



Caledonian Carbon : **An Environmental Measurement System?** by Joanne Green

Scotland's Universities of St. Andrews, Strathclyde, and Stirling shall be able to continue fulfilling their environmental strategies with thanks to recent government funding awards. This article discusses ways in which universities can provide sustainable environmental messages, using different learning styles and which may assist international bodies such as Intergovernmental Panel on Climate Change in their analysis.

European Commission Best Practice awards cities having, 'a well-established record of

achieving high environmental objectives'. The Scottish Government funded a £20m award by the Scottish Further and Higher Education Funding Council (SFC) to the three universities. SFC is an accountable arm's length Non-Departmental Public Body allocating funds per academic year using annual Single Outcome Agreements (SOA). SOA is different from Service Level Agreements (SLA) whereby Park & Kerley (2011) inform SOA is a, 'mechanism to deliver key national and local priorities based on a new relationship between central and local government' utilising partnerships implemented in, 'community planning'. They suggest further partnership working research to aspects of SOA is needed. I ask do Environmental Management Systems (EMS) have the ability to capture and deliver that research. And can that research release organisational finance to sustain installation costs noted by RES Legal (2012), maintenance (with WEEE), whole life (life cycle analysis) with a view to meeting customer service satisfaction (students / employees). Comparatively SLA which can be used to measure outsourced partnership working focusses upon management of contract governance rather than national priorities finds the empirical research by Goo et al. (2009) in their IT outsourcing research.

The Scottish money awarded for different projects is £10m for St. Andrews wood-fuelled biomass, £2m for Stirling for Combined Heat and Power and for Strathclyde except theirs incorporates district energy and award is £8m. International Directives accept renewable energy must derive from different technologies. The Impact Assessment also discusses related topics which too rely upon land management such as transport and agriculture and objectives aim to address security using diversity and choice (Eur Lex, 2012). Being non-reliant upon single fuel-sources the Scottish award is reflected in the different projects. A commonality is campus energy creation using partnership working with a view to strategic decarbonisation by the government delivered at campus level. Another commonality is campus activity which contains 57% of the categories of analysis by activity of EU-27 greenhouse gas emissions categorised by Eurostat. These are located in four of the top five, 'emissions by economic activity and by pollutant' of the EU-27. When reviewing the statistics some bodies include geothermal with combined heat and power (DECC) and some do not (Eurostat) consequently it can be difficult to assess popularity of those fuel types, the organisations they are based at and which models are used qualitatively and quantifiably.

Phillis et al. (2011) informs there is a number of different Models, tools and viewpoints quantifying and qualitatively measuring the sustainable outputs of organisations. They note these different models create complications when calculating those results globally and then

ranking. There are different reasons for ranking and comparing rankings such as academic peer review of research papers quality as suggested by Migners et al. (2009) whereas Phillis notes sustainability is important to organisations. In university context one such ranking system is People & Planet (Case Study) whose indicator areas are almost identical to the indicator areas of the European Commission. The case study in 2013 sub-league ranked St. Andrews, Strathclyde, and Stirling 4th, 7th and 9th in their league table awarding Andrews a 2:2 and 3rds for Strathclyde and Stirling. Behind the clever marketing technique is greