Interim Report

Simply Wales Information System

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NB. Appendices will be uploaded as individual PDF documents on PATS: See Appendix Files

Introduction

It was after completing a 6-week work taster with Simply Wales that I laid the foundation for my final year project; I saw an opportunity to implement an information system putting into practice all that has been learnt through my degree scheme to date. I was, and still am, certain they will reap huge benefits from an Information System which allow them to expand into a true small-medium enterprise.

I will begin by revisiting the aims and objectives outlined in the interim report.

- Assess the benefits, and possibly build a prototype, of an information system that supports the Simply Wales' business administrative tasks to allow Peter Morgan to engage further with the business.
- Understand the elements of a successful information systems project
- Exhibit a sound knowledge in the subject area related to the project
- Demonstrate in-depth understanding of the technologies and methodologies used in the project.

At this stage of the project I need to define more specific aims and objectives, the revised aims and objectives are defined below.

Aim: Assess the benefits of an Information System and determine the capabilities and readiness of Simply Wales to successfully implement such an information system.

Objectives:

- Research /Literature Review
 - Existing SMEs and the issues they currently face
 - How can or have information systems overcome these issues and the general benefits of Information Systems
 - $\circ~$ What capabilities are required for the successful adoption and implementation of an Information System
 - Other solutions to the overcome these issues
- Conduct SSM on the problematic situation
- High-Level Requirements
- Produce an influence diagram
- Produce SWOT Analysis
- Produce UML Use Case
- Produce high-level designs
- Conduct heuristic evaluation on designs to determine their suitability
- Understand the technologies that underpin the information system and how best to acquire and implement them.
- Keep a project diary to log all progress

The intended audience is of course Simply Wales. The research into the challenges SMEs currently face and how the benefits of information systems can overcome these will help Peter Morgan to understand how this information system will benefit Simply Wales.

The comparison between Simply Wales and its competitors in terms of the products and services in which they offer may convince Peter Morgan to revise the products and services Simply Wales offers to give more clarity to customers over what exactly is available and relevant to them.

Other beneficiaries of the completed project include Government and other SMEs who may use this project as a case study to see the working benefits of Information Systems. This may be used by Government to ensure the financial support is used on working methods as opposed to wasted on unproven methods that produce poor results.

Background

Given that the title of this project is 'Simply Wales Information System' I feel it is necessary to give a brief definition of an information system to fully understand what the project is trying to achieve.

According to Paul Beynon-Davies (2009), professor of Business Informatics at Cardiff University, an information system is 'a system of communication between people. Information systems are systems involved in gathering, processing, distributing and using information.'

'Organisations rely on systems of information, and Information systems in turn rely on systems of technology. 'An ICT system is an organised collection of hardware, software, data and communication technology designed to support aspects of an information system. An ICT system outputs data for interpretation as information within an activity system.' (*Paul Beynon-Davies, 2009*). See Business Information Systems by Paul Beynon-Davies for more information.

I evaluated Simply Wales in an earlier module in the form of an evaluative and reflective report. This report was an evaluation based on two organisations therefore only the material relevant to Simply Wales has been provided in the appendix. Below is a summary of Simply Wales based upon the evaluation written in the report.

Simply Wales is a Cardiff-based IT company who specialise in selling both Apple Macs and PCs; this is their unique selling point as competitors either sell Apple Macs or PCs but never both. Their sole purpose is to provide IT solutions to small-to medium sized enterprises /organisations (SMES), but because they sell a variety of other products and services it is difficult to understand what the true purpose of the organisation is based on the information provided on the website.

The variety of products and services they provides includes business support, remote support, server sales, telecoms, web design, office moves and recycling. In addition to this they host a web store where customers can purchase second hand and refurbished IT equipment. *Visit www.simplywales.com to visit the store or to find out more information.*

Each product or services acts as an umbrella for other services, for instance under business support Simply Wales offers;

- IT support for a sever and up to 10 pc's or Apple Macs
- Unlimited telephone support
- Unlimited email support
- Unlimited remote repairs
- Online call logging & monthly fault reports
- Up to 4 free callouts per month & reduced extended callout fees
- Scheduled antivirus, malware & spyware checks
- Scheduled backup checks
- Real time pro-active sever monitoring
- Software updating and patching
- Competitive pricing on IT equipment, printer & toner cartridges & display kit
- 8 hour response time

It is clear to see how customers can be confused over exactly what IT products and services Simply Wales provide.

Having worked at BT prior to setting up Simply Wales Peter Morgan has extensive knowledge in IT with over 20 years experience. Although he has the knowledge and capabilities to offer most IT and IT-based solutions, he attempts to deliver all of the products and services rather than focusing on the core products/services.

I visited 5 competitor websites to gain a better understanding of how other IT firms operate and how they compare to Simply Wales. *See Competitor Website Comparison in appendices for full comparisons across all the websites I visited.* I intend to use this research to compile a literature review following this report.

After visiting competitor websites I found that they all offered a variety of products and services that support both businesses and home-owners. Although Simply Wales targets small-medium enterprises, as did all the websites I visited, they still offered support to home-owners through remote support and the web store.

The competitor websites offered more clarity over the main organisational purpose while displaying other products and services that would cater to a range of needs. Some had accreditations that showed evidence of their knowledge in the industry and ultimately makes them appear more trust-worthy.

It seems Simply Wales offers a good range of products and services similar to the competitors I visited, but they need to improve the way in which they convey this information on their website.

'It is essential for small businesses in today's competitive environment to take a strategic approach to their information needs if they wish to develop and remain competitive. If information expertise is not present within the company, it is advisable to invest in that expertise through recruitment, training, partnership or outsourcing.' *(Sen, B and Taylor, R. 2007)*

Simply Wales, despite having 20 years experience in the IT industry lack knowledge of marketing techniques, branding, customer loyalty etc. While Peter Morgan expresses expertise in technology, he has little knowledge on other business functions such as marketing and financial accounting etc.

One issue that SME's face is lack of finance, this is particularly relevant to Simply Wales as Peter Morgan has invested a large amount of time and money into the organisation, this Investment is not returned or reflected in the profit or turnover.

SMEs give a significant contribution to economic development. To overcome the lack of finance Government have deployed a number of financial schemes in an attempt to enhance SMEs' performance and competiveness.

There are two main UK-Wide initiatives – the Enterprise Finance Guarantee (EFG) scheme and the Enterprise Capital Funds (ECFs). In Wales the Welsh Assembly Government provides both advice and repayable finance support to SME's. For further information schemes visit www.bbc.co.uk/news/business-12049304.

Another challenge SME's may face is resistance to change. While some argue employee involvement is a success factor in enforcing change, Peter Morgan is the only employee of Simply Wales which make resistance to change a minor issue as there is only one person to 'persuade'. Given that Peter Morgan already has extensive knowledge of IT he would be more likely to understand the benefits and the processes involved in implementing a new system and more willing to accept it.

According to Khalique M et al (2011) in their article 'Challenges Faced by the Small and Medium Enterprises in Malaysia: an Intellectual Capital Perspective', other challenges faced by SME's include recession, barriers from global outsourcing, low productivity, lack of managerial capabilities, difficulty in accessing management, and a lack of contacts with other local and national enterprises.

As Peter Morgan attempts to deliver all the products and services as well as operate all areas of the business, there is no distinction between departments nor is there much connection between different activities.

Having a single employee means longer working hours but less time spent on the core activities; this is not ideal working conditions for Peter Morgan or the customer.

Approach

In the initial project plan I described SSM as my only approach to the project, I have since chosen to use a small number of approaches which include;

- Literature Review
- Soft Systems Methodology
- Influence Diagram
- SWOT Analysis
- UML Use Case Diagram
- High-Level Designs
- Heuristic Evaluation

I realised I needed a number of different approaches to study and model different aspects of the project, for example SSM models the organisation whereas an influence diagram will highlight external factors.

In the initial project plan I stated that 'I will assess the relevant tools, skills and knowledge taught and practiced throughout the degree so far, to use in the project where appropriate, for example, conducting a heuristic evaluation on the user interface to ensure it is user-friendly'.

