businesses) is also reflected in other work on student experiences [28-29].

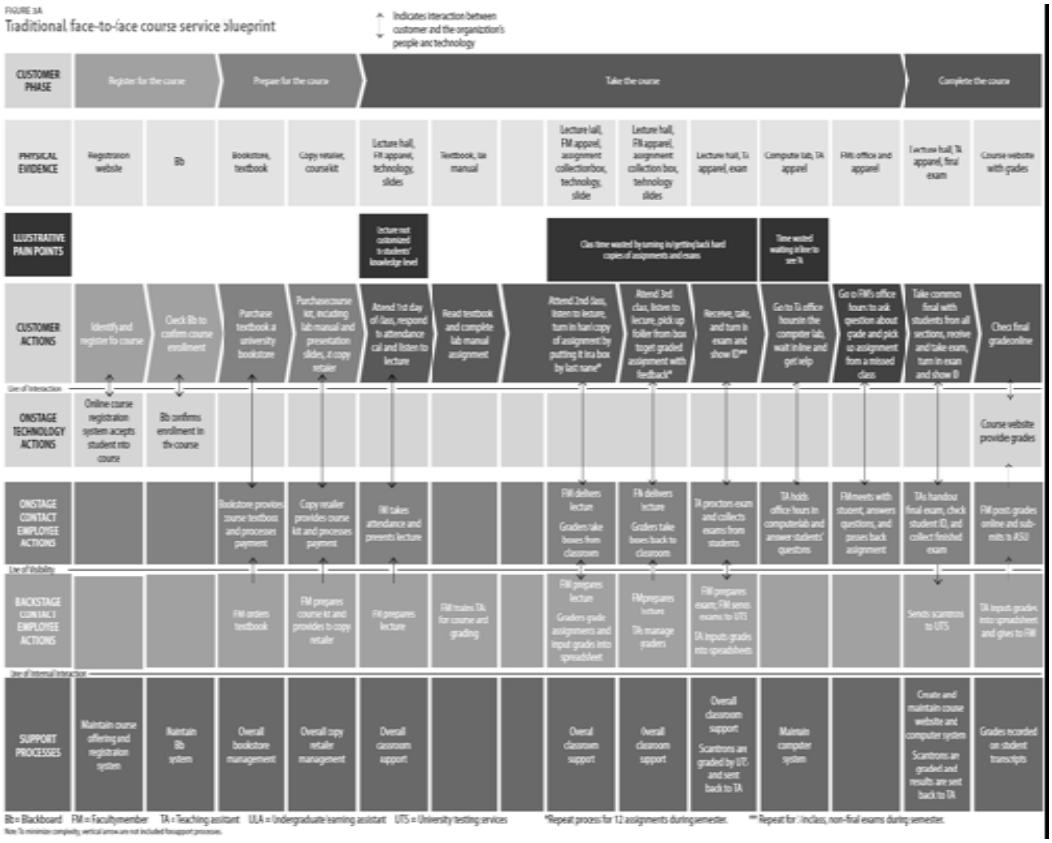


Figure 2: One of many examplesof tertiary sector service blueprint in[2].

IV. EXAMPLES OF MODELS

A. Service blueprints (and pain points)

One report [2] was especially inspiring and influential for our initial investigations. There are many examples of service blueprintspresented in literature but given the argumentation in the previous section, not all will necessarily be completely relevantfordiscussionsregardingtertiaryeducation.Asmentioned in section II, service blueprints will have several layers (swimlanes) of action, and at least three lines/surfaces that what is done, what is seen, and what is supporting the processes [30].

What was added in fig. 2, and opened the mind further was the pain points, addressing "moments during the service thatcustomers or university employees perceive to be annoying, challenging, ordissatisfying" [ibid.]. Hence, service blueprints may not only focus (for the student) satisfactory activities but also call for an analysis of what is not working, despite often good intentions. A summary from a workshop is found in [31]. Aneedtoincludefailure analysis (failure modes in service systems) already in an early design phase is the main topic of [32], where service blueprints and failure analysis are combined together both in a graphical overview and in calculations.

B. Customer journeys

How to correctly construct customer journey map (CJM) is discussed in [17]. In an example using a retail Mall, similarities to service blueprints can be seen. Touchpoints are actions or events where customers interact with a brand, product, service, etc. e.g. such as seeing malladvertisements, listening to a radio advertisement,or receiving an e-mail solicitation [ibid.]. Strategic actions include employee actions, employee support, mall design,andserviceinnovation,e.g.checkingin on social media. Theaddedcomplexityofmany touchpoints is addressed in [33].

