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"DIT GetSmart!" – Tailor-Made Mobile Application for the Orientation of First Year Third-Level Students in the Dublin Institute of Technology

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Introduction

When transitioning to third-level or higher education, students can experience a major life change. This change can have a greater impact on the student if the transition involves a move to another town or city away from their home. By reducing the stress experienced during this initial transition to third level education, the student can better adapt to their new academic life and remove potential causes of depression (Smith, 2014).

There is evidence to show that higher education is changing to accommodate the higher ownership rates of mobile devices among students, and that this technology plays an increasingly important part in their lives (Kobus, Rietveld, & Van Ommeren, 2013). These technology savvy students perceive technology to be a core part of their lives and depend on using this technology to feel connected to the world around them (Oblinger, Oblinger, & Lippincott, 2005). Research has found that these students are generally inclined to have a favourable attitude to technology and suggests that college students are the most likely to be rapid adopters of smartphone and mobile technologies (Dahlstrom, Walker, & Dziuban, 2013; Smith, 2013). Other research has suggested that mobile technologies can provide support to students when transitioning to third-level by making it easy for them to engage on their own terms with the resources they need to help with the transition (Fotheringham & Alder, 2012).

The Dublin Institute of Technology (DIT) introduced the "Get Smart!" initiative in 2008 in the School of Hospitality Management & Tourism. This is the largest school of hospitality and tourism undergraduates in Ireland and welcomes over 350 students into first-year each year. However, many support services are not on-site due to the city -wide campus of the current DIT physical infrastructure. The central aim of this initiative was to address this shortcoming by developing an integrative orientation, transition and curriculum for first-year undergraduate students with a view to improving student engagement and progression. A number of communication tools were employed such as Facebook, Twitter, wikis and a bespoke e-zine to inform and prepare students transitioning to DIT.

Due to the changing nature of students' digital expectations, the team involved in the DIT's "Get Smart!" initiative decided to introduce a mobile app that would be freely available to new students in advance of their arrival, and during the first few days of orientation. This app would complement the existing orientation programme. The app, entitled "DIT GetSmart!", would be freely available to all first year students arriving to undertake programmes in the School during September 2015, and would provide critical information to aid with their transition to third-level education. The specific aims of this new mobile app for students were as follows:

1. To enable a successful transition to their study and first-year experience through early familiarisation with the course and the institution.
2. To reduce the stress of transitioning to third-level through the provision of relevant information that influences the student's expectations.
3. To acculturate and prepare first-year undergraduate students at the point of entry to their third-level programme by providing timely, relevant and easy access to essential information on their smartphones.

Infrastructure & Resources

The range of smartphone devices currently available on the market have different operating systems. This disparity in operating systems poses challenges in that they do not utilise a standard development platform for developing mobile applications (Heitkötter, Majchrzak, & Kuchen, 2013). Hybrid apps have emerged to address these challenges. Hybrid apps, or cloud-mobile hybrid apps, have the advantage of being platform independent. This means one app can be developed and then deployed across many different mobile devices. With hybrid apps, the heavy computations are performed on the back-end cloud-based host system, while the mobile device front-end application presents the information like a native app, which is one that is designed for one type of operating system (Charland & Leroux, 2011).

There are many web-based hybrid app development platforms available. After a review of some of these, we decided to use the Como™ Platform (www.como.com). Como offered an extensive range of modular functionality that can be easily incorporated into an app, as well as providing the functionality to send notifications to users of the app for critical point-in-time information.

