Beer, Bread and Honey – Canterbury Christ Church University

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Topics: Performance analysis in non-for-profit organisations, importance of qualitative factors in decision-making

Introduction

Canterbury Christ Church University (CCCU) is operating in a challenging and often uncertain climate. The recent changes within the higher education sector in the UK has meant that universities need to create and sustain a viable financial and funding model, teaching and learning excellence, and able to adapt to changes in the market. For CCCU, it means giving priority to projects that will enhance these activities, including protecting and enhancing its wider environment.

Dr Peter Rands, Director Sustainability Development at CCCU, has worked tirelessly with his team over the past six years to develop a strategic approach to sustainability education within the University. At the heart of this is the Futures Initiative (FI), which is aimed at developing the knowledge, skills and experience of staff, such that sustainability perspectives would more naturally integrate with curriculum.

One of the projects that has helped to drive this initiative is the Beer, Bread and Honey (BBH) project. It has brought together both academic and non-academic staff, and students, including working with a commercial brewing partner (Canterbury Brewers) to provide a rich learning space and experience for everyone involved, while preserving the heritage of the CCCU site. BBH also supports the broader CCCU strategic drive towards a more systematic approach to sustainability education. However, one of the main challenges facing Dr Rands and his team in the coming years is how to ensure the sustainability of projects like BBH.

CCCU - Heritage and Biodiversity

CCCU is situated in the South East of England. Established on a World Heritage site, sustainability is at the heart of the University's Strategic Framework 2015-2020. This is embedded in its values and mission statement, and is a cross-cutting theme in its plans for the future.

The Canterbury World Heritage Site designation forms the basis of CCCU *Bioversity initiative*, which integrates the University's stewardship of biodiversity with its responsibility for the cultural heritage of the North Holmes Road campus.

As an educational institution, CCCU's approach to biodiversity management is informed by the conviction that its estate itself is a learning environment, not just a space in which to learn.

By developing a congruent narrative of proactive and responsible stewardship of natural resources, which starts with monastic husbandry and develops through the ages, CCCU has developed a sector leading Biodiversity Action Plan. Key to its success has been the development of its "pocket habitats" with a focus on heritage planting, such as the Jubilee Orchard (heritage local Apples, Pears and cobnuts) or the Physic garden

(medieval medical garden). 14th century monks working in the outer precincts of St Augustine's Abbey, now occupied by the North Holmes Campus, would have tended a vinery, baked bread, brewed beer, managed orchards, kept bees, and dug beds for a variety of vegetables. The visible part of the ancient St Augustine's Abbey monument on its site is the remains of the "Brew/Bake-house" wall where the monks would have brewed beer and baked bread.

Beer, Bread and Honey

The idea for bringing the heritage of the Brew/Bake-house wall to life through the brewing and baking on site is not a new one, and bees have been kept in the priory gardens for a few years. However, the natural synergy between *Bioversity* and *Edible Campus*, the enhanced strategic focus through the Sustainability cross-cutting theme and the enthusiasm developed in recent years is providing new impetus. Central to embedding the project into the culture and experience of the campus has been finding legitimate and creative links to formal curriculum.

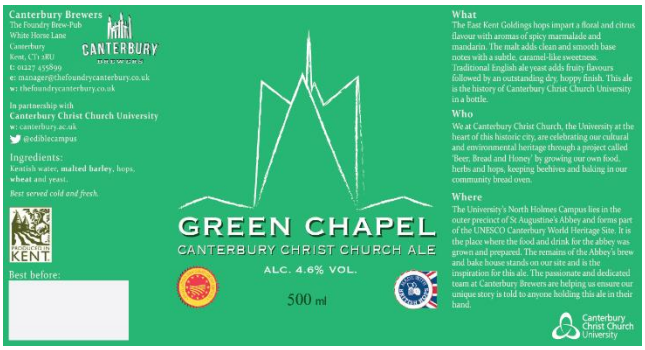
Beer Studies

Hops grow wild on the North Holmes Road campus! But to take advantage of the unique location of the site within East Kent Goldings Protected Designation of Origin (PDO) Region, a small hop garden has been planted with Wye Challenger, East Kent Goldings and Fuggles hops, at the top of the "Tangled Bank" wild flower bank. Hence forth known as the "Tangled bank hop garden", the garden produced a good quantity of hops in September 2015, which was used to make the first batch of green hop ale in collaboration with the Canterbury Brewers (Foundry brew-pub).

During 2015/16 academic year, 3rd year students from the School of Human and Life Sciences have been undertaking research projects to isolate yeast strains from the site, which can be used in future brews and for baking bread in the team's own wood fired ovens (see Appendix 1 for more information).

During the summer of 2015, two students from the Media and Communications programme undertook their 3rd year work experience module with the Sustainability Department. They developed the beer bottle label, undertook stakeholder research, developed links with the Canterbury Brewers and the St Georges Bar, and developed marketing and publicity materials. On-going links with this programme will ensure continued curriculum opportunities and that student-led brand refresh occurs on a regular basis.