C. Other approaches

Serviceblueprintsandcustomerjourneymapsareoftenseen techniquesinservicedesignpapersbutalternativesexist.Among

otherreviewedapproaches,manydealwithqualityconcerns,e.g.TQM, mentioned previously in [10]. Expectations on quality in HigherEducationalOrganizations(HEOs) was addressedas earlyas1995[34],highlightinga need to gather information on students' expectations, notonly during their time of studies but alsobeforearrivalandafter graduation – a view shared by many(cf.[14], [23], and [26]).

Comparisonsbetweencustomer-focusedserviceprocessdiagram tools (i.e. blueprinting) and organizational-focused process diagram tools (i.e. business processmodeling notation, or BPMN) are also found [35]. Different than [12] where a special focus is set on flow models and flowthings, [35] discusses thedifferent (graphic) presentation techniques. As part of the conclusion, the authors state "The customer-focused perspective of blueprinting is very useful in understandingthe critical touch points driving service satisfaction. But underneath this lie business processes from the organizational perspective that can be bestrepresentedbyBPMNdiagrams"[ibid.].Althoughthisview was considered, the study presented here was kept with a focus onstudent-relatedissuesonly.Inour view, organizational issues are still in the discussion in the support and backstage sections.

V. THE STUDIES

The initial study [14] was carried out in 2017, and intended toinvestigateabroadperspective of potential parameters for the following discussions and service blueprint diagram designs. It covered regional (China-Sweden), subject (Engineering/Computer Science-Behavioral Science/Information Systems), and level (undergraduate-graduate) topics. Data was collected both inChinaand Sweden, through surveys and interviews. The proposed service blueprints were revised and modified before their final form. In total, four service blueprints were developed,dealingwitha)applicationprocessand arrival, b) academic work(whileattheuniversity),c)support functions while studying, and d) graduation and alumni phase.

Twooftheconclusions from the study were that "students"are a very incoherent group, and that the process of engaging indiscussions of service blueprints seems very useful for the organization(s) involved. These insights led to the current, more focused study of (only) international, graduate students, studyinginformationtechnologyorientedsubjects,attheSwedishuniversity.Thecommunicationsdepartmentalsolaunchedasurvey.

The service blueprint visualizing processes, activities andsupportfunctions(figure3)servedasastarting point for the new study.Inthefindings of the 2017 surveys, international students (from outside the European Union) were different in many of the responses (the interviews only covered graduate students in information technology related subjects).

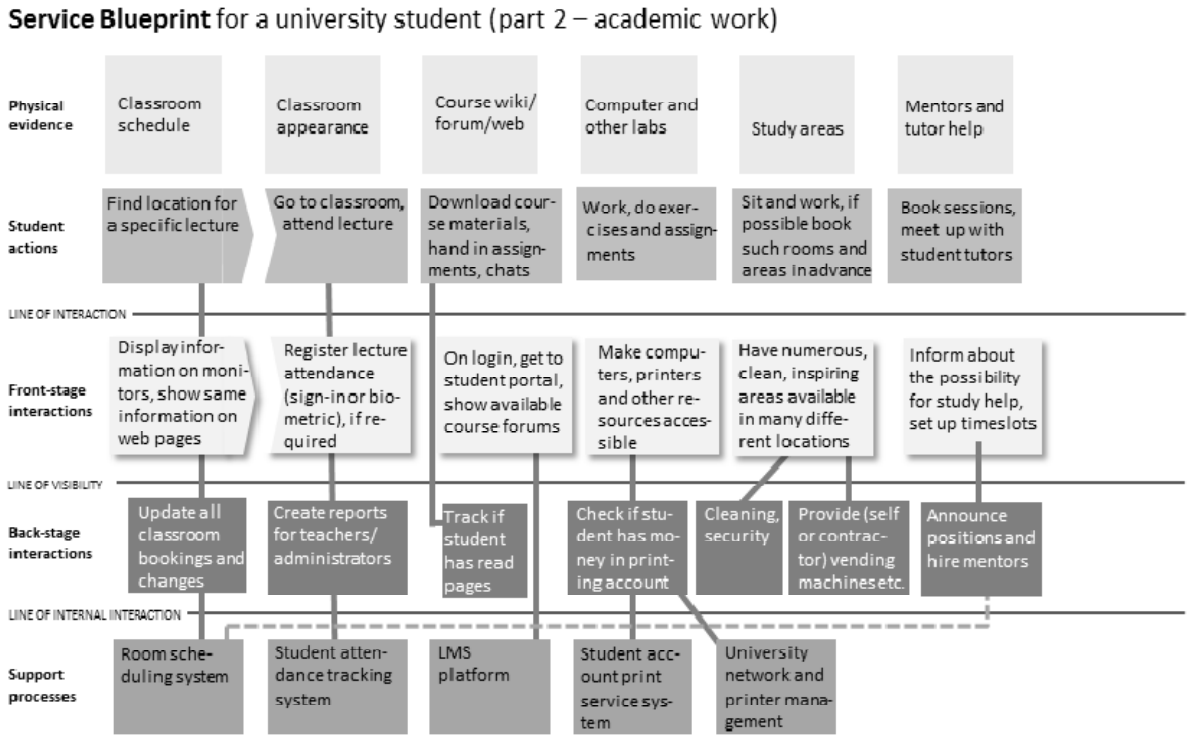


Figure 3. Service blueprint for academic work [14].

VI. GATHERING NEW DATA

Althoughmoststudentsattendingthe Swedish university are SwedishorfromotherEuropeanUnioncountriesthereisaconsiderable amount of graduate (fee-paying) students attending as well.Lookingatthelatestfigures (from 2018) close to 400 such studentswere enrolled, paying approximately 25M SEK (2.7 M USD) for their studies. 150 of them were enrolled in the School of Information Technology (all are rounded figures).

Graduate students have of course a different perspective on university studies than undergraduate due to their experiences, but for the majority coming from far away (e.g. India, Pakistan, Bangladesh and China), attending a Swedish university and experiencing the Swedish society was also something completely new. These students are (to a great extent) fee-paying students and expect, as any student, "value for money". In the wake of several lawsuits in Sweden and elsewhere [36-37] regarding (a lack of) quality, it is important to better understand this group, not the least to ensure that expectations of studies, student life, work opportunities etc. are clearly communicated beforehand.

From questions included in the new survey, many from the previous study were omitted. A great deal of the students in the targetgroupenroll through agents (but will of course still have to be formallyadmitted by the university), which meant that questions about the web as a source for information were less interesting for the new study. Most questions dealt, in the same mannerasinfigure3,withthe academic study experience while in Sweden. From a qualitative interpretation of the responses, a newserviceblueprintwascreated,addressingsome of the issues not previously taken into consideration (in figure 4, next page).

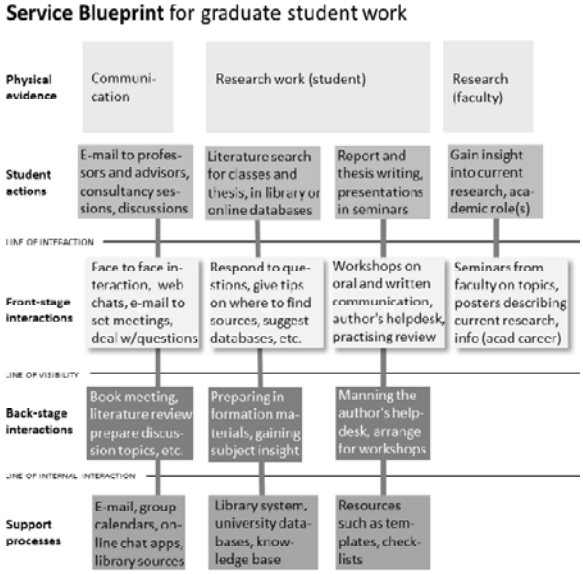


Figure 4. A service blueprint for graduate work.

Graduatestudentsfollowofcoursecourses(moreintheearly phaseoftheirstudiesthanin the latter); the survey did not repeat questions about classrooms, schedules, etc. Instead questions cametodeal with more typical graduate work (essentially introductory research), and the visualization of resources (in broad terms)availabletothestudent. Physical evidence was grouped.

