

## **What is Geomatics?**

### **An evolving discipline requires innovative methods to raise awareness**

**Helen MURRAY-O'CONNOR, Ireland**

**Key words:** Geomatics, Raising Awareness, Media Clip, DSIS, DIT, Ireland

#### **SUMMARY**

There is only one Geomatics Bachelor level (BSc.) educational course being delivered within Ireland and this is from the Department of Spatial Information Sciences (DSIS) at the Dublin Institute of Technology (DIT). However, the Dept. is acutely aware that this course needs to continue to attract high quality applicants to secure its survival, and it is obvious that this will only be possible through improved promotion of the course, the career and the profession itself in Ireland. Similar vulnerability is currently being experienced by Geomatics educational courses across the globe. At the core of this problem is a severe lack of awareness of what 'Geomatics' encompasses both as discipline and as a potential career.

While the DSIS is currently servicing the spatial information industry in Ireland by also delivering a Masters level programme (MSc.) in Spatial Information Management aimed at mid-career professionals. Furthermore, a number of part-time programmes in Global Navigation Satellite Systems (GNSS), Geographical Information Systems (GIS) and Co-ordinate Reference Systems are delivered either directly or in an online eLearning environment. This paper will outline an innovative initiative undertaken by the DSIS to further promote these educational opportunities, its academic excellence and the unique learning environment that it provides. In recent times, a suite of promotional material has been successfully produced and utilized by the Dept. at Career Open Days and Secondary School visits etc. However, it was felt that such conventional methods needed to be broadened to include a new and novel media product specifically developed to be utilized on social networking sites such as YouTube™, Facebook™ etc.

The simple aim of this 5 minute media clip, through the use of highly focused content (storyboards and keyscreens), is to answer the very difficult question 'What is Geomatics?' which is often posed by prospective students, educators in secondary educational systems and the general public. The DSIS commissioned a commercial company (Baboom Ltd.) to bring the content to life - the development of the unique 'cartoon-feel' animations. This paper will detail how this clip was developed to visually detail the breadth of Geomatics professional competencies, the cross-sectoral nature of the discipline and the inter-professionalism of Geomatics as a potential career path.

Just as the Land Surveying discipline has evolved into what is now Geomatics – a future-facing specialism, the way we communicate this message must now also change. Feedback has been universally very positive with the attractiveness of the clip’s unique animations and the simplicity of its message being pivotal to its success. This paper will detail how DSIS continues to develop further innovative ‘Geomatics’ promotional material and will recommend that other Geomatics educational and professional bodies follow its lead in this regard.

## 1. INTRODUCTION

The Department of Spatial Information Sciences (DSIS) at the Dublin Institute of Technology (DIT), Bolton Street, Dublin delivers the only available BSc.(Hons) in Geomatics course within the island of Ireland. In recent years, the Department has sought to further service the GI industry by developing and delivering a Masters level programme (MSc.) in Spatial Information Management which is aimed at mid-career cross-sectoral professionals. In addition, a number of part-time programmes in Global Navigation Satellite Systems (GNSS), Geographical Information Systems (GIS) and Co-ordinate Reference Systems are delivered either directly or in an online eLearning environment. The DSIS has a close liaison with practitioners in the Geomatics profession with representatives of state, semi state and private sector organisations being invited annually to meet with students, and to discuss employment opportunities. From feedback received at this event, it is apparent that these programmes and its graduates are highly valued by the Geomatics/Spatial Information Management industry in Ireland and across the globe.

However, although there continues to be a steady intake of students into these courses and invariably there has been excellent demand for its graduates over the years, the DSIS is acutely aware that for these courses to survive and for the Geomatics discipline in Ireland to thrive, it needs to continue to attract high quality applicants. Similar vulnerability is currently being experienced by Geomatics educational courses worldwide, with many being forced to close. At the core of this problem is a severe lack of awareness of what ‘Geomatics’ encompasses both as discipline and as a potential career path. Indeed many second level students, their parents and the general public do not fully appreciate what the Geomatics discipline is or indeed how integral Geographic Information (GI) is to society generally, and the burgeoning spatial information industry specifically.

## 2. GEOMATICS EDUCATION at DIT

The DSIS, is cognisant of these requirements and aspirations and capture these in the Department’s mission statement which states:

*The mission of the Department of Spatial Information Sciences, responsive to the spatial information needs of society, is to promote and deliver flexible learning resources, facilitate and undertake applied and fundamental research, and actively engage with the spatial information community at national and international level.*

The current DIT 4-year BSc.(Hons) in Geomatics (Surveying and Mapping) has evolved from what was originally a 3-year diploma programme in Geo-Surveying which was offered from the mid-1970s until its cessation in 2001. Prior to this, the initial Geo-Surveying educational programme had been a 4-year professional diploma which began in 1967 but this was discontinued in the mid-1970s due to economic conditions at the time. It was replaced by this 3-year diploma course which was predominantly focused on spatial data capture and graduated over 500 traditional land surveying and associated professionals during its lifetime (Prendergast F. et al. 2007). However, over time it emerged that these diploma-holding graduates were encountering career progression difficulties as they did not hold a bachelor honours standard qualification (the norm required for professional appointments, especially in the Irish public sector). Many of these graduates had no alternative but to ‘top-up’ their education by undertaking study for a further year abroad to obtain a bachelor level qualification in order to improve their qualifications and thus improve their career potential. The development of the current 4-year honours degree level programme in Geomatics was seen as pivotal to the development of a Geomatics profession which began in 2001, and continues to be delivered today - a unique programme on the island of Ireland.

Today this successful undergraduate programme in Geomatics is vulnerable. The DSIS has recognised that urgent action must be taken to attract a greater number of high quality applicants through improved promotion of the Bachelor level programme, the career and the profession.

### **3. GEOMATICS @ DIT FIGHTS BACK!**

Those within the profession recognise that in recent years the traditional field of ‘land surveying’ has been transformed globally into a wider future-facing ‘geomatics’ discipline. Flexible modes of delivery of modules through blended learning, distance learning capabilities, self-directed learning among many others, are being utilised within DIT and are aimed at facilitating the off-campus learner and the continuing educational and professional development requirements of practitioners in the field. The DSIS is also examining how to exploit these flexible delivery methods in the development of a suite of specialist postgraduate programmes in collaboration with other universities both nationally and internationally.

Proactive marketing has been undertaken recently to promote the Geomatics profession in Ireland generally and the DSIS BSc.(Hons) course specifically. This includes the production of a suite of promotional material which is being successfully used by the Dept. at Career Open Days and Secondary School visits by lecturing staff to ‘feeder’ schools etc. Recent graduates and current students have been invited to visit their respective local school to promote awareness of Geomatics as a potential career path for school leavers. On the international front, the DIT Admission Office continues to provide facilities to translate and explain educational requirements and equivalencies for non-Irish potential admission candidates. Indeed, the DSIS also continues to develop strong ERAMUS links which enables student exchange at both undergraduate and post-graduate levels.

However, despite these initiatives, the DSIS has recognized that conventional marketing and promotional activities must now broaden to become much more innovative in raising awareness of Geomatics as a potential career.

#### **4. MEDIA CLIP DEVELOPMENT**

##### **Brainstorming & Storyboarding**

A new and innovative media video specifically developed to be utilized on social networking sites (such as YouTube™, Facebook™ etc.) was envisaged, marking the first of a number of novel DSIS initiatives.

The first stage of the design process for the movie began with DSIS lecturing staff attending two brainstorming meetings, to focus on the required message and feel of the movie and to define the movie's development 'brief'. Thereafter all discussion and correspondence regarding the development of the clip was undertaken online. So, what was the brief? The objective was to create an animated movie to promote the BSc. in Geomatics course in DIT Bolton Street. The simple aim of this 5 minute animation is to answer the very difficult question 'What is Geomatics?' which is often posed by prospective students, educators in secondary educational systems and the general public.

After these initial meetings it was decided that a commercial media company should be engaged to create the animations for this media clip. Baboom Design Ltd. [www.baboom.ie](http://www.baboom.ie) was identified as a leader in this field. Collaboratively the DSIS and Baboom Design Ltd. began work on the creation of an outline storyboard and the identification of key screens for the movie.

##### **Style Design and Screen Layout**

The decision to create this media clip using animation was a strategic one which sought to ensure longevity of the product itself and to ensure that the 'look and feel' did not detract from the message itself. In short, the animations were intended to be timeless in character and bold in statement. It was important that the graphic style for the characters, backgrounds and layouts were appropriate for the target audience as the 'look and feel' of the media clip would be crucial to the success of the screens. It was also important that the media clip incorporated DIT branding both in colour, typical line-work and graphic style.

The movie screen was broken into 3 sections to give the key DIT branding and title elements consistency and clarity. The main message of each screen needed to illustrate two specifics – the wide ranging career paths available to any potential students together with the diversity of subjects within the 'Geomatics' discipline. The top header panel was created to consist of the text 'Geomatics is...' with the DIT course code (DT112) above it, while to the right (of what 'Geomatics is...') the main section titles contains illustrated animations and screen notes for each animation, while the footer panel shows the DIT logo on the bottom left and on the right of the footer panel a career icon and label is shown (see Figure 1). Throughout the movie this

label changes as the main animation changes to highlight a broad range of careers while the icon alternates between a male and female silhouette.

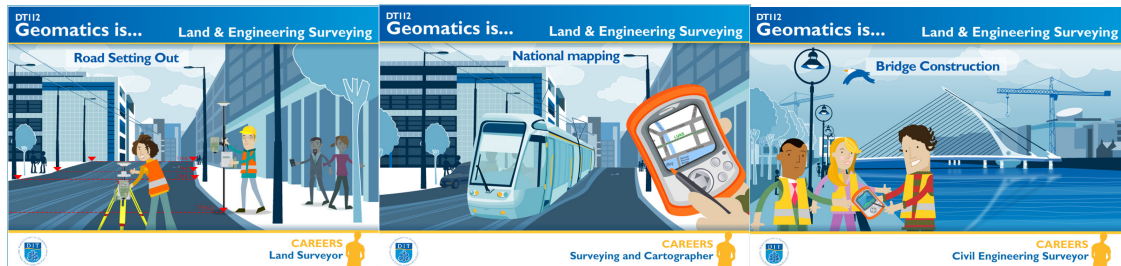


Figure 1: Sample of Media Clip KeyScreens

### Characters and Colours

It was decided that a minimal palette of colours should be used with most background elements being illustrated in blues from the DIT branding palette and key elements including characters to be shown in bold colours.



Figure: 2 'Fun' Media Clip Characters

In Figure 2 some examples of the range of simple 'fun' characters used in the move are shown. It was the intention that these characters should look like young graduates and should reflect a good gender and ethnic mix. The bold block colours and simple line work fit with the DIT branding.

### Storyboard Outline

The storyboard outline sought to encapsulate a wide range of Geomatics careers. Using 'Geomatics is...' the scenes flow and animate smoothly to capture the main areas of Geomatics with potential careers appearing in the bottom right corner of the screen. The media clip is divided into the following segments:

1. Movie Introduction: Geomatics definition and animation of the globe with satellites collecting data zooming right down to a person on the ground (in Ireland!) with surveying equipment. The aim of the animation is to capture the scale of Geomatics from Space right down to the detail of someone taking measurements on the ground.

TS08H - Marketing and Management of Professional Survey Education  
Helen Murray-O'Connor  
What is Geomatics?  
An evolving discipline requires innovative methods to raise awareness

5/8

FIG Working Week 2011  
Bridging the Gap between Cultures  
Marrakech, Morocco, 18-22 May 2011

2. Geomatics is ... Land & Engineering Surveying: The screen pans from a road, to a bridge, water, a mine and a tunnel and show people surveying and measuring, using various equipment including mobile devices.
3. Geomatics is ... continues showing people collecting data on the ground while concentrating on remote scanning and laser scanning showing recognizable cultural and heritage sites
4. Geomatics is ... Geographic Information Systems: This screen shows how data collected from the earth is layered in GIS systems to create a complex understanding of our world. By using examples of disaster prediction and monitoring the spatial analysis capabilities of GIS are highlighted, and as such this screen aims to illustrate the central role a Geomatics graduate can play in a decision-making team.
5. Geomatics is ... Land Management: This short section explores issues relating to land boundary demarcation and the key areas of land management - land tenure, land valuation, land policy and land development are outlined.
6. Geomatics is ... Location Based Services – These screens illustrate the Sat Nav technologies and LBS on mobile devices which leads the viewer to Geomatics at DIT, Bolton Street screen.
7. Geomatics is... the closing animation attempts to bring together all the elements of the movie and give the viewer a snapshot of the varied and exciting career of a Geomatics professional. The screen here shows students in the DIT Bolton Street campus and the scrolling text covers the main details of the DIT course and closes with the DIT website link <http://www.dit.ie/geomatics/>

### **Media Clip Delivery**

Initially it was decided that the movie would be developed in Macromedia which allows a media rich delivery, working across multiple platforms. Flash allows a low file size which enables it to stream well over the internet with low download time. The illustrations were drawn as vector based illustrations which allowed for low file size and high quality at any resolution. The .swf file was designed to run on a machine with Flash Player 7 or above (a free download), while a loading screen was included to show the percentage of the movie left to be downloaded. Two versions of the movie were created - a standalone version for presentation purposes and an internet version with loading screen and embedded .html file.

While recognizing that voice-over might have been useful to give scripted extra detail it was decided that given the intended audience a carefully selected looping music clip (copyright free - to avoid extra cost being incurred) was more preferable. It may be decided in the future to include this voiceover facility.

### **5. TIME AND COST**

The DSIS lecturing staff found that although it was possible to undertake much of the story-board and key screen development and subsequent editing within an online environment, the extent of input and comment (being iterative in nature), was very time-consuming and this input is difficult to quantify. An estimate of actual product completion time is in the range of 148 'production' hours, which breaks down into 52 man-hours for design and preparation,

TS08H - Marketing and Management of Professional Survey Education

6/8

Helen Murray-O'Connor

What is Geomatics?

An evolving discipline requires innovative methods to raise awareness

FIG Working Week 2011

Bridging the Gap between Cultures

Marrakech, Morocco, 18-22 May 2011

with 96 man-hours for animation development and editing. High quality animation such as this is expensive to create. However, Baboom Ltd. was cognizant that the cost of this product was constrained by a very limited budget and therefore, worked actively and collaboratively with the DSIS lecturing staff to develop the story-board, keyscreens and script/text, and again at the final edit stage. The overall cost including VAT was under €5,000.

## 6. CONCLUSION

The assessment of the impact of this media clip is currently ongoing. Initial feedback of the product, (final media clip is 4.5 minutes in length), has been universally very positive with the attractiveness of the clip's unique animated cartoon feel and the simplicity of its message being pivotal to its success.

The media clip is now on sites such as YouTube™, Facebook™ etc., and is also available at the DSIS's website [www.dit.ie/geomatics](http://www.dit.ie/geomatics), together with many global surveying websites such as [www.fig.net](http://www.fig.net), [www.rics.org](http://www.rics.org), and [www.surveying-360.com](http://www.surveying-360.com) where it has had a world-wide audience.

When shown to the current DSIS BSc.(Hons) Geomatics first year cohort of students, many exclaimed 'so now I know what I am studying!'. Many students have added the clip to their own social networking sites to enable them to explain to friends and family what Geomatics is all about. The DSIS continues to promote this media clip widely using it in School visits and Career Open Days. It has been a catalyst in the DSIS's development of further innovative promotional products which have the same 'look and feel' and using many of the animated characters from within the media clip.

The Central Applications Office (CAO) awards points to students based on their achievements in the Irish Leaving Certificate examination. A student's points are calculated from their best six subjects only (resulting in a max of 600 points). Once a student achieves the required CAO points they are offered a place on their chosen course. The 2010 BSc.(Hons) Geomatics course entry requirement points showed an increase of 5 points on 2009 figures. This increase entry point requirements ran contrary to the downward trend in courses within the land/property/construction-related fields in Ireland – reflecting difficult current construction/property market conditions. It is impossible to attribute this increase to one specific reason but perhaps this media clip is raising awareness of the scope of Geomatics as a potential career as being much greater than that of the traditional 'land surveying' profession? Geomatics, DIT Bolton Street, Dublin 1 – has a new address – [www.dit.ie/geomatics](http://www.dit.ie/geomatics), come visit us!

## REFERENCES

Prendergast, FT, Prendergast, WP, Behan, A & Murray, H (2007), 'Enhancing Educational Programmes for Geomatics in Ireland', paper presented to International Congress on Geomatics Education in Europe, Warsaw University of Technology, 30 November - 1 December 2007.

## BIOGRAPHICAL NOTES

Helen Murray-O'Connor is a lecturer in the Department of Spatial Information Sciences, Dublin Institute of Technology, Bolton Street, Dublin where she lectures primarily in Land Management, Spatial Data Management, eGovernment Service Provision, GI Applications and Geodetic Surveying. Involved with Department initiatives to create a suite of Geomatics Marketing/PR materials she initiated and personally led the project this paper outlines (with external media company) to create a media clip for promotion of Geomatics. This has been universally applauded for being highly innovative and informative.

Her most recent peer-review publication details her recent research into Spatial Data Management within the Coastal Zone and is published in Coastal Management, 1521-0421, Volume 39, Issue 2, 2011, Pages 198 – 221

## CONTACTS

Helen Murray MSc.(Dist), MSc., FSCS, FRICS  
Dept. of Spatial Information Sciences  
School of Spatial Planning  
Dublin Institute of Technology  
Bolton Street,  
Dublin 1  
Ireland  
Phone: (353)-01-4023734  
[helen.murray@dit.ie](mailto:helen.murray@dit.ie)