Final approved label for "Green Chapel"



Bread and community

During the spring of 2016 a small wood fired bread oven was constructed on a hand drawn trolley that can be moved around the North Holmes Campus. This provides the focus for bread making workshops and activities for the staff and student communities. The hope is that these events will become a regular occurrence and will be integrated into *Edible Campus* activities and curriculum links. Part of the future plan is to use an unused section of the Stodmarsh playing fields for growing specialist varieties of wheat or other cereals. This would bring the potential for small scale milling and malting activities for the generation of raw material for both bread and beer.

Bees and Honey

Whilst bees have been kept at the Priory (CCCU campus) in recent years, during the spring a new hive was procured and installed in the Johnson Garden (CCCU campus). Already productive, there are plans to extract and see honey from the hive within CCCU outlets or used as gifts for visitors to the University.

There is also a plan to use work experience students to develop a similar label to that of the beer with marketing and background information. Further curriculum and research links are expected to develop with the Faculty of Health and Wellbeing in connection with the use of honey in the treatment of open wounds.

Developing a Business Case

Considering the present climate within which CCCU operates, the senior management team (SMT) is keen to identify important areas/projects where they need to commit additional resources over the next three years. This is an opportunity for Dr Rands and his team to make a case for additional funding, especially considering the feedback following the 2016 FI Report (see Appendix 1). There is also an awareness that the *Bioversity, EC and BBH* projects require on-going investment in staff time and financial resources. For the work of the sustainability team to continue, the university will need to continue to invest a minimum of £250,000 per annum. Dr Rands and his team know fully-well that a traditional model that quantitatively measures performance is not appropriate in these circumstances because there is no clear financial benefit that can be established for these initiatives. Hence, there is need to capture what they have done in order to demonstrate to the SMT that further investment in the FI will be well worth the money, so they decided to use the Capitals models.

The Capitals Model

Developed in the 1990's by the Forum for the Future, this model seeks to describe the nature of any organisation (stocks) using a series of capitals, as well as articulating the flows of capitals in order to create value (output or outcome). Originally conceived with 5 capitals, various incarnations have been used for a variety of purposes. In 2013, the International Integrated Reporting Council introduced an integrated sustainability reporting framework using a 6 Capitals model. This model is a simple extension of the 5 capitals model with the addition of intellectual capital, and is one that is easily applicable to an educational establishment. The table below summarises the model.

CAPITAL	DESCRIPTION
1. FINANCIAL	The pool of funds that is available to the University to build and maintain the organisational infrastructure. E.g. student fees, research grants, NHS contracts.
2. MANUFACTURED	The built, purchased or created physical objects that are available to the University for use in the provision of its services. E.g. Buildings, equipment, IT infrastructure.
3. INTELLECTUAL	Organisational, knowledge-based intangibles, such as knowledge, systems, procedures. E.g. Quality management processes, financial procedures, student support systems
4. HUMAN	People's competencies, capabilities and experience along with their motivations to innovate for the benefit of the organisation.

5. SOCIAL & RELATIONSHIP	Relationships between and within communities, stakeholders and networks. Shared norms, culture and common values and behaviours. E.g. staff with students, local community groups, City Council, NHS Trusts, partnership schools.
6. NATURAL	Renewable and non-renewable environmental resources that provide prosperity for the past, current and future prosperity of the University. E.g. air, water, gas, plants, biodiversity, eco-system health.

Dr Rands' presentation

Excerpt from Dr Rands' presentation earlier in 2017 where some of the SMT members were present is given below:

Implementing the Capitals Model

In order to demonstrate how the six capitals model can be used to understand value creation, formalise a decision making process for sustainability strategies and actions, and therefore build a holistic business case, a simple example is presented below. For simplicity this looks at a single element of the BBH project; but it can be seen that many of the elements would be common for similar projects, and no less important in relation to the creation of value.

Before this, it is important to understand the concept of stocks and flows:

- Stocks are the existing state of all 6 capitals within the University system
- Flows are the movements and operations of capital stocks, which result in an increase in specific internal or external capital stocks

For example, when financial capital is used to pay for staff development it results in an enhancement of the stock of human capital. This, in turn, should result in increase in the quality of service that the individual provides internally (e.g. better quality management processes) or externally (e.g. better student experience).

Existing value vs Value created

CAPITAL	EXISTING VALUE: STOCKS OF CAPITALS	VALUE CREATED: STOCK ENHANCEMENTS THROUGH FLOW OF CAPITALS
FINANCIAL	• Purchase of Hop bines – Year 1: £67 & Year 2: £120 • Purchase of horticultural materials £100 • *Futures Initiative* funds for curriculum developments • Staff effort (real) £500 and donated student & staff effort (free)* • Brewing and bottling costs £4,000 for 2,700 bottles • Marketing materials	• Sales of beer at £2 profit per bottle (£5,400)
MANUFACTURED	• Buildings and existing equipment	• Creation of distinctive product
INTELLECTUAL	• Futures Initiative • Departmental structures (Sustainability Team,	• Building creative capacity through links to formal curriculum

