



University of HUDDERSFIELD

University of Huddersfield Repository

Newman, Christopher D and Sturdy, Paula

Identifying Enterprise Opportunities in Student Projects

Original Citation

Newman, Christopher D and Sturdy, Paula (2012) Identifying Enterprise Opportunities in Student Projects. Project Report. Enterprise Educators UK.

This version is available at <http://eprints.hud.ac.uk/id/eprint/13867/>

The University Repository is a digital collection of the research output of the University, available on Open Access. Copyright and Moral Rights for the items on this site are retained by the individual author and/or other copyright owners. Users may access full items free of charge; copies of full text items generally can be reproduced, displayed or performed and given to third parties in any format or medium for personal research or study, educational or not-for-profit purposes without prior permission or charge, provided:

- The authors, title and full bibliographic details is credited in any copy;
- A hyperlink and/or URL is included for the original metadata page; and
- The content is not changed in any way.

For more information, including our policy and submission procedure, please contact the Repository Team at: E.mailbox@hud.ac.uk.

<http://eprints.hud.ac.uk/>

FORMWATCH PROJECT: MANAGEMENT SUMMARY REPORT

Dr Christopher D Newman

Ms Paula Sturdy

Dr David R Wilson

(University of Huddersfield)

&

Mr Richard M Thorne

EXECUTIVE SUMMARY

Undergraduate computing students often produce high quality final-year projects with a software product that has the potential to become commercially viable. It is feasible to identify such projects by enterprise-aware academic staff during the projects' development. The possibilities of these undergraduate project opportunities to produce commercially viable applications and services can be further investigated under the University's Collaborative Venture Fund.

Employing the project student, after the successful completion of the project, as a part-time Research Assistant is a cost-effective method of making further progress to commercial exploitation. Additionally, it provides first-rate experience to launch a commercial entrepreneur from the University's undergraduate courses.

The ease of finding commercial partners, willing to incorporate the application into their business and offer the service to their clients, was enhanced with the prospect of making an application via the commercial partner for an award of an Innovation Voucher from Business Link, Yorkshire, although in this particular instance we were unsuccessful.

The Proof of Commercial Concept fund provided by Yorkshire Forward is available to take any identified idea that appears to have commercially significant attributes forward to the first stage of commercial exploitation.

The possibility of a commercially focused software engineering facility provides an opportunity for the University to provide campus based placements for able students to pursue projects designed to enhance the University's services. This would not rule out undertaking projects for outside entities at commercial rates. This facility would need to be developed or an existing facility enhanced or expanded.

MODIFICATION HISTORY

Version	Date	Author	Comment
0.1	28 January 2010	CDN	Title page and report outline.
0.2	12 February 2010	CDN	Executive summary added.
0.21		CDN	Added introduction and started on conclusions/successes.
0.3	12 May 2010	CDN	Incorporated Paula's edits to ES and additions to report coverage/topics.
0.4	4 July 2010	CDN	Bashed out my share of the write up - and that is it no more time to spend - concentrate on an edit and on to the poster.
0.5	7 July 2010	PS	Amalgamated my sections with CDNs and included the appendices
0.6	8 July 2010	PS	Implemented changes to structure and content from meeting with CDN
0.7	9 July 2010	PS	Addition of observations and recommendations
0.71/2	12 July	CDN	Appendices sorted and added. Minor tweaks to text.
0.73	12 July	PS/CDN	More edits to text and reformatted appendices. Spell and grammar checked.
0.74	16 July	CDN	Layout for double sided printing. Included comments from PS and DRW
1.0	16 July	PS/CDN	Final

ACKNOWLEDGEMENTS

The authors wish to thank the following for their help and collaboration during the project:

Monza Digital, Leeds;

Mr Simon McKenna, Employment Engagement Manager in the School of Computing & Engineering;

Business Mine, University of Huddersfield;

Canalside Studios Team, Canalside West, University of Huddersfield.

CONTENTS

Executive Summary	2
Modification history	3
Acknowledgements	3
1. Introduction.....	6
2. Project Identification	6
3. The FormWatch Project.....	6
4. The team	6
5. Industrial Collaboration Partnership	6
6. Development Funding	7
6.1. Collaborative ventures fund.....	7
6.2. Yorkshire Forward Innovation Voucher	7
6.3. Yorkshire Forward Proof of Commercial Concept	7
7. Operational Details.....	7
7.1. Employment of the project Student	7
7.2. Team Meetings	7
7.3. Product development	8
8. Project Closure	8
8.1. Product.....	8
8.2. Employment of Graduate research assistant.....	8
9. Future Work	8
9.1. Testing of the prototype	8
9.2. Further Deployment – UoH Website	8
9.3. Requirements of web analytics tools.....	9
10. Future funding opportunities	9
11. Observations	9
11.1. Project identification.....	9
11.2. The FormWatch Project	10
11.3. The Team.....	10
11.4. Industrial Collaboration Partner	10
11.5. Development Funding	10
11.6. Operational Details	10
11.7. Project Closure	11
11.8. Future Work	11
11.9. Future Funding Opportunities.....	11

FormWatch: Analytics & Business Intelligence

12. Recommendations Based on Observations.....	11
13. Conclusions.....	12
Appendix A Collaborative Ventures Fund Application	13
Appendix B Graduate Research Assistant Job Description	20
Appendix C Rationale for employment of Richard Thorne as Research Assistant	24
Appendix D Project Development Plan	26
Appendix E Guidelines For Staff On Business Link Yorkshire Innovation Vouchers	28
Appendix F Innovation Voucher Declaration.....	33
Appendix G Innovation Voucher SME Proposal (Work Specification)	36
Appendix H Business Link Specification of Work.....	41
Appendix I Notes For Preparing PCCF Form.	45
Appendix J Tests For Collecting Results	53
Appendix K 2010 University Teaching & Learning Conference Abstract	55
Appendix L Module Specification CHP2524 Individual Project.....	58

1. INTRODUCTION

The undergraduate Individual Project module (CHP2524, Appendix L) currently operated in the Informatics Department gives rise to a wide and diverse range of products, some of which could be further developed into commercially viable software products and/or software systems. This report documents a case: identifying such a project and showing how it was developed. It identifies a number of observations about the project and concludes by presenting a set of recommendations that might be beneficial to any future project with a similar objective, enterprise.

2. PROJECT IDENTIFICATION

Each project student must submit a progress report, being the summary of the work on the project to date, during December/January for formative feedback provided by the project examiner and supervisor. The FormWatch Analytics project was identified for possible development at the progress stage in December 2008. The project student, Richard Thorne, was very receptive to the possibility of producing a commercially viable product or service. Reaching the final demonstration of the project in May 2009 and reading the project report the supervisor and examiner decided that the commercialisation of the FormWatch product was viable.

3. THE FORMWATCH PROJECT

The FormWatch project is a web analytics and business intelligence software application. The software automatically and remotely monitors and records how visitors to a website complete online forms. This information is then used to produce statistics about the user's behaviour whilst completing the online form. The statistics can provide the website owner with valuable intelligence on how visitors interact with the online form. This intelligence allows the website owner to adapt or develop the form to improve understanding and perhaps increase user interactivity.

4. THE TEAM

The FormWatch team consisted of the following personnel:

- Mr Richard Thorne, graduate, creator and developer of the FormWatch project;
- Dr David Wilson, academic, final year project supervisor to Richard Thorne;
- Dr Christopher Newman, academic, final year project examiner to Richard Thorne;
- Ms Paula Sturdy, academic, industrial placement visiting tutor to Richard Thorne.

5. INDUSTRIAL COLLABORATION PARTNERSHIP

Following the recognition that there were commercial possibilities to be investigated in the FormWatch software application, it was considered important that a commercial partner was found, one willing to incorporate the application into their business and offer the service to their clients to give the necessary credibility with the business community and generate further deployments. The collaborative partner would be useful to the project in four ways: to provide a website that could act as a test bed; to provide commercial knowledge; to assist with the applications for funding; and to inject capital into the project in the future. An existing relationship with the industrial placement company that employed Richard was identified as a possible collaborator. The company was approached but unfortunately was unable to pursue the collaboration owing to pressure of work and another partner had to be found. Monza Digital, a spin-off venture by two former

employees of the placement company, was approached to fill the role of the commercial partner and showed sufficient interest for the collaboration to be formed.

6. DEVELOPMENT FUNDING

Three opportunities for funding were identified with the help of the Employer Engagement Manager for the School of Computing & Engineering, Mr. Simon McKenna.

6.1. COLLABORATIVE VENTURES FUND

Having the collaborative agreement with Monza Digital in place, an application was made to the University's Collaborative Ventures Fund; see Appendix A, to further develop the project. This bid was successful and resulted in funding of £3000.

