

# **Channel Shift - using data analysis to improve service delivery at the City of Edinburgh Council**

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# **Abstract**

This doctoral thesis will present the results of my work into the reanimation of lifeless human tissues.

# Acknowledgements

Many thanks to my mummy for the numerous packed lunches; and of course to Igor, my faithful lab assistant.

# Declaration

I declare that this thesis was composed by myself, that the work contained herein is my own except where explicitly stated otherwise in the text, and that this work has not been submitted for any other degree or professional qualification except as specified.

*(Michal Wasilewski)*

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# Chapter 1

## Introduction

Over the last few years, the School of Informatics has been collaborating with the City of Edinburgh Council in the area of open data in initiatives such as the Smart Data Hack and the Council's EdinburghApps hackathons. In the context of Edinburgh Living Lab, this relationship has broadened into investigating other areas of data science, and new kinds of collaboration. My MSc project is taking place within this context, and is focussing on bringing analytic techniques to bear on Customer Relationship Management (CRM) data that has been collected by the Council over the last year.

### 1.1 Context

As one of the fastest growing local authority areas in Scotland, Edinburgh is facing an ever increasing demand for Council services, outstripping the funds available to meet this demand. There are a number of projects on-going in the Council that try to address the resulting challenges, one of which aims to improve the way that Council interacts with residents, particularly in terms of dealing with complaints and reports of problems. At the moment, citizens can communicate with the Council using multiple 'channels': email, web forms, mobile apps, phone, post and face-to-face conversation. So-called "Channel Shift" is the policy of encouraging residents to use web forms in preference to other communication channels. Some other objectives include informed design of interfaces and web-forms, increase in the use of digital channels and decrease in traditional channels for selected transactions. The Council has been recently building capacity to collect data and use sophisticated tools for managing and integrating it. This project is hoping to contribute to internal resources for extracting business insights from analysing this data. More broadly, I hope that my research will help the Council

to ensure that transactions initiated via digital channels are dealt with effectively, as well as contribute to creating success stories and know-how within the Council.

## **1.2 Objective of the project**

Using analysis of CRM data provide insights about the delivery of CEC services to the residents of Edinburgh. These insights should serve as guidelines for improvement of existing interactions between the Council and citizens as well as help in implementation of transactions for services which are not supported over digital channels yet.

## **1.3 Thesis structure**

The first part of this thesis is devoted to providing a theoretical background to the work undertaken. User Centred Design is a concept in design that has played a major role in building interfaces to computational systems over the last three decades. It is described providing a historical context and modern developments in related fields. Data-driven design is a practice of designing with the use of data driven rather than human driven (ethnographical) methods. Double Diamond methodology is a model of practicing design (conducting design related activities) which is claimed to be describing a universal framework for a design process, not limited to any particular field.

The second part is describing the work undertaken and is divided into 4 phases in accordance to the Double Diamond model.

The last two parts are dedicated to evaluating the project and drawing conclusions.



# **Chapter 2**

## **Background**

### **2.1 User Centred Design**

#### **2.1.1 Introduction to User Centred Design**

User Centred Design (UCD) is a broad term that describes both a philosophy and a set of tools used during the design process

#### **2.1.2 Human Centred Design**

#### **2.1.3 Design Driven Innovation**

### **2.2 Data-driven design**

#### **2.2.1 What would a cup say if it could speak?**

##### **2.2.1.1 What is big data?**

adf

### **2.3 Double Diamond**

# **Chapter 3**

## **Description of the work undertaken**

**3.1 Discover**

**3.2 Define**

**3.3 Develop**

**3.4 Deliver**

# **Chapter 4**

## **Analysis and evaluation**

### **4.1 Evaluation of the tools used**

#### **4.1.1 CRM data**

#### **4.1.2 IBM Cognos**

### **4.2 Evaluation of the work undertaken**

#### **4.2.1 Report 1**

#### **4.2.2 Report 2**

#### **4.2.3 Report 3**

### **4.3 Evaluation of methodology used**

The double diamond approach seems to reflect very well the dynamism of real life projects. The model describes a rhythm of activities that comes naturally. It includes a very open, exploratory first stage which leaves space for flexibility in adapting to what would be useful to the client.

The Discovery phase was extremely helpful in understanding the context of the problem and establishing ground before the next phases. Having such an open attitude requires a lot of persistence. The responsibility for the entire project rests on the designer and this causes a creative stress. In the early stages, it is desired to not be limited by having a concrete idea of what to do in the project (which is not synonym

with not having a path of action). The designer is exposing himself to the unknown and at many points the project could completely change direction or a path could be closed unexpectedly. It is critical to maintain composure, agility and be able to quickly adjust to the new conditions. It is also important to mention that it exposes the project to the will of people across the entire organisation. The more the involved people are open and willing to help the better the outcome of the project will be. In terms of this particular project, the Council employees were very helpful and open-minded and their support has helped tremendously.

The three objectives that came from the Define phase (design brief) were developed in close cooperation with the beneficiaries (and at the same time the requesting party).

The Develop phase managed to address all questions from the previous stage. Having clear, measurable objectives, which were thought through, helped in planning the rest of the process and designing the technical aspects of it. The extent to which implementations were able to solve those problems was described in sections above (Evaluation of work undertaken).

The key outcome of Deliver stage was feedback from clients. It was very helpful to understand the extent to which it addressed actual needs and whether it succeeded in contributing to the on-going efforts in the Council (being in line with the current ICT strategy at the Council).

# Chapter 5

## Conclusion

Out of this project come many open questions and potential for further study. This dissertation gives a lot of details about the context of the project which were not available before. They can be of significant help in future endeavours.

The double diamond approach was particularly good at enabling cross department activity and flexibility in adjusting the scope of the project to the needs of the Council. Given the experience gained, a further study could try and evaluate different methods used at each stage of the process.

It is also important to stress that such projects are very agile in nature and depend heavily on the organisation in which they are run, i.e. on the knowledge of people involved and their willingness to share it. This project is a great example of how open-mindedness of employees can help.

The timescale of the project was extremely short given its complexity. Many parts of it could easily take months to be properly developed. However, it was not aiming at delivering a fully-fledged product. Instead, the objective was to help the Council with evaluating new ways of thinking and working and looking at the design process in its entirety. As a result in many cases compromises had to be made.

BI reports like the ones generated in this project, should be treated as part of a bigger transformation project. Identifying cases where users struggled with a web interface by CRM data analysis should be one of many tools in the repertoire of a service manager. For example, they can be used to identify the demographics of people to invite for participation in a focus group.

Reports like these often raise further questions, e.g. when conducting analysis other things start emerging which could be objects of investigation themselves. There is a vast amount of possible insights coming from the CRM data.

The reports can be used by CEC employees on other data sets (it is a matter of pointing to a different source file).

Coming up with insights and recommendations is only one step. Another question is how to manage a change in an organisation in order to benefit from those analyses. Ability to adapt to user needs and learn from the feedback is actually executed when such insights are followed by tangible actions such as a decision to deploy a change or a confirmation that current efforts are not misplaced.

# Appendix A

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<http://www.subterrane.com/loremipsum.shtml>)

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# **Bibliography**