Como's development environment allows app developers to rapidly create mobile applications via a simple graphical interface by selecting prebuilt configurable modules that combine together in an 'à la carte' fashion. The platform also allows for direct deployment to the market's two dominant operating systems of Apple iOS and Google's Android OS, but does not have the functionality for creating Windows Phone based mobile apps. While this is viewed as a limitation, the popularity of Windows phones is much lower compared to Android and Apple devices. Figure 1 shows the Como Development Interface for the "DIT GetSmart!" mobile app.
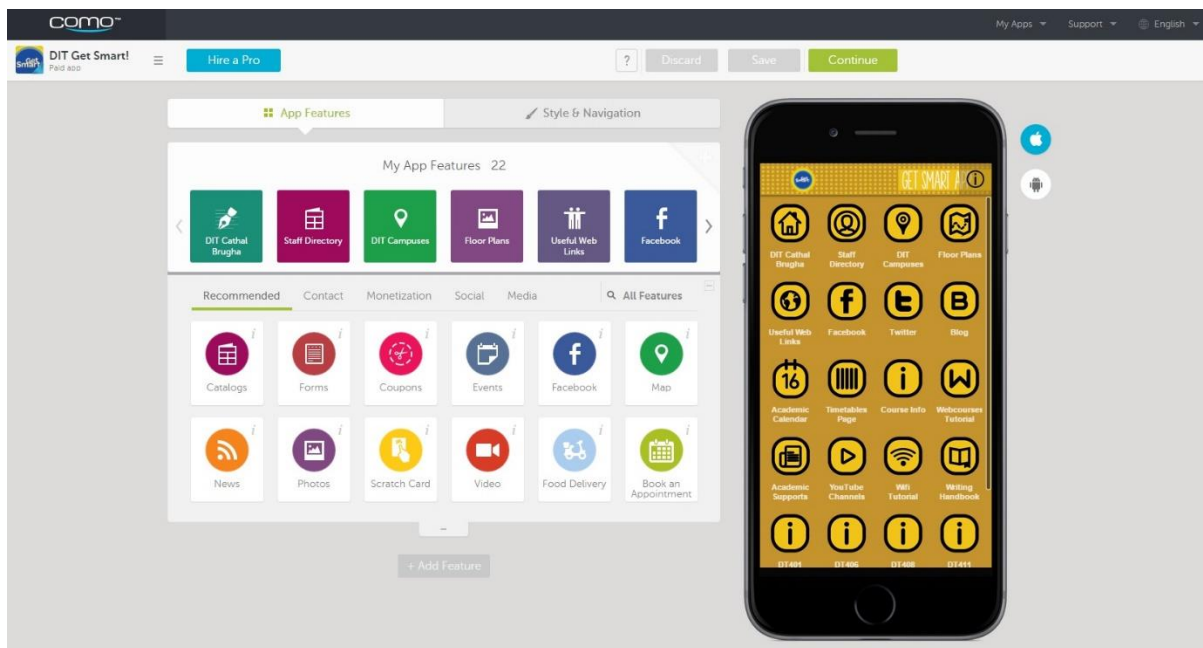
Figure 1 – The Como Interface and Prototype of "DIT GetSmart!" App

The app was designed in phases over a three-month period from June 2015 to August 2015. Deployment of the apps on both the Apple App Stores and Google Play Stores was planned for the second week of August 2015 to allow for download by students in advance of their arrival on campus.

Phase 1 – App Design: The design team consisted of three individuals – the app designer, a graphic designer, and a content researcher. The app designer was responsible for the construction of the app and planning the project. The graphic designer was responsible for the aesthetics and branding of the app. They were also responsible for designing infographics that were used within the app, such as floor plans, as well as the overall look and feel of the app. The inclusion of a graphic designer was considered essential to the app design process, as there is evidence to suggest that there is a correlation between the aesthetics of the interface and the perceived usability of the app (Lindgaard, Dudek, Sen, Sumegi, & Noonan, 2011). The content researcher had the task of ascertaining what information was essential for the first year students' experience and ensuring the information was up-to-date and relevant.

Phase 2 – Testing: The Como platform allows for testing functionality via a separate prototyping app that can be downloaded on any Android or Apple smartphone or tablet. A pre-release version of the app was provided to a team of ten lecturers within the DIT who tested the prototype and provided feedback on errors, omissions or functionality issues. These issues were then resolved and incorporated into the final app.

Phase 3 - Deployment: To deploy the app, Apple and Google developer accounts were created, and the app was distributed to the Apple App Store and Google Play store in August 2015.

Figure 2 shows some examples of the final "DIT GetSmart!" mobile app interface.
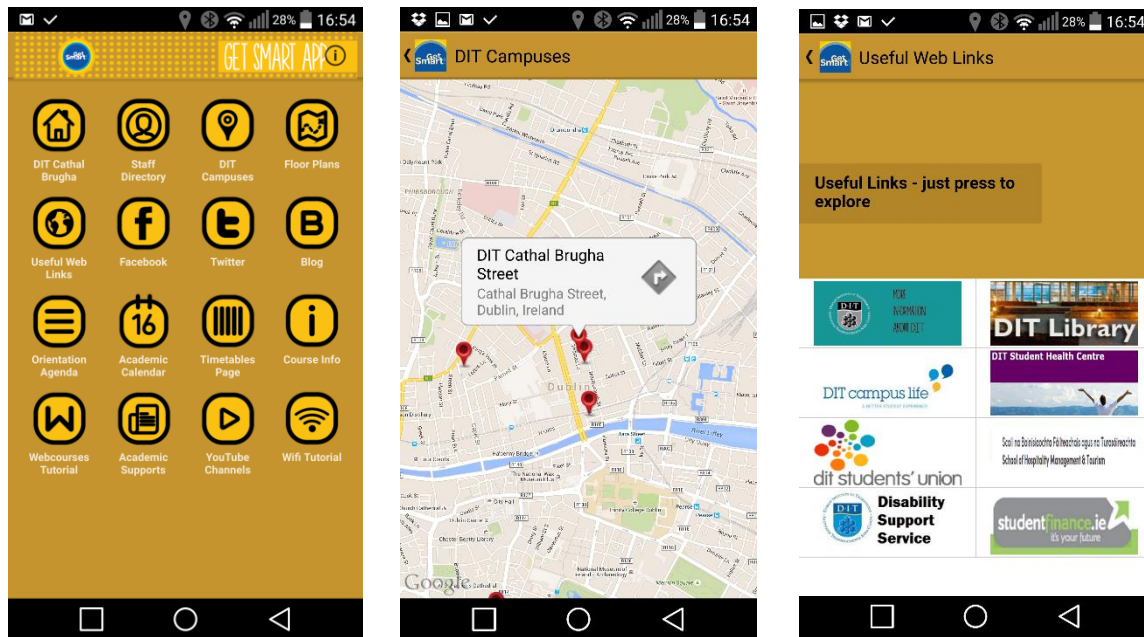
Figure 2 - *"DIT GetSmart!" App Example Screenshots*

Challenges

Creating and deploying an app is not without its challenges. These, and their solutions, are outlined below:

Cost & Budget: Creating native apps – apps that utilise programming code, and are designed for one smartphone operating system – normally require a large financial and time investment. By utilising the Hybrid App Model, we were able to keep costs to a minimum by removing the need for a coding resource and utilising skills that existed readily within the DIT organisation. This approach also enabled us to create one app that could be deployed to Apple iPhones, iPads, Android Smartphones and Android Tablets at the same time. Designing and deploying the app was kept within a budget of €800, as outlined in Figure 3. The remainder of the budget was utilised for promotional poster production and leaflets.

Item	Type	Cost (€) (on the 22nd July 2015)
Como Licence Cost	Annual	€525
Google Play Store Deployment	Once-Off (USD€25)	€22
Apple App Store Deployment	Annual	€99
	Total	**€646**

Figure 3 – Total Development Costs

Content & Timelines: Deciding on key content that was needed for the app was one of the more time consuming tasks. The impact of this was mitigated by centralising the decisions on content to one

person who was familiar with the orientation experience for students. The graphic designer then created any visual content that was needed, such as floor plan infographics and app icons. The lead designer incorporated all the content and infographics into the prototype app. By dividing the labour and tasks into clear role functions, completion of the prototype was achieved in under five weeks. Due to Apple's more stringent submission criteria, the app had to be submitted at least 28 days before it was due for download by new students. The division of tasks to clearly defined roles, combined with a smaller design team, meant we comfortably met the milestone requirements.

To meet tight deadlines, we incorporated into the app existing information channels such as the School's YouTube channel, social media channels and website pages. This allowed for students who did not have access to the app to access online information, whilst recycling existing relevant material for the app. We also utilised the existing branding of the "GetSmart!" initiative for the app logo. Both of these approaches saved on time and resources.

Figure 4 outlines the key areas of content that were incorporated into the mobile app.