The question topics were derived from current issues in the graduate domain. The challenge for faculty to spend more face time with students and for students to improve their communication and writing skills are addressed in [38]. Linked to this is approachestoinformationsearch: from discussing with mentors tovisitingthelibraryor(more common) access online databases [39]. Graduate students tend to view their advisors as a primary source of knowledge, rather than asking a librarian for help. In studies of the mentor role [40], often seen as "supportiverelationship which promotes guidance and cognitive, social andemotional development" [ibid.] there are also elements of positive promotion and identity development. The faculty is often seen as academic role models for students who are attracted by an academic career. This visualization may not be obvious to all. Traditional teacher/tutor tasks (e.g. improving cognitive skills through instruction and discussion) are easier recognized.

From the population (international graduate students, studying Information Technology oriented subjects) of 153 students, 87answeredthesurvey.Most questions had multiple answer alternatives, and a possibility to comment further (which was encouraged). The group was seen as one cluster, leaving out personal data such as age, gender, nationality, etc. The only questionofthis kind asked for continent (Africa, Asia, Europe, etc.).

With approximately 2/3 of the population answering, but having small numbers intotal, conclusions must be indicative ratherthandefinite.Theadditionalserviceblueprintwasdesigned fromsurveydataandcomments.Thefollowingsectionwill give examples of comments to support the service blueprint design.

"I wishwe had more time available for discussions with teachers. Graduate work is about thinking new thoughts, adopting them, and then turning them into something new once more. This calls for academic discussions with people who can give you perspectives, have a broader view and understands more…"

"I prefer searching in the university library databases from my computer. People in the library are nice, but they don't know our field very well. I knew how to search in databases prior to coming to this university, but not so much about the specific databases useful for our domain. Our professor and other in the teaching staff have been very helpful in giving me these insights."

"As an undergraduate in (country), I never considered an academic career. At this university, I have come to know professional researchers who display both pride and engagement in their work. I know much more about research at this university than I ever did at my old one."

"I have heard from other (post-graduate) students that there are seminar seriestoinformaboutongoing projects and current applications. We [comment: graduate students] should have that as well, perhaps a half day per semester. I think it would trigger more interest in continuing studies to a PhD."

VII. DISCUSSION

Thesurveybrought up many new issues not previously addressed. Visibility – the major aim of service blueprinting – will not only deal with physical evidence in its traditional form. In thesurvey,(research)staffwas also"objectified"as rolemodels.Moreover, university research (more tangible than explicit) was likewise seen as a visual marker for high quality projects and a confirmation to the student (as opposed to the lawsuitsmentioned in the previous section). This physical evidence, e.g. fromdisplayedposters, won prices, corridor exhibitions etc. did howevernotdisplay "face value" to many graduate students before they themselves were emerged in a research environment.

In the new blueprint, physical evidence has been grouped. This may not be entirely consistent with directions for how ser-viceblueprintsshouldbeconstructed (e.g. in [28]) but served a purpose of condensing the topics to a higher level. In its current form, the blueprint adequately represents graduate work: discussions, literature search and writing/presenting. Work in computer rooms were covered earlier in other service blueprints [14].

Helpandsupportfunctionswerealsoperceivedaspositive visual components – but not so muchpriortoarrival.Staff availabilityfordiscussions,the author's helpdesk (a university-wide centerforimprovingoraland written communication skills, similar to [41]) and links to sources and materials for publication (templates, style guides for journals) were mentioned in several comments. Thesecomponents– important especially to graduatestudents–arenotvisualizedingreaterdetail in the current university communications.Muchofwhatis displayed beforehand will bebuildings,student life, how to apply, and day-to-day activities, as shown in figure 3. Much here will target an undergraduateaudience.Whenagraduatelevelisaddresse d,topics will cover staff, researchprojects,laboratoriesandadvanced research facilities, not so much the graduate student per se.

To further improve the accuracy in the results, the survey will be repeated next academic year. Discussions with the com-municationdepartmenthavealsostartedaboutsurveyown ership andan ambition to make it university-wide, rather than IT only.

CONCLUSION

Exploring the graduate student segment for service blueprinting, new quality markers were discovered.Many seem not apparent to students before actually being in a research-oriented environment. Finding ways to displaysuch markers beforehand will be a challenge. Further exploration of student service blueprints addressing the graduate segment will be required, as will similarstudies investigating thepost-graduate level(to understandifthatgrouphas other views not covered in earlier designs).

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