	Grounds & Gardens, Facilities, Schools*	• Developing an integrated and holistic business case • Enhancing direct links to University mission and values • Developing distinctive brand linked to 'Sense of place'
HUMAN	• Staff expertise (scientific, module or programme integration)* • Student expertise (programme related expertise)* • External expertise (hops, brewing, scientific)	• Enhanced student experience • Increased understanding of curriculum related sustainability • Enhanced skills and experience for staff • Development of informal curriculum linked to Bioversity
SOCIAL & RELATIONSHIP	• Existing staff and student networks (student societies, staff research groups, Student Green Office)	• Building partnerships with external partners • Enhancing reputation through marketing and demonstration • Connecting communities to biodiversity, heritage and food • Linking everyday experience to local economy and heritage • Building connections with internal stakeholders through food • Providing opportunities for student enterprise
NATURAL	• Ground space to grow hops • Water, hops, sunlight	• Development of hop gardens, which increase biodiversity • Influencing estate development through demonstrating value

*See Additional Information Section for the opportunity costs of these inputs.

Risks

As can be seen from the above analysis above, only small amounts of financial investment are required for materials and brewing. Much of this is recouped directly through the sales of beer. Further investment is provided by professional and academic staff, along with volunteer activity from staff and students.

Key to on-going input of this human and social capital is the realisation of benefit to the University through external publicity, benefit to direct and indirect links to the formal and informal curriculum. The highest risks in the short term come from the dependence on a single person within the sustainability team, whose energy, commitment and creativity drive these projects forward.

Conclusion

Bioversity and consequential Edible Campus and BBH projects demonstrate clear links to heritage, enhancing biodiversity, and providing real participatory activities for staff and students for sustainability. There are clear and integrated links to all 4 themes of the Framework for Sustainability and the cross-cutting theme. Financial investment is small and some financial return will be generated, which may cover direct costs year on year. However, by using the 6 Capitals model the creation of value can be shown to be much more widely distributed. Whilst there may be ways to allocate monetary value to all capital elements, this may be unnecessary where there are clear explicit and implicit links to University Strategic Framework.

Additional Information

Although, the BBH project was not set up to make profit, further analysis reveals the opportunity costs of the project that were not included in the Capitals Model presented above but may be useful for future decision making.

- The project took one day per week of Alex Metcalfe's (Project Leader) time. This is worth **£3,110**
- Grounds and Gardens - **£265** (An equivalent of 5 days per annum)
- 500 hours of five students who worked on the marketing materials = £10** x 500 hours = **£5,000**
- 500 hours of 5 students who worked on the yeast isolation = £10** x 500 hours = **£5,000**
- Other voluntary inputs include 6 hours from the chaplaincy team worth **£86**, and 48 hours (8 students) worth **£480** (£10** x 8 x 6), for harvesting the hops.
- Yeast isolation and its potential use for the beer was led by an academic staff – an equivalent of a 5 days' work = **£588**

Total opportunity cost = £3,110 + £265 + £5,000 + £5,000 + £86 + £480 + £588 = **£14,529**

** Calculation of the opportunity per hour for students' contributions to the project is based on the following assumptions:

Annual Tuition fees for 2015/16 academic year = £9,000

Students engagement with the university = 30 weeks/academic year, 5 days/week, and 6 hours/day

Therefore, opportunity cost per hour = £9,000**/**30x5x6 = **£10**

Required

1. In light of the presentation by the university Director of Sustainability, **discuss if the SMT should approve their continued support of the work of the sustainability team by investing a minimum of £250,000 per annum for the next three year.**
   Highlight three key things you would argue the sustainability team has done to have the support of the SMT.

2. It is often difficult to quantify all the important elements of a decision.
   Discuss the importance of qualitative factors in deciding whether the SMT should provide additional funding based on the request of the Director of Sustainability.

3. Since the introduction of higher student fees in 2010, one of the main concerns for many universities is how they might deliver value for money to their main stakeholders (students).
   Discuss how the BBH project is helping to deliver value for money for CCCU students.

Appendix

1. 2016 FI Report - Five years of the Futures Initiative (2011-16)

2. Some specific risks to this and other similar projects are identified below:

	Risk	**Likeli-hood**	**Impact**	**Risk***
1	Changes to University Strategy, Mission and Values in the medium term	1	3	3
2	Loss of key coordinating staff within Sustainability team	3	3	9
3	Adverse publicity relating to the brewing and sale of alcohol	2	2	4
4	Change to intent of University Master Plan	2	4	8
5	Changes to key operational staff within Estates and Facilities	2	3	6
6	Perceived negative impact related to the 'appearance' of the site through lack of understanding about biodiversity	2	3	6
7	Loss of key growing space and pocket habitats that support the *Bioversity* narrative and related projects. E.g. Johnson garden, Tennis courts	3	3	9
8	Incident or personal injury related to Beekeeping, Hop harvesting, bread baking, etc	2	2	4
9	Loss of interest by academic staff for curriculum related activities, and loss of staff / student voluntary participation	2	3	6
10	Maintaining interest through lack of on-going innovation and development	2	3	6

***** *Risk score uses the 5 point scale for likelihood and impact; 5 being highest and 1 lowest in both cases, which are multiplied together to give the risk score.*