Key Content Features of the "DIT GetSmart!" App			
College Information	Staff Directory	Floor Plan Maps	Campus Location Maps
Useful Web Resources	Social Media Links	Academic Calendar	Orientation Schedules
Timetables	Video Tutorials (e.g. WiFi Connection)	Course Info	Useful Academic Guides

Figure 4 – Key Content for the "DIT GetSmart!" App

Student Awareness: To ensure all students were informed of the availability of the app, we created a multi-faceted marketing approach to promote awareness of the app to incoming students. This included:

- Leaflets delivered to students with their course offer, outlining the app and encouraging students to download the app in advance of their arrival on campus.
- Posters placed around the campus which incorporated QR codes to allow students to download the app through the use of their camera or through their phone's app store. An example of one of these poster banners is shown in Figure 5.
- Presentations within the scheduled orientation sessions to provide instructions on how to download the app and to address queries on how to use the app.
- A promotional stand at the college entrance was created for the arrival of students which provided visual and written instructions on how to download the app, as well as a live

demonstration of the app on an iPad to allow passing students to try the app out before downloading.

- Promotional videos that played on information screens around the campus.

Figure 5 – Information promotional banner with QR Codes

How the "DIT GetSmart!" App Initiative was Received

By utilising the anonymous analytics feature of Como, we were able to ascertain that the total number of downloads over the period from the 1st August 2015 to the 31st December 2015 was 361. This number was approximately 90% of the total number of first year students in the School. Peak downloads occurred during the week before and during the initial week of the first year orientation, either side of the 26th of September 2015. Figure 6 shows the download distribution between August and December.
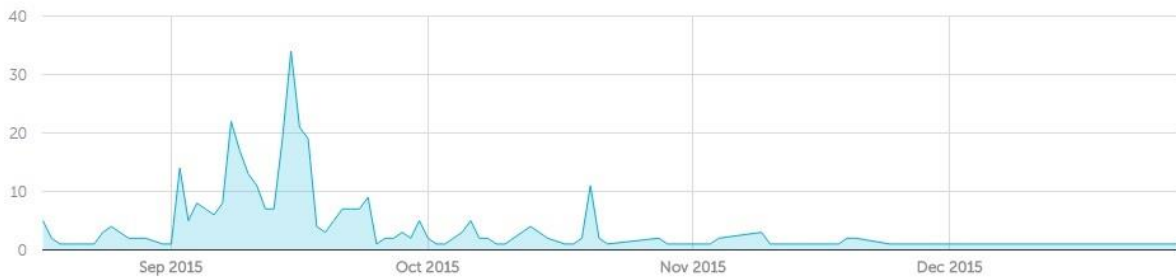
Figure 6 – App Downloads by Month (August to December 2015)

The analytics also showed us the key features that were most used by students. Figure 7 outlines the most utilised features of the app. College details and floors maps were the highest utilised features. Also heavily were the staff directory, the academic calendar, and course info. The overall primary aim of the app was to inform students by providing them with timely orientation information. The usage profiles suggest that this primary aim of the app to inform students with critical information at their point of entry to the campus was achieved.
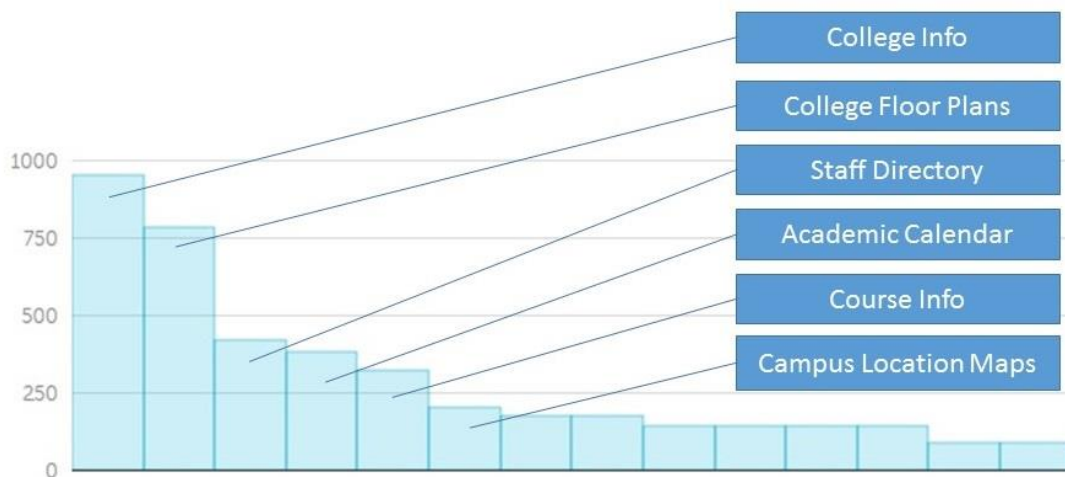

Figure 7 – Top Page-views by App Feature

Evaluating the Learning Outcomes

In order to gauge the effectiveness of the mobile app and to gauge if the original aims were achieved, a survey was distributed to students. The results demonstrated that the original aims of the app were met to our satisfaction.

Aim 1 - To enable a successful transition to the student's study and first-year experience through early familiarisation with the course and the institution.

The majority of the respondents indicated that they found the app useful for their orientation experience overall, and the most useful orientation information was floor plans and campus locations. Both these features were well received and deemed useful.

The Como Platform also allowed lecturers and college administrators to send pop-up notifications directly to any smartphone or tablet that had the "DIT GetSmart!" app installed on it. These notifications were used to inform the students of key upcoming events and deadlines over the first few weeks of their orientation. Students found these notifications particularly useful regardless of their usage of the app, and they created a professional image of the organisation as well as providing familiarisation with college events and orientation information.

Aim 2 - To reduce the stress of transitioning to third-level through the provision of relevant information that influences the student's expectations.

The majority of respondents indicated that the app content was very useful to them for their orientation experience, with a large percentage stating that the app provided them with timely and relevant information. The most popular features were ones that helped students navigate the campus and information that prepared them for their course, such as the "academic writing" content, timetables, and academic calendar. Students stated that the information provide in the app helped them to understand the campus layout better and helped with their expectation with regards to their particular course requirements.

Aim 3 - To acculturate and prepare first-year undergraduate students at the point of entry to their third level programme by providing timely, relevant and easy access to essential information on their smartphones.

The respondents indicated that the app was easy to use, had good aesthetics, and had relevant and timely information that helped them when they needed it most. They also stated that the ability to access the information on a smartphone alleviated the need to find it on the website or through other channels. A large proportion of the respondents stated that the app made the transition to third-level easier for them, and they preferred this kind of orientation information being made available via a mobile app.

Future Plans

Feedback on the app will be incorporated into an iterative annual cycle of planning, implementation and evaluation. The feedback from students in this academic year will be incorporated into an improvement process for a second release of the app in August 2016 which will be available to all new students arriving in the DIT's School of Hospitality Management & Tourism. It is hoped that the changes will improve further their perceived usefulness of the app for their orientation experience. Areas that were deemed more useful by students – such as floor plans, course information and writing guides – will be enhanced with more detailed and relevant up-to-date information for the next release. At the end of the first semester in December 2016, the app will be re-evaluated through surveys, analytics and focus groups to improve the next iteration of the app for new students in 2017.

It is planned for the next iteration of the "DIT GetSmart!" app in September 2016 will include content specifically designed for International Students and ERASMUS Students. International students not only have to contend with the transition to third-level education, they also have challenges around

language barriers and acculturation to a new country. It is hoped that the inclusion of targeted information relevant to these students will help with their transition to third -level education.

Based on the current year's student feedback, another planned addition for the next iteration of the app is an instructional video within the app to highlight the key features, and to allow for feedback and queries directly from the app.

A review of the development platform will be undertaken to investigate the possibility of the app being deployed on a Windows phone platform to ensure full student catchment.

Links

Links to the current 2015 "DIT GetSmart!" Mobile App are as follows:

> *Google Play Store:*
> http://play.google.com/store/apps/details?id=com.conduit.app_8195e7836934447e93ec59e9a5daec89.app&hl=en
>
> *Apple App Store*: http://itunes.apple.com/us/app/dit-get-smart!/id1013905476?mt=8

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