Although I initially chose only one approach it is clear that at the time of writing the initial project plan I was considering these other approaches; all of the approaches listed above have been taught in the degree scheme and are relevant to this project. I understand that some of these approaches will be unfamiliar to a number of readers so for each approach I will provide a definition.

I will begin with the literature review. A literature review is 'a description of the literature relevant to a particular field or topic. It gives an overview of what has been said, who the key writers are, what are the prevailing theories and hypotheses, what questions are being asked, and what methods and methodologies are appropriate and useful'. *(www.emeraldinsight.com/authors/guides/write/literature.htm)*

The topics/areas I will be researching as outlined in the aims and objectives in the introduction chapter of this report are;

- 1. Existing SMEs and the issues they currently face
- 2. How can or have information systems overcome these issues and the general benefits of Information Systems
- 3. What capabilities are required for the successful adoption and implementation of an Information System

Reflected in the background chapter of this report are the research findings for research areas one and two. You will have read the summary of comparison made between Simply Wales and competitors websites which satisfies the 'existing SMEs' research area, and there is information which list issues SMEs face worldwide. The information on Government schemes in the introduction chapter is a potential solution to the issues of finance, but more research is required into the benefits of information systems and the capabilities of SMEs to adopt information systems successfully.

The second approach I have chosen to adopt is Soft Systems Methodology (SSM) SSM is defined as a 'systemic approach' for tackling real-world problematic situations, or 'a blend of conventional data collection and analysis techniques together with creative thinking tools used to characterise business problems and hopefully suggest ways in which they can be resolved.' (*http://www.managers-net.com/ssm1.html*)

For more information on SSM see Brian Checkland's book 'Soft Systems Methodology: Conceptual Model Building and its Contribution' or visit http://users.actrix.co.nz/bobwill/ssm.pdf

I will begin by writing a number of root definitions evaluated using the CATWOE analysis. These will then form the basis of the conceptual models. Activities in the conceptual models will be transferred to an activity analysis table similar to the example below.

Activity ID	Activity	Is this currently done? How?	By whom	How could it be done?

This activity analysis table compares the activities in the conceptual model to the activities Simply Wales currently performs, suggesting improvements on how they can be performed. The root definitions, conceptual model and activity analysis table are pulled together to suggest recommendations and improvements for the activities and operations Simply Wales do and should perform.

Within the work experience module I modelled one of Simply Wales' business processes using SSM; this has been included in the appendix and will be referred to when using or revising SSM for the project.

An influence diagram is 'conceptual modelling tool that helps to think about links between objectives, alternatives and consequences and how various factor influence others' (http://structureddecisionmaking.org/ToolsInfluenceDiagram.htm)

SWOT analysis is a tool for auditing an organization and its environment. It is the first stage of planning and helps marketers to focus on key issues. SWOT stands for strengths, weaknesses, opportunities, and threats. Strengths and weaknesses are internal factors. Opportunities and threats are external factors. (http://marketingteacher.com/lesson-store/lesson-swot.html)

A SWOT analysis will be useful to this project as by looking at Simply Wales and their competitors, a strategy can be crafted for future work that will best implement the information system. By identifying the weaknesses and threats, we can eliminate the threats and manage them into an effective risk analysis and change management procedure.

'Use case diagrams are behavior diagrams used to describe a set of actions (use cases) that some system or systems (subject) should or can perform in collaboration with one or more external users of the system (actors).

(www.uml-diagrams.org/use-case-diagrams.htmlhe system.)

This is useful to the project to show how Peter Morgan, other employee of Simply Wales and customers will use the information system. Looking at how these stakeholders will use the system, compared to how they are currently involved in Simply Wales' business processes should prove how the system will be efficient and effective.

Finally, a heuristic evaluation is 'a form of usability inspection where usability specialists judge whether each element of a user interface follows a list of established usability heuristics.' (http://usabilitynet.net/tools/expertheuristic.htm)

I already have knowledge of heuristic evaluations after conducting one in the second year module Human Factors. It is beneficial and relevant to the project as it provides quick and cheap feedback to the designs, and the results usually generate good ideas on how to improve the design and user interface.