6.2. YORKSHIRE FORWARD INNOVATION VOUCHER

Yorkshire Forward / Business Link offer funding via the Innovation Voucher to Companies looking to sponsor work in Universities. A proposal was made for an application by Monza Digital for an award of an Innovation Voucher from Business Link, Yorkshire. The company met the SME criteria and an Innovation Voucher application was submitted. The proposal can be found in Appendices E, F & G.

6.3. YORKSHIRE FORWARD PROOF OF COMMERCIAL CONCEPT

During January 2010 the search for additional funding led to the Proof of Commercial Concept fund provided by Yorkshire Forward. However, during the market research stage, a company (FormAlive) was identified that provided a similar service to that of the FormWatch project. It was still felt that FormWatch could offer additional service features over FormAlive, but it was no longer necessary or appropriate to apply for PCCF funding and an alternative route needed to be found. Notes made to facilitate this bid can be found in Appendix I and may prove useful should bids for funding for future commercialisation prospects be found.

7. OPERATIONAL DETAILS

7.1. EMPLOYMENT OF THE PROJECT STUDENT

Richard Thorne, the project student, was sufficiently interested in the continuance of the project to offer his services on a part-time basis free of charge. The project team decided to use the CVF award to fund a part-time Research Assistant post for Mr. Richard Thorne. This would mean that there would be enough funds for three months' work. The job description and rationale for employing Richard can be found in Appendices B and C respectively. The project team also negotiated with the Canalside Studio team to furnish office accommodation and with the School's Computer Manager to provide a desktop computer and network services.

7.2. TEAM MEETINGS

Weekly meetings were arranged to discuss progress on the project. The first task was to prepare a detailed requirement specification. This provided the information to plan the work accordingly. The Project Development Plan can be found in Appendix D. Progress on the project was reviewed each week and the plan adjusted accordingly.

7.3. PRODUCT DEVELOPMENT

The development was finished in good time and went into alpha development. A test-plan was formulated to demonstrate that the application was sufficiently robust to progress into beta mode. Alpha testing was planned to take place within the university and a group of first year students volunteered to undertake this. The alpha testing proved successful and the test cases can be found in Appendix J. The project duly entered beta mode.

The deployment plans for the beta testing were that Monza Digital would deploy the application and gather test results using their company website. This deployment intent was unfulfilled as once alpha testing had been completed Monza withdrew from the venture.

8. PROJECT CLOSURE

The project finished, on time and to budget, at the end of January 2010 with the following outputs:

8.1. PRODUCT

An initial prototype product has been created which monitors and records how users complete online forms contained within a website.

The prototype was tested with a group of university students who completed a test website form. This test proved successful and a number of issues were identified for improvement. These are discussed in Section 11.

8.2. EMPLOYMENT OF GRADUATE RESEARCH ASSISTANT

Richard was successful in gaining full-time employment as a web developer with the ghd company in February 2010. He will be working on the development of web analytics tools. It is without doubt that his work on this project helped in securing this post.

9. FUTURE WORK

There is potential to continue work on this project in the following ways:

9.1. TESTING OF THE PROTOTYPE

The prototype requires extensive testing on live websites. The group has identified several opportunities for this and it is currently being pursued. The extensive testing will ensure that the quality of the system will be assured. It would also highlight any issues that required further work such as design or code incompatibilities etc.

9.2. FURTHER DEPLOYMENT – UOH WEBSITE

The University uses its web site as a way of attracting and engaging with prospective students, amongst other uses. The website consumes a great deal of time and money and one can easily count the number of visitors/students completing the process, but how many start the process but do not complete it? Commercial sites have seen increases in customer completion rates when purchasing goods or downloading electronic content simply by observing and measuring the visitor/customer's behaviour. The question the University would need to answer is once we have the initial contact, how is the visitor's interest kept all the way to completion? If you do not know about something how can you take action to correct the problem or leverage the benefit? Installing FormWatch on the University website would enable that data to be collected and

analysed and the web site modified. Furthermore, any improvement in the usage and completion figures could easily be measured.

9.3. REQUIREMENTS OF WEB ANALYTICS TOOLS

Future work on the project would be in attempting to ascertain whether the information that is provided by web analytics tools is actually what businesses really want. This knowledge would enable such tools to be developed with business needs in mind. It is hoped that an MRes proposal currently being developed, by a member of the group, will be taken up by a suitable student to investigate this in the near future.

10. FUTURE FUNDING OPPORTUNITIES

Further work on the project would require adequate funding in order to employ a software developer to continue with the system improvements and carry out the testing. Richard is no longer able to work on the project and owing to workload none of the group is able to continue with the development of the code. It is hoped to secure funding from the HEFCE UnLtd Social Enterprise funding. This would require changing the focus of the project slightly so that it benefited social projects but this is not difficult. If this funding is secured it is hoped to set up a facility to work on the project within Canalside Studios <http://www2.hud.ac.uk/ce/placements/canalside.php>. The Studio is very successful at providing placement opportunities for Computer Games students. We hope to build on this success and provide opportunities that reflect the wider range of talents that our students possess.

11. OBSERVATIONS

The following observations can be made about the project:

11.1. PROJECT IDENTIFICATION

The undergraduate project module provides access to projects that could be developed into commercially-viable software products and systems. Some of the more enterprising students have returned from their industrial placement year with project proposals from their placement employer. This is either a new project or an existing one for further development. A few students return to their placement provider after graduation as full-time employees and deploy the products of their project within their employer's organisation. This sandwiching of development between the University and the commercial or industrial company enhances the strength and quality of the work that some of our students are capable of producing. There are projects however, effectively having no sponsor, that would be equally successful were they to be given a similar opportunity. It is at this stage that commercially-aware tutors could identify possible projects to be placed on a "Commercial Possibility" watch list. The students would be encouraged to engage with the "Enterprise" process at this point offering them the opportunity to be open to ideas leading to further enhance their project once they had completed the module.

This opportunity is seen as the first stage in developing a University-based business venture using the experience of staff to apply leverage to the work of enterprise-aspiring students. This does not have to be restricted to placement and final year students. Some students arrive at the University with existing commercial/industrial experience and are willing to engage with enterprise activities during their first and second years. Care must be exercised here to make sure that their conventional study options are not degraded and engaging in the enterprise activities of the University are synergetic and enhance the learning experience.

11.2. THE FORMWATCH PROJECT

The FormWatch project was an ideal project to choose for development, being at the forefront of web technologies it has a useful product with the potential to increase the profits of a business.

11.3. THE TEAM

It was very valuable to adopt a team approach to working on this project. Without the team effort the project may not have been successful. The team adopted a projectised/matrix approach to the management of the various activities. This resulted in a shared responsibility of roles that was dictated by current workload, other commitments, and which member was best able to deal with a situation at any one time. This was found to be preferable to a functional or hierarchical model. The student's enthusiasm for his project was of paramount importance and all members of the team demonstrated commitment to the project. The team worked well together to provide stimuli and ideas for the project. The operational details were known to all members of the team and at least one person was available at all times to solve any problems that arose.

11.4. INDUSTRIAL COLLABORATION PARTNER

It was useful to have an industrial collaborator both in terms of providing a live test environment for the FormWatch product and to help to secure funding. It was not difficult to identify possible collaborators but much harder to get them involved in the project and to keep them engaged. The team did not form a good working relationship with Monza Digital. Monza is a relatively new company that appeared to have a healthy order book. However, this meant that there was not much time to devote to the FormWatch project. The team tried unsuccessfully to meet with Monza to discuss the project on several occasions and an invitation to visit the university was not accepted. Communication became restricted to email and Skype calls. Whilst this does not appear to be a problem in itself and indeed modern business communication is frequently performed in this way it does make it harder to judge interest and commitment. The relationship was further hindered when problems with the funding application for the Innovation voucher arose, which are detailed in section 13.5.

11.5. DEVELOPMENT FUNDING

Most projects will need some kind of funding in order for them to proceed. This was the case with FormWatch. Academic members of staff who have a heavy teaching load are unable to devote the time required to develop software projects for commercial use. The funding enables the student to be employed to continue to work on the project. Fortunately, Richard was willing to put some of his own time into the project because he saw that there were clear benefits for him.

There are numerous funding opportunities, most of which have extensive criteria to meet to be successful. Identifying the Collaborative Ventures Fund and the Innovation Voucher scheme were useful. The process for applying for CVF funding is not complex. However, the Innovation Voucher process is very complex. In addition, the Yorkshire Forward website provides little detail about the process of obtaining funding. The team found this very frustrating and was disappointed to find out too late that there was a flowchart of the procedure, which would have greatly eased the application process and avoided any obvious errors. The flowchart can be found in Appendix E.

11.6. OPERATIONAL DETAILS

Although the undergraduate project module completed successfully in June/July 2009, the process of acquiring the funds and advertising the Research Assistant position turned out to be a time consuming process. This was largely due to the team's inexperience with the employment procedures. A more

accessible process would have been useful. However, once Richard was in post, progress proceeded smoothly in the building of a prototype application of sufficient functionality to be tested in a commercial setting.

11.7. PROJECT CLOSURE

The current project closed in January 2010 with the production of the prototype software product. This was the intention, given that funding was limited. All indications are that the prototype could be developed further to meet the requirements of a commercial product.

The project team submitted an abstract for a poster to the 2010 University Teaching & Learning Conference that would detail the work from the project, see Appendix K. The submission was successful. It is hoped that the team will get the opportunity at the poster presentation to discuss the work with other enterprising staff. It is also intended that a paper will be prepared on this project for submission to a journal or conference.

11.8. FUTURE WORK

A further company has been found to test the beta application in a commercial setting. The new target company has been operating for almost one year and will have collected substantial trading results. It is expected to be able to analyse the website form's productivity with respect to these results. Any modifications to the web forms can be made based on the analysis of the usage data.

The experience gained from this project has inspired the group to set up a University Enterprise Group that will act as an umbrella group for anyone who is involved or interested in Enterprise activities. This should have several benefits: it will help us to co-ordinate our efforts; encourage and support other members of staff who would like to become Enterprise active; and may help with our application for funding.

The usefulness of having a dedicated software engineering facility became evident during the course of the project. Any future developments in this area would be better with a dedicated facility as opposed to borrowing from the equipment and facilities of Canalside Studios.

11.9. FUTURE FUNDING OPPORTUNITIES

The lack of resources (staff time) has thwarted the progress of the FormWatch venture. In fact this is expected to be an ongoing issue and other means of resourcing this project are being investigated.

12. RECOMMENDATIONS BASED ON OBSERVATIONS

As a result of the observations the following recommendations were made.

- Enterprise and commercial aware tutors could identify final year projects to be placed on a "Commercial Possibility" watch list.
- Projects should be chosen that have a product with identifiable commercial potential.
- A team approach is beneficial. Teams should be able to work well together and have sufficient enthusiasm and commitment to the project.
- An industrial collaborator is useful to help with the commercial aspects of the project. Useful contacts that could help with finding a suitable organization are: business development managers, placement

providers, students, The Business Mine; academic staff. Foster relationships with the collaborator at all opportunities.

- Funding opportunities may need to be found and plenty of time should be allowed for the application process. It's useful to consult contacts to help complete forms and avoid pitfalls.
- Employment of the student to continue development is effective as ownership and commitment is usually present.
- Every opportunity to promote the enterprise work should be taken.
- It may be necessary to continue to look for opportunities for the future of the project even when things seem to be going well.
- Staff may need to be given additional time to work on Enterprise projects.

13. CONCLUSIONS

The project was successful in several ways:

- In February 2010 the research assistant found employment with ghd, Leeds, in the field of Analytics within a month of the project closure, no mean feat in the current climate (January 2010).
- Prototype application developed to a sufficient level of sophistication to consider offering it to organisations looking to capture user engagement statistics from their form-based websites.
- Poster to be presented at the 2010 University Teaching & Learning Conference.
- Management summary report detailing the process inception phase of developing a commercial venture.
- Experiences from the project enabled a set of recommendations to be devised that could inform similar ventures in the future.

Several problems arose during the project:

- Communications with the University's Business Mine office could have been better with respect to the Innovation voucher application process.
- Interaction with the School's Enterprise office was productive and inclusive but the process stumbled when this initiative required management input.

APPENDIX A COLLABORATIVE VENTURES FUND APPLICATION

Collaborative Ventures Fund – Application Form

N.B. If your company partner is an SME in Yorkshire they may be eligible for a Business [Innovation Voucher](#). However, these are only available for *new* projects and so you may want to encourage your partner to apply before you make a bid to the CVF.

a. Project Title

Number

(office use
only)

Development of a 'FormWatch' Prototype	
--	--

b. Summary Financial Information (figures should correspond to those in section f)

Total Project Costs:	£9,00
URF Contribution requested:	£3,000
Organisation Cash Contribution (If applicable):	n/a
Organisation In-kind Contribution (ie staff hours etc)	£6,000

c. Academic Involved

Academic Leading:	Paula Sturdy
Contact Details:	T: 01484 47 E: p.sturdy@hud.ac.uk

School:	Computing & Engineering
Research Group/Centre:	Knowledge Engineering & Intelligent Interfaces
Main Research Interest(s):	Artificial Intelligence

d. Collaborating Organisation

(Note. This information will be used as one way of evaluating the likelihood of future activity which should attract future income for the University. If this is unlikely it may be better to bid under Research Communities.)

Organisation Name:	Monza Digital (Copycat Rivals Ltd)
Organisation Address:	Floor 5, No.2 Wellington Place, Leeds, LS1 4AP
Main 'Business' Area:	Web development
Date Organisation formed:	18/02/09
Approx Turnover :	n/a
Profit (last audited year) (if applicable):	n/a
Number of employees:	3
Organisation Contact Name:	Tom Cavill
Contact Details:	T: 0113 366 2042 E: tom.cavill@monzadigital.com

e. Project Description

(i) Describe the area of new technology and/or knowledge to be investigated

Web user tracking and analytics software, specifically development of a web-based tool for monitoring/tracking and improving user experience on client web pages.

The project will build upon a piece of work already undertaken as part of a final year project in 2008/9.

(ii) Describe the main tasks to be undertaken by this work (including timescales)

The overall aim is to develop a prototype software tool ('FormWatch') for web user tracking that has the potential for further development and commercialisation. Main tasks to be undertaken are as follows:

1. Development of alpha version, taking into consideration likely user requirements, security, platforms, robustness, etc. (4 weeks)
2. Initial testing, including testing with 'friendly' Monza clients (2 weeks)
3. Refinement and development of additional features; beta version (4 weeks)
4. Extensive testing and refinement with Monza clients, and potentially wider community (2 weeks)

(iii) Describe the resources that will be required to undertake the Work

- Access to computing resources at the University
- Dedicated server space to host the alpha/beta versions of the software

(iv) Describe the likely/potential outcomes of the Work

- Development of a prototype product/service with potential for commercialisation
- Possible proposal for Yorkshire Concept funding
- Research paper/publication

f. Project Budget

(i) Direct Project Costs

	Description/detail	Costs (£)
Staff Time		
Equipment/Consumables	Web hosting/server space for the prototype	200
Travel	Travel to/from Monza Digital	100
Other (please specify)	Short-term contract for Richard Thorne	2,700
Total Direct Costs		3,000

TOTAL Organisation Direct Contribution(s)

URF Contribution

£3,000

(ii) Additional In-kind Costs to Collaborating Organisation

	Description/detail	Costs (£)
Staff Time	Support/advice from Monza staff (5 days @ £600)	3000
Equipment/Consumables		
Travel		
Other (please specify)	The company are also applying for an Innovation Voucher to cover additional academic staff time supporting the collaboration	3,000
Total In-kind Company Costs		6000

g. Submission

This proposal is submitted by (**School of Computing & Engineering**):

(Print name) Paula Sturdy	(Sign here)	(Date)
-------------------------------------	-------------	--------

Jointly with (<i>Monza Digital</i>):		
(Print name) Tom Cavill	(Sign here) TC	(Date) 18/08/09
This proposal is supported by (<i>School of Computing and Engineering</i>) :		
(Print name) Jim Yip (Dean)	(Sign here)	(Date)

Please submit via email to Ian Pitchford followed by a paper copy with signatures to University Research Office. Note: Work should be completed within 3 months of receipt of approval.

APPENDIX B GRADUATE RESEARCH ASSISTANT JOB DESCRIPTION

JOB DESCRIPTION

Job Title: Research Assistant

Responsible to: Research Leader

Grade: Grade 6

Main Objectives

To perform directed research

Main Duties and Responsibilities

1. To conduct literature and database searches
2. To maintain and update the project's documentation and software artefacts repository
3. To assist in the design, development and the execution of quantitative and qualitative research programmes
4. To collect, process and analyse and help interpret data
5. To assist in the preparation and production of research reports and documents
6. Participate in team meetings and committees, as appropriate
7. Ensure the implementation of the University's policies and regulations within the remit of the post holder's duties.
8. Undertake other duties directed by the Research Leader
9. Register, if required, for a research award
10. Assist in the promotion of the department's research and enterprise activities

APPENDIX C RATIONALE FOR EMPLOYMENT OF RICHARD THORNE AS RESEARCH ASSISTANT

Research project title: Development of a FormWatch Prototype

Richard rescued this piece of work from his placement firm, TwentySixLeeds. He brought the idea back to the University as his undergraduate project and further developed the ideas. Following the involvement of his project and placement tutors he was further encouraged to take the application to the next level and produce a prototype for commercial exploitation.

The team has secured funding from the Collaborative Ventures Fund (CVF) on the basis of Richard's continuing involvement in this initiative and is named on the CVF bid (see copy of bid attached). Furthermore, Richard has obtained the collaboration and support of a commercial partner, Monza Digital. The team expects to receive additional funding from Yorkshire Forward. This is also based on Richard's continuing involvement in this project. It is extremely unlikely that we would be able to progress this initiative in such an expeditious manner without Richard's active participation.

The essential criteria for the research assistant post are:

Qualifications Good first degree in a software engineering/software development or related subject

Knowledge Understanding of web 2.0, web analytics, understanding of relevant research methods and software development methodology

Experience At least one year's experience of software development/web development in a commercial or industrial environment

Skills Good communication skills, written and spoken

Ability to work as a member of a team

Effective presentation skills

Ability to manage own time

Numerate

Attention to detail

APPENDIX D PROJECT DEVELOPMENT PLAN

FormWatch: Analytics & Business Intelligence

The application was developed iteratively with more features being implemented during every new iteration. The plan shows the steps involved during the development of the product and the timescale and dependencies for each. The figure shown below shows just the development components of the time plan.

ID	Task Name	Duration	Start	Finish	Predecessors
1	Research	0 days	Mon 02/11/09	Mon 02/11/09	
2	Design Documentation	7 days?	Mon 02/11/09	Tue 10/11/09	
3	UML Diagrams	2 days?	Mbn 02/11/09	Tue 03/11/09	
4	Entity Relationship Diagrams	1 day?	Wed 04/11/09	Wed 04/11/09	3
5	Test Documentation	1 day?	Thu 05/11/09	Thu 05/11/09	4
6	Test Strategy	1 day?	Fri 06/11/09	Fri 06/11/09	5
7	Test Cases	2 days	Mbn 09/11/09	Tue 10/11/09	6
8	Development	46 days?	Mon 02/11/09	Thu 14/01/10	
9	Javascript Tracking Code	1 day?	Mbn 02/11/09	Mbn 02/11/09	
10	Flng Component	1 day?	Tue 03/11/09	Tue 03/11/09	9
11	Statistics Application	45 days?	Tue 03/11/09	Thu 14/01/10	
12	Account Management	4 days	Tue 10/11/09	Fri 13/11/09	21
13	Form Mangment	3 days?	Mbn 16/11/09	Wed 18/11/09	12
14	Satistics	9 days?	Tue 24/11/09	Fri 04/12/09	16
15	Admin Control Panel	5 days	Wed 09/12/09	Tue 15/12/09	17
16	Data Import	3 days	Thu 19/11/09	Mbn 23/11/09	13
17	Multi User Accounts	2 days	Mbn 07/12/09	Tue 08/12/09	14
18	Initial Deployment	1 day?	Mbn 21/12/09	Mbn 21/12/09	20
19	Final Improvement & Bug Chec	2 days	Wed 16/12/09	Thu 17/12/09	15
20	Borw ser Testing & Issues	1 day?	Fri 18/12/09	Fri 18/12/09	19
21	User Interface Design	5 days	Tue 03/11/09	Mbn 09/11/09	9
22	User Interface Integration	40 days	Tue 10/11/09	Thu 14/01/10	
23	Functional Tests	40 days	Tue 10/11/09	Thu 14/01/10	
24	Unit Tests	40 days	Tue 10/11/09	Thu 14/01/10	
25	Documentation	1 day?	Mbn 02/11/09	Mbn 02/11/09	
26	Integration	1 day?	Fri 15/01/10	Fri 15/01/10	8
27	Enviroment Setup	1 day?	Fri 15/01/10	Fri 15/01/10	
28	Deployment	1 day?	Mbn 18/01/10	Mbn 18/01/10	26
29	Final Report	4 days?	Tue 19/01/10	Fri 22/01/10	28
30	Initial Release	0 days	Mbn 21/12/09	Mbn 21/12/09	
31	Final Release	0 days	Fri 15/01/10	Fri 15/01/10	

ORIGINAL GANNT CHART PRODUCT DEVELOPMENT.

APPENDIX E GUIDELINES FOR STAFF ON BUSINESS LINK YORKSHIRE INNOVATION VOUCHERS

MAY 2009

This document is designed to provide details about working with companies who have been granted an Innovation Voucher from Business Link Yorkshire. Any questions should be routed to Research & Enterprise, either through Susan Liphthorpe (extn 2049) or Barry Timmins (extn 1165)

SCOPE OF THE VOUCHER SCHEME

Small and medium enterprises (SME's) in Yorkshire can apply for vouchers. The vouchers are worth £3,000 and entitle the company to an equivalent amount of work by a university academic, i.e. staff time and other costs that have to be covered by Schools, e.g. transport to and from the company, consumables if relevant. Business Link describe it as "purchasing an academic's expertise to help deliver a knowledge solution to an innovation project."

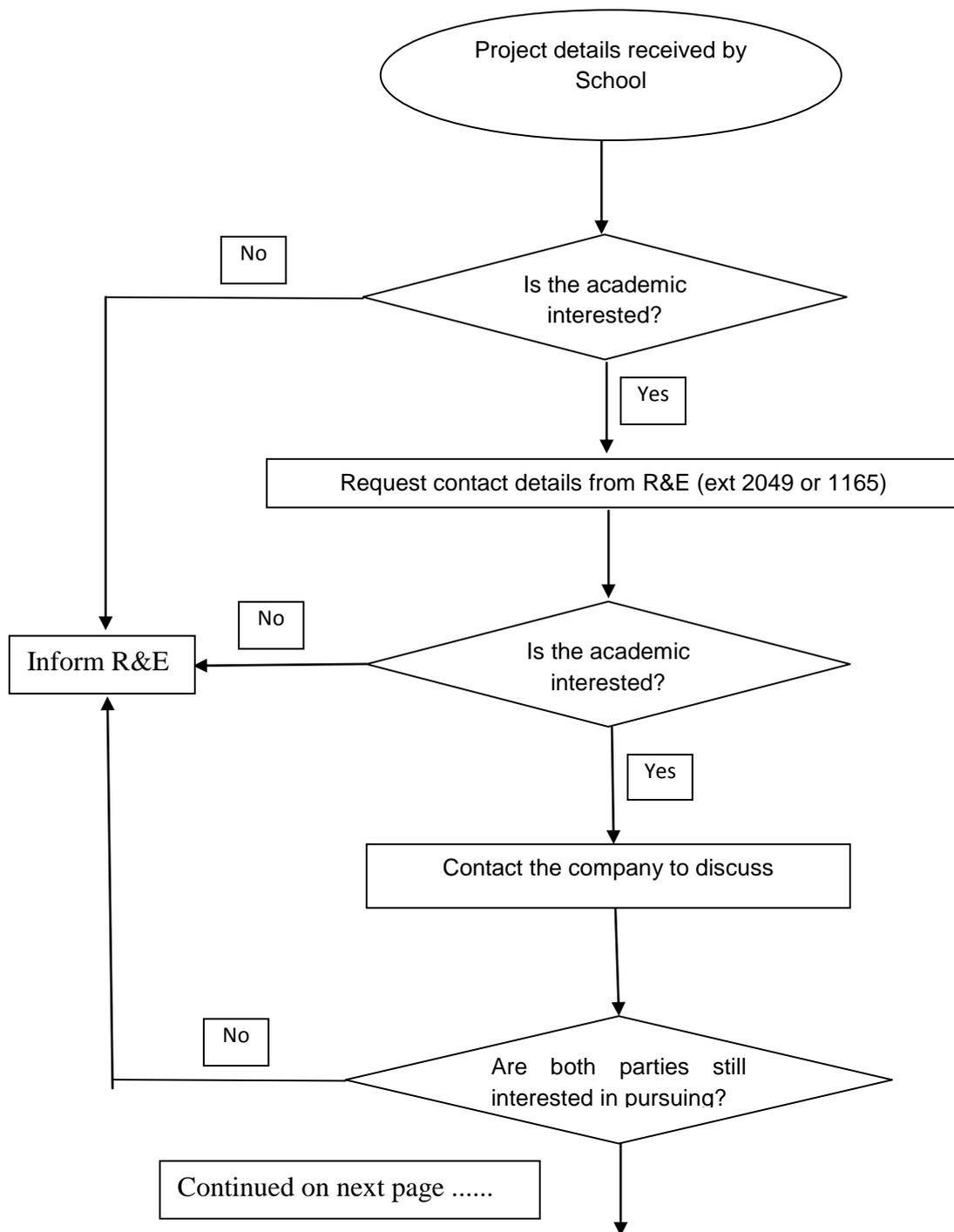
The projects must be NEW although the company may well be known to the academics.

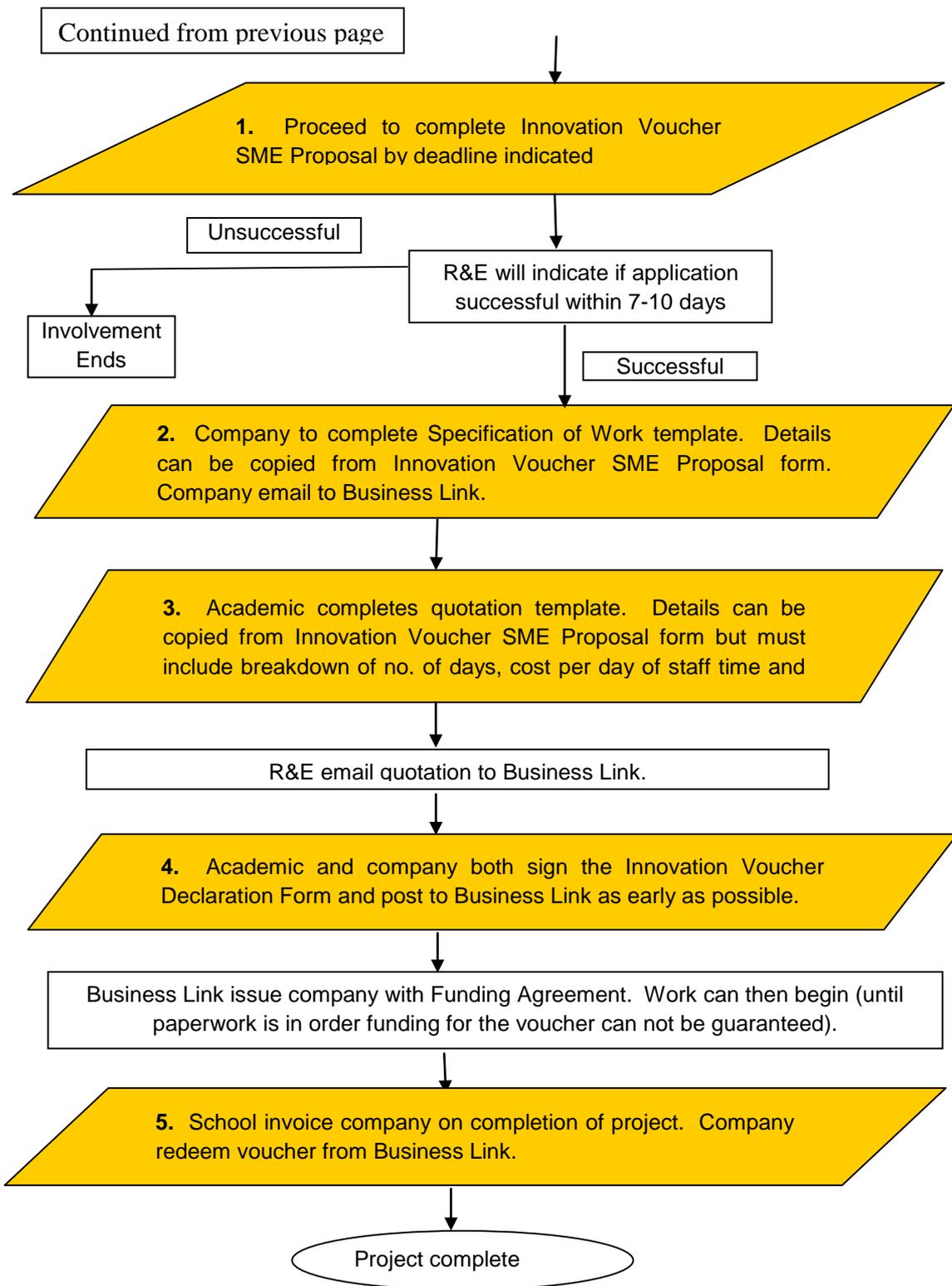
Examples could include market research, process design, business processes, web technologies, performance testing, using specialist facilities to determine new products, materials, markets, and many more. It will not cover marketing literature or staff training. The companies will need to demonstrate the benefits they will get from the collaboration. These could be increased profitability or market share, better informed business decisions, improved processes or business development models, efficiency savings, improved service delivery, "a source of fresh ideas".

PROCESS

There is an application process each month and deadlines for each step are given at the time of circulating each round of vouchers, to allow for Bank Holidays etc. Typically the process is as follows:

Flowchart. For more detail on the flowchart please consult Appendix 6, and the forms Appendices 1 – 4, in some cases with suitably generic wording guidelines although you will need to tailor to your specific requirements.





HOW YOU CAN ENCOURAGE THE UPDATE OF VOUCHERS AND INCREASE YOUR SCHOOL'S ENTERPRISE INCOME

Staff are encouraged to inform their contacts in SME's in Yorkshire of the scheme. Details can be found at

www.businesslink.gov.uk/yorkshire/innovation

We suggest that you persuade your business contacts to consider applying for a voucher and to specify that they want to work with you at the University of Huddersfield by specifying "University of Huddersfield and a named academic" in the "preferred knowledge base provider" box on the application form.

If your contact gains approval for a voucher you would then be able to apply for up to a further £3,000 funding from the University's internal Collaborative Ventures Fund, which would cover additional academic time if approved. Please note that the Business Link voucher should be approved first, otherwise a CVF application could be considered as an existing project by Business Link. Details of the CVF are in Appendix 5.

PLEASE NOTE

We have made a policy decision only to work with companies specifying either us as the preferred supplier or those not specifying a supplier. However, it is possible that companies may be approached by other HEI's. We have objected but been told that Yorkshire Forward insist on details being circulated to all the universities. This, it is also important that your contacts do not put anything commercially sensitive or potentially patentable in their proposals!

If you have any further questions please contact either:

Susan Liphthorpe x 2049

Barry Timmins x 1165

Business Gateway x 3666

Attached (with some recommended generic wording for you to use as a basis) are:

App 1 Innovation voucher SME proposal form - more speculative unless your contact has specified you

App 2 Specification of work template)

App 3 Quotation template) - once the company has confirmed us as supplier

App 4 Declaration Voucher)

App 5 CVF application form)

App 6 more detail on the above flowchart if needed

APPENDIX F INNOVATION VOUCHER DECLARATION

Section A : Small Medium Enterprises (SME) Details:

IV Reference no.	IV-8-45
AccountID	
Company Name	Monza Digital
Company Contact	
Address	Floor 5 No 2 Wellington Place Leeds LS1 4AP
Email address	
Telephone number	0113 366 2042

Section B : Knowledge Provider Details:

Company Name	Huddersfield University
Company Contact	Ms Paula Sturdy, Dr Christopher Newman
Address	Huddersfield University School Computing & Engineering Queensgate Huddersfield HD1 3DH
Email address	p.sturdy@hud.ac.uk c.d.newman@hud.ac.uk
Telephone number	01484 472927 (PS) 01484 472912 (CDN)

Section C : Declaration

I confirm that the information outlined in the '*Specification of Work*' and '*Quotation*' is deemed correct and outlines the agreement made between the SME and Knowledge Provider.

Signed for and on behalf of:

.....

SME

.....

Date

.....

Knowledge Provider

Date

Dr C D Newman

Ms P Sturdy

APPENDIX G INNOVATION VOUCHER SME PROPOSAL (WORK SPECIFICATION)

INNOVATION VOUCHER SME PROPOSAL (WORK SPECIFICATION)



Services provided through Business Link are supported by Yorkshire Forward and part financed by the European Commission under The Yorkshire and The Humber ERDF Programme 2007-2013.

Supplier Name:

Ms Paula Sturdy, Dr Christopher Newman (Main Contacts)

University of Huddersfield

School Computing & Engineering

Queensgate

Huddersfield

HD1 3DH

Enquiry Number: 2914

Project Specification and Objectives (max 500 words)

Project Name: FormWatch

Project Description: A web based service to gather information about how the web page visitor interacts with the different elements included or comprising the web page or web based form. This project is to further develop a final year undergraduate project undertaken by Richard Thorne and its unique selling point over that of similar services/applications is the granularity of its operation. Simply put, this application is capable of gathering dynamic information at the element level rather than at the page level employed by its competitors. This project is the next step in web page analytics.

Project Deliverables:

A working prototype of sufficient sophistication to enable Monza Digital's clients to effectively deploy the application. It is expected that this deployment will demonstrate the possibilities of deriving significant business benefits for Monza Digital and their clients.

An evaluation of the results obtained by deploying the service to subscribing clients of Monza Digital.

A plan for further development of the services/application.

A "Completion" report, agreed by Monza and the project team and submitted to justify the award from the Collaborative Ventures Fund and the Innovation Voucher.

Milestones

Working application accepted by Monza Digital as sufficiently robust for rolling out to their client(s) 6 weeks following an agreed project start date.

Final report signed off by Monza Digital and submitted to CVF, 7 weeks following delivery/deployment of the working application.

The final report will contain an evaluation of the results, a discussion of any anomalous behaviour, and the identification and prioritisation of further/additional requirements. The enhancement and additions identified will be logged and further development will be driven by the business needs of Monza Digital and their clients.

Intellectual Property: resides with Richard Thorne and The University of Huddersfield any change to this must be negotiated with both Parties.

Regular formal meetings with Monza Digital will be arranged if required, but the present need is to communicate progress and request further information which can be accomplished on an informal ad hoc basis. The University team has weekly project meetings and ad hoc sessions as required and these could be expanded to accommodate the more formal/regular approach to communicating updates, requests for information etc. with other parties.

Project Completion: A signed off report and an archived copy of the application's source code and associated project documentation including test results and correspondence.

Assumptions / Risks

The resources required from Monza Digital will be management time to supply information and assist with the deployment of the application once it has been tested. All the development and analysis and evaluation is expected to be carried out by the University project team. This work will include; supervision, support and mentoring of a research & development software engineer (Richard Thorne), preparation of work schedules and planning, project management and control, documentation and quality monitoring of the development process.

The major risk to the project is the key staff being unable to devote sufficient time and effective input due to an already fully in not over committed elsewhere. In an attempt to mitigate this risk, the supervisory team comprises three people, Dr David R Wilson in addition to the named “contact staff”. There are two named “key staff” to provide cover should one or other be unavailable. The Research Assistant, Richard Thorne, has been specifically selected for his initiative, drive and commitment to the project. It is unlikely that we would have proceeded with this project in this manner without Richard’s involvement – and that may be an additional risk.

Staff

(Details of the academic staff involved in the project, details of any project management staff involved)

Ms Paula Sturdy, Dr Christopher Newman, Dr David R Wilson

Huddersfield University

School Computing & Engineering

Queensgate

Huddersfield

HD1 3DH

01484 472912 (CDN)

01484 472927 (PS)

Both Ms Sturdy and Dr Newman have extensive experience in managing projects in commercial and industrial companies and Dr Wilson has the technical skill and experience in Internet and Mobile applications development/deployment.

Pricing / Contracts

- The pricing structure will be as follows
 - Academic Staff - 5 person-days @ £ 600 / day
 - Other staff costs, use of equipment, travel and subsistence will be minimal and will have been covered from the funding received in the University's CVF award.
 - Total £3000.+ VAT

- An invoice for full payment will be issued at the end of the project
- Payment will be expected 30 days after issue of the invoice
- The contract between Monza Digital and the University of Huddersfield will terminate within 3 months of the project start date.

APPENDIX H BUSINESS LINK SPECIFICATION OF WORK

Specification of Work	Date: 18 November 2009
<p>For Monza Digital</p> <p>Floor 5</p> <p>No 2 Wellington Place</p> <p>Leeds</p> <p>LS1 4AP</p> <p>Tel. 0113 366 2042</p>	

From	Geraldine Hackett
m	Business Link Yorkshire
	1 Capitol Court
	Capitol Business Park
	Dodworth
	Barnsley
	S75 3TZ

Specification of work details			
Preferred start date of work	2 November 2009	Preferred end date of work	31 January 2010
State the aim(s) of the project			

Project Name: FormWatch

Project Description: A web based service to gather information about how the web page visitor interacts with the different elements included or comprising the web page or web based form. This project is to further develop a final year undergraduate project undertaken by Richard Thorne and its unique selling point over that of similar services/applications is the granularity of its operation. Simply put, this application is capable of gathering dynamic information at the element level rather than at the page level employed by its competitors. This project is the next step in web page analytics.

Project Deliverables;

A working prototype of sufficient sophistication to enable Monza Digital's clients to effectively deploy the application. It is expected that this deployment will demonstrate the possibilities of deriving significant business benefits for Monza Digital and their clients.

An evaluation of the results obtained by deploying the service to clients of Monza Digital.

A plan for further development of the services/application.

A "Completion" report, agreed by Monza and the project team and submitted to justify the award from the Collaborative Ventures Fund and the Innovation Voucher.

Project Specification

(Milestones, timescales, areas within the original knowledge question that will not be covered, how IP will be treated, how the project progress will be reported to the SME).

Milestones

Working application accepted by Monza Digital for rolling out to their client(s) 18 December

Final report signed off by Monza Digital and submitted to CVF. 31 January 2010

All areas outlined in the original specification will be covered. Any additional requirements will be logged for future development and further development is expected to follow, but this will be driven by the business needs of Monza Digital and their clients.

Intellectual Property resides with Richard Thorne and The University of Huddersfield any change to this must be negotiated with both Parties.

At present, contact with Monza Digital has been ad hoc. At the next meeting a more formal/regular approach to communicating updates, requests for information etc. will be offered.

The University team has weekly project meetings and ad hoc sessions as required. Final milestone is a signed off report.

Assumptions / Risks

(Resources required from the SME in time or expertise, risks that accompany the project)

Supervision, support and mentoring of a research & development software engineer (Richard Thorne). Preparation of work schedules and planning. Management and control of project. Documentation and quality monitoring of the development process.

An applicable software development methodology will be utilised, probably the Rational Unified Process. A fairly standard lifecycle approach to the management and control of the project process will be employed.

The major risk to the project is the key staff being unable to devote sufficient time and effective input due to an already fully in not over committed elsewhere. In an attempt to mitigate this risk, the supervisory team comprises three people, Dr David R Wilson in addition to the named “key staff”. There are two named “key staff” to provide cover should one or other be unavailable. The Research Assistant, Richard Thorne, has been specifically selected for his initiative, drive and commitment to the project. It is unlikely that we would have proceeded with this project in this manner without Richard’s involvement – and that may be an additional risk.

Key People

(Details of the academic staff involved in the project, details of any project management staff involved)

Ms Paula Sturdy, Dr Christopher Newman

Huddersfield University

School Computing & Engineering

Queensgate

Huddersfield

HD1 3DH

01484 472912 (CDN)

01484 472927 (PS)

Both academic staff members have extensive experience in managing projects in commercial and industrial companies, although Simon McKenna, Employer Engagement manager, SC&E was involved in the initial discussions and continues to be involved as and when available/required.

APPENDIX I NOTES FOR PREPARING PCCF FORM.

Tuesday, 15 December 2009.

Time limit -

For how long can the project run? The time scale will depend on what we are going to deliver and all the application form states (page 3) is that if the project is going to take more than 12 months good reasons must be given. If the project is going to span two financial years (1 August - 31 July) then the form must be duplicated to cover each year (page 3).

Costings -

Richard's salary £28K per annum (I suspect this will be negotiated down as £24K is probably a more realistic salary, so anything over £24K will be a bonus.)

Our (Christopher, Paula & Dave) salary costs say £11K per annum - 3 hours per week each at an average salary of £45K/annum (That's 9/37 of person week times £45K)

Is there an overhead associated with salary costs?

Hardware

Software

Travel & Subsistence

Bench costs (Richard's desk, technician, administration support etc.)

Additional Consultancy - I would hope that we can resource this from ourselves.

PR/Marketing/Advertising - we will need to sign up clients.

4. Co-investment Model -

Yorkshire Universities manage 50% funding from University of Huddersfield and 50% from Yorkshire Forward. Nothing can be taken from private sector sources.

5. What is Proof of Commercial Concept?

5.1 The Fund will not support academic research but can support early stage development, such as:

• After academic research;

The initial research was completed by April 2009 and a first iteration prototype built. A second iteration of the prototype was built during November and December and deployed for testing with our commercial partner. We do not expect to carry out any further research on this aspect of the project, but may investigate its use in related areas for commercial benefits.

• After a background patent has been generated / filed;

Analytics is being used by several companies, but not to the level of granularity that our current project uses. What determines whether an idea is patentable or not?

• Before full lab demonstration of technology;

We have already obtained funding to demonstrate the technology and as stated previously, a second iteration of the prototype was deployed for testing with our commercial partner in December 2009, January 2010.

• Before pre-production/prototyping;

We are definitely at this stage and once the test results from the initial deployment have been evaluated we will incorporate any changes and enhancements required to produce a third iteration of the project.

• Before commercial funds or seed corn fund would be available.

We expect to be signing clients to a service model during the project covered by the PCCF funding period and use this money to continue development and become self financing.

The type of activities supported can include (but not be limited by):

- Undertaking further scientific and technical development of an idea to improve the Intellectual Property (IP) position, e.g., supporting further work to exemplify or broaden patent claims.

It is intended to further develop the basic analytics service into a business intelligence role. This may require additional research and development of encryption services and security/confidentiality issues.

- Undertaking a full commercial appraisal for new products or process.

The business intelligence offering and the possibility of entering the Security/Forensic (S/F) market need further investigation. The S/F option is a bit of a reach at the current stage of the project, but we have contacts within the university that are prepared to investigate the possibilities.

- Identifying potential licensees or opportunities for joint ventures.

Several of the clients subscribing to the service would make natural partners for joint ventures and so too would any of the companies supplying our project with their services, for example the hosting company.

- Identifying routes to market and developing a commercial strategy.

We expect this to be reasonably straightforward initially as there are several small internet based companies locally that could be signed up for the initial service. Once the business model has been proven it can be rolled out via the internet. Some of the potential target companies may also benefit from a site make-over to better leverage the statistical offering from the FormWatch project. This would necessitate a website development activity or partner.

- Identifying follow on funding investment.

We expect to be self-funding in the short term, but looking forward to the exit strategy, various models for achieving the best return on the effort spent would be a high priority.

6. Eligible Costs

The Fund will not support academic research or the development and/or marketing of existing products. Yorkshire Concept contributes to actual proposition costs; it does not pay overhead or IP costs.

Eligible costs include:

- Personnel: – salaries that are demonstrated to be essential to the development of the proposition and can evidence added value.
- Consumables;
- Market assessment;

- Materials (evidence of need must be demonstrated);
- Subcontracted consultancy or other development services (evidence of need, contractor specification, quality assurance, costings to be provided);
- Other costs, such as travel and subsistence;
(Justification is required and applicants must demonstrate that these costs are directly linked to the commercial objectives of the proposition.)

Although external specialist support may be bought in by the grant to support commercial assessment as stated above, each proposal will also be actively supported by the HEIs (Higher Education Institute) through the provision of mentoring, business development and monitoring from inception to completion.

See notes on page one regarding costing.

7. Application and Assessment

Applicants must consider the following when preparing an application:

- PCCF expects proposals to address proof of technology/science and proof of commercial concept as equal constituents.

We have built two prototypes and initial testing of the second one has already indicated areas for improvement. Once the final testing has been completed the third version will be a much better prospect to rollout to clients. This stage of testing is being done by our commercial partner and the results will be fed back directly into the partners existing internet businesses.

- The Board is commercially focussed.

We have purposely chosen to pursue an entrepreneurial route into the University Research and Enterprise initiatives over that of the research programme.

- Is the proposition something new and innovative?

The general idea is in its infancy with other companies employing the techniques at much higher granularity than our implementation. Our focus on page or form elements is where the novelty originates and where we can best leverage the technology.

- Is there a market for the proposed outcome of the proposition?

Yes. There are several other companies offering similar, but not as specialised, services and we have found existing companies willing to collaborate and to test/evaluate the product/service.

- How can this be evidenced?

The recent successful receipt of an Innovation Voucher (IV 8-45) from Business Link by Monza Digital, our current collaboration partner. Further evidence of the product's potential

is demonstrated by other companies willing to volunteer to host the data capture script on their websites for testing/evaluation.

- What is the potential income that could be generated? How do you make money?
The business model may work best as a subscription service or it could be licensed and a system of royalty payments applied. Initially, the price one could charge could be significant as there are few competitors and the product offered is inferior. It is further expected that as competition reduces the price the increasing number of clients would maintain or increase the revenues. It is intended to offer additional services to the original product, business intelligence and security offerings.
- Who may be suitable industry partners or investors for commercialisation?
Any website production/building company.
Any website hosting company – as an additional or complimentary service to their own.
Any E-commerce company in its own right.
- Who are you already in contact with and what level of discussion is underway?
We have two companies currently evaluating the technology one of whom is our current collaborator. Their involvement is due to terminate, 31 January 2010, and as yet have expressed no intention of any future collaboration, but neither has any been ruled out. They are a small start-up and their resources are insufficient to take the project forward.
- Applicants must be aware that the pitch to the Board has to equally address the science and commercial aspects rigorously and equally with the academic and business development managers playing equal roles.

The commercial promise of this project was recognised at the progress report stage of an undergraduate project and every decision taken has been to target the enterprise side of the University's business development. The academic content is two fold, one is the development of an idea into a working product and its commercial exploitation and two, the process of evaluating student research/project work and developing/evaluating processes in that exploitation/commercialisation.

Applications must address all the following points.

- **The Invention**

- What is the technology base of the idea?

- If applicable can the Intellectual Property invested in the concept be protected?

- What is the present IP position?

- What resources are required?

- What is the development period?

- If IP is not applicable how will the idea be protected?

What are the barriers to entry by competitors?

- **Industry Partners and Markets**

How is it proposed to develop the concept into a commercial proposition?

Evidence the opportunity addresses real market needs?

What is the market?

How big are the potential markets?

Who are the key players in those markets?

Do you already have industry relationships with these companies and how does that shape the content of the proposal?

How will the concept be developed to generate industry relationships to enter those markets?

- **Competitive advantage**

What is the competitive advantage the proposition brings?

Cost/efficiency?

Demonstrate this using numbers to assess impact and cost benefit analysis on the bottom line. A worked example is crucial in evidencing value. Demonstrate how money will be made.

How will the HEI benefit especially in cases where IP is not a factor?

- **The Future Business**

Can funding develop the opportunity to attract industry investment or further development funding?

Does the proposition have the commercial potential?

How will commercialisation be achieved?

Demonstrate potential routes to market.

- **Exit Route**

How will the proposition develop and define the next steps towards realising its commercial potential?

What is the commercial strategy?

How will the proposal be attractive to an external partners or follow on funders?

- **Risk Assessment**

What are the perceived risks associated with the proposition and what contingencies are developed to address them?

The two major risks are people based; one, the engineer could leave and as he is the originator of the technology this would have a major impact on the project; two, the current project leaders/managers will have insufficient time to mentor the engineer and manage the project. The third risk is time, this is a fast paced business and the University can be a little tardy when decisions need to be made and resources committed. There is the distinct possibility that we will be beaten to market and become an also ran.

It is acknowledged that early stage development of commercialisation ideas may not have a fully

defined plan for reaching market; however, applicants must identify how they propose to address any significant gaps in the commercialisation strategy. The small business community has a very effective grapevine and once the potential of this product/service starts to generate increases in business for the early adopters we will become a “must have” service. Initially, we expect to approach Chambers of Commerce, Start-up organisations and make the most of the University’s existing contacts.

Applications should also address the following:

- The commitment and skills of the proposition team.

We have youthful exuberance, steadying influences and the experienced greybeard. All members of the team are committed to a successful implementation of the project as it would open more doors of opportunities.

- Proposition costs and value for money.

- Clearly defined timescales and milestones.

Review test results and evaluations.

Revisit the future work identified in the closure report from the IV8-45.

Program or schedule the developments/enhancements from the CVF final report (1 month).

Hosting company evaluation of possibles.

Prepare marketing materials.

Programme of events for potential clients (rolling programme).

Development of the Business Intelligence.

Development/selection of exit strategy and sensible end point to match funding application.

Develop reporting and support structures for licensees.

Prepare Business processes, financial structures for company, staffing levels etc. for venture.

- A well defined exit and commercialisation strategy.

We will be developing one of the following routes; a partnership with a commercial partner, a University based company/service (via a license agreement), a separate stand-alone enterprise (spin off company) or an outright sale to another commercial entity (ceasing any further work).

We have the full support of our Head of Department (without this we will not proceed beyond 31 January) and are already working with their Knowledge Transfer Centre/Technology Transfer Office/etc.

8. Application, approval and monitoring

A 15 minute presentation and an allowance for a 15 minutes question and answer session will be prepared for delivery to School Research Groups. Ultimately this will be the one presented by Richard (Academic) and Simon (business development) to the PCCF Board.

If at first we do not succeed we need to get sufficient information from the Board to enable success when re-presenting

For office use only (Adviser):					
Outputs to be achieved as a direct result of the project					
Please provide details of the outputs to be achieved as a result of this support.	Fte* jobs Created	Fte *Jobs Safeguarded	Pte** Jobs Created	Pte** Jobs Safeguarded	Turnover Increase
Provide the dates these outputs are to be achieved					
*Fte = Full time equivalent (30 hours/week) permanent is a life expectancy of 12 + months. **Pte = Part time equivalent					

APPENDIX J TESTS FOR COLLECTING RESULTS

Form Requests & Completions

1.1 Request & Completion Count Test

Test	A group of users in a controlled environment will be asked to complete all elements of a test form.
Expected Result	100% conversions rate

1.2 Failed Request & Completion Test

Test	A group of users in a controlled environment will be asked to complete a test form, half of the users will be instructed to complete all the elements on the form and the other half of the users will be asked to complete only the first element of the form.
Expected Result	50% conversions rate

Dropout Points

2.1 No Test Users Dropped Out

Test	A group of users in a controlled environment will be asked to complete all elements of a test form.
Expected Result	0% dropout rate on all form elements.

2.1 Half of test users dropped out

Test	A group of users in a controlled environment will be asked to complete a test form; half the users will be asked to complete the whole form while the other half of users will be asked to complete only the first two elements.
Expected Result	First two elements would have a 0% dropout rate and the other elements on the form would have a 50% dropout rate.

Time on Form

3.1 Delayed Element Completion Testing

Test	A group of users in a controlled environment will be asked to complete all elements of a test form. After completing the first element of the form users will be asked to wait 10 seconds before completing any other elements on the form.
Expected Result	The average time spent on the first element should be 10 seconds greater than any other form element.

The data accuracy tests should be conducted in a monitored environment and a minimum of 10 users should participate in the test. The tests should be conducted on both a single and multiple page forms.

The <http://formwatch.com> domain expired on 15 May 2010, lack of continuation funding, and so did the test results. Anyone interested in the earlier results from the final undergraduate project report should contact the authors.

APPENDIX K 2010 UNIVERSITY TEACHING & LEARNING CONFERENCE ABSTRACT

Identifying Enterprise Opportunities: A Case Study

FormWatch: Analytics & Business Intelligence

Christopher D Newman, Paula Sturdy, Richard Thorne, David R Wilson

ABSTRACT

Undergraduate computing students are capable of producing high quality final-year projects with a software product that has the potential to become commercially viable. Such projects could profitably be identified during the project's development. This can best be done by staff who have an awareness of commercial viability and an interest in enterprise activities.

This case study documents a venture in the School of Computing & Engineering during 2008/9 and 2009/10. The undergraduate project was a web-form tracking system, which monitored how users interacted with web forms. This provided the website client with information regarding the way that the form was used.

The student concerned was subsequently employed as a Graduate Research Assistant to continue to develop this system. This was a cost-effective method of making further progress towards a commercially-viable solution. Additionally, the experience provided the opportunity to launch a commercial entrepreneur from the University's undergraduate courses.

A commercial partnership was formed with a web development company that was willing to incorporate the application into their business. The successful application for funding from the University's Collaborative Ventures fund enabled the project to succeed. Further funding was sought via the commercial partner for an award of an Innovation Voucher from Business Link, Yorkshire, although this avenue was subsequently not pursued to completion.

Further work will initially focus on the development of a commercially-driven software engineering facility that provides an opportunity for the University to provide campus-based placements for able students to pursue projects designed to enhance the University's services. This would not rule out the

undertaking of projects for outside organisations at commercial rates. This would require the further development or enhancement of an existing facility or the provision of new facility within the University.

The Proof of Commercial Concept fund provided by Yorkshire Forward is available to take any identified idea that demonstrates nascent commercially significant attributes forward to the first stage of commercial exploitation and we would expect this fund to play a major role in our endeavours.

APPENDIX L MODULE SPECIFICATION CHP2524 INDIVIDUAL PROJECT

Module Code:	CHP 2524
Module Title:	INDIVIDUAL PROJECT
School involved in delivery:	Computing and Engineering
Name of Course(s):	All final year Informatics UG degrees
Module Leader:	T L McCluskey
Location:	Queensgate
Module Type:	Core
Credit Rating:	40 Credits
Level:	Honours
Learning Method(s):	Lectures: 8 hrs
	Tutorials (individual supervision): 6 hrs
	Presentation/Demonstration: 1 hrs
	Self Managed Activity: 385 hrs
Prerequisites:	None
Recommended prior learning:	N/A
Prequisites:	None
Barred combinations:	None
Professional body requirements:	For accredited courses: must be passed at the first attempt (without referral) for BCS recognition.
Module status:	Dedicated

Module Aims

To enable students to undertake a project that is aimed at solving some tangible problem within the subject area and scope of their degree course. This provides them with an opportunity to investigate an area in some depth, and requires a degree of initiative to complete.

Module Synopsis

This project module involves the student selecting a problem to solve which is relevant to their degree, and of appropriate scope and depth to be tackled within a 40 credit module. Carrying out the project will enable students to develop and demonstrate the ability to undertake research, manage time, use initiative, learn independently, discuss and write cogently on a subject requiring independent learning, create a tangible product in an advanced or relatively novel area of informatics, and perform a critical evaluation.

Students will utilise existing and acquire additional knowledge and skills as appropriate for making a contribution to a solution of the identified problem. The project should include a significant amount of research and concept development, and use of evaluation techniques and critical appraisal.

Outline Syllabus: Approximately 8 Lecture/workshops will be held to introduce new topics and re-enforce learning outcomes from previous modules. These may include:

- Project Overview, Project Proposals
- Research Techniques
- Project Management
- Project Progress Reporting, Producing Posters
- Ethical & Legal Issues
- Thesis Writing
- Evaluation Strategies
- Project Reports & Product Documentation, Poster presentations

Each student will be assigned an individual supervisor who will meet with the student every week. Otherwise, the project consists of self-managed activity, as determined by the subject of the project.

Learning Outcomes

1. Knowledge and Understanding

With respect to the project's subject area, a student will, by the end of the module,

- 1.1 have assimilated knowledge in sufficient depth to understand and discuss key ideas and concepts
- 1.2 have acquired knowledge and understanding of current, leading research and development directions
- 1.3 have acquired knowledge and understanding of the tools and techniques relevant to the solution of the project's identified problem.

2. Abilities

Upon completion of this module, a student will be able to:

- 2.1 employ a systematic method to develop a product that forms a solution to an identified problem, using sound decision making and initiative where appropriate,
- 2.2 gather, examine and appraise research data and materials,
- 2.3 examine, appraise and select the technical and design tools and techniques relevant to the development of the product
- 2.4 articulate verbally and in a written form, the context, problem and underlying research-based issues of the project's subject area
- 2.5 critically evaluate the product and the product's development process, recognising good practice
- 2.6 produce well-constructed documentation and presentations that critically assess, communicate and present project deliverables
- 2.7 employ a systematic method to manage a project throughout its lifecycle.

Learning strategy: Initial guidance and information will be provided to the student via introductory workshops, the module leader and project tutors, to enable them to identify a project topic and write a project specification. Each student will be allocated an individual supervisor who will offer guidance and supervision throughout the

project. Once a student's project proposal has been accepted, the students are expected to progress their project on an independent basis. Learning will take place through the application and development of skills and material previously encountered, by self-development of new skills and by researching new material. The student is expected to consult relevant literature, past project reports and other sources. A number of lectures or workshops will be provided and delivered at an appropriate time during the year. Each student will have regular supervision sessions.

Assessment Strategy:

The deliverables of the project are:

1. Project Proposal / Specification
2. Interim progress report and presentation
3. Project report
4. Project product and demonstration

Deliverable 1 is to be submitted at the end of week 3 of term 1. Deliverable 2 is to be submitted during the last week of semester 1 and a presentation / discussion with the supervisor and examiner to be held within the first 2 weeks of semester 2. A formative assessment of the student's progress will then be made and feedback given to the student as to his/her progress.

Non-submission of Deliverable 1 or 2 will result in the student failing the module.

Final assessment will be carried out after the project report is submitted, and a demonstration of the product given, at the end of the project. The project will be marked holistically, with one mark of 100%, which will be based on deliverables 3 (normally 50% weighting) and 4 (normally 40% weighting), together with a mark for student progress (normally 10%), informed by deliverable 2.

The deliverable breakdown is as follows:

Interim progress report and presentation (To Assess Outcomes 1.1, 1.2, 1.3, 2.2, 2.3, 2.4)

The report and presentation will include:

- The Context – problem, client, users and product
- Summary of the academic research undertaken so far
- Product specification
- Product development plan

Project report (To Assess All Outcomes)

Project product and demonstration (To Assess Outcomes 2.1, 2.4, 2.6, 2.7)

More details on course-based variations on deliverables and assessment criteria will be issued in the module hand books.