This is how I intend to evaluate the designs of the information system. The 'usability specialists' will be Peter Morgan, a university student, the project supervisor, project moderator and the company director of an SME; this selection of judges will reflect the typical users of the information system.

System dynamics is an alternative approach to the methods I have listed at the beginning of this chapter.

'System dynamics is a computer-aided approach to policy analysis and design. It applies to dynamic problems arising in complex social, managerial, economic, or ecological systems -- literally any dynamic systems characterized by interdependence, mutual interaction, information feedback, and circular causality. The approach begins with defining problems dynamically, proceeds through mapping and modelling stages, to steps for building confidence in the model and its policy implications.' *See www.systemdynamics.org for more information*

I have chosen to use SSM over system dynamics due to my familiarity with SSM. I mentioned in the initial plan that I would consider using the tools, skills and practices that had been taught throughout the degree scheme, SSM has been widely used throughout the degree scheme and an approach I not only feel comfortale using, but have confidence in its results.

A second alternative approach is system development lifecycles. There are a number of system development lifecycles such as; waterfall, fountain, spiral, build and fix, rapid prototyping and so on.

'The waterfall model assumes that the only role for users is in specifying requirements, and that all requirements can be specified in advance. Unfortunately, requirements grow and change throughout the process and beyond, calling for considerable feedback and iterative consultation. Thus many other SDLC models have been developed.' *(www.computerworld.com/s/article/71151/System_Development_Life_Cycle)*

I have decided against using a system development lifecycle as I the project will only reach the design stages, this is mainly due to time constraints, but because the creation of a system prototype requires skills more relevant to the Computer Science degree scheme.

Conclusions

Although the work plan allowed enough time for *most* of the activities and the achievement of deliverables, I failed to account for external influences on the project such as coursework in the remaining four modules this semester. It seems the activities and deliverables most affected were the high-level requirements and SSM.

After reviewing the original work plan it seems I was too optimistic when allocating time for completing SSM. Having left only one week for the root definitions and conceptual models, and one week for the conceptual model and activity table there were some changes to the work plan.

A number of the activities I aimed to achieve had already been completed or started in other university modules, for example 'observe how Simply Wales currently operate' was carried out during the 6-week work taster weeks before the project start date, and therefore I had my personal experience as evidence for this observation.

Evaluating Simply Wales was carried out in the Work Experience module where I reflected upon and evaluated my experience in working at Simply Wales. This has been included in the appendix.

The introduction and background chapters of this report contain the research findings. I initially planned to research existing systems and other theories and technologies but it was difficult to research what systems have been adopted by SMEs to satisfy the existing systems research area, so instead I briefly looked at what systems were being offered to SMEs. Further to this I looked at competitor's websites to gain an understanding of where Simply Wales were on the market.

With the heavy workload a little of the project was postponed, but despite this temporary relapse I feel my progress has been sufficient as most of the deliverables have been achieved.

Final Report

A detailed work plan and final project deliverables document has been added into the appendix to show how I plan to progress.

The final report will of course contain the obvious sections such as a title page, abstract, acknowledgements, introduction, conclusion and reflection on learning.

The analysis, design and evaluation chapters will contain the majority of the project work outlined in the work plan.

The design section will include two critically evaluated designs, selecting only one for the heuristic evaluation. The results of the heuristic evaluation will be reported in the results and evaluation section, with a description of how it has shaped the overall system design and the suitability of the design for the end users.

Term	Definition
Activity System	A collection of activities performed by a group of people in pursuit of a goal.
Information System	A system of communication between people. Information systems are systems involved in gathering, processing, distributing and using information.'
Small Enterprise	An enterprise which employs fewer than 50 persons
Micro Enterprise	An enterprise which employs fewer than 10 persons
Soft Systems Methodology	A systemic approach' for tackling real-world problematic situations

Glossary

Abbreviations

SME	Small-Medium Enterprise
SSM	Soft Systems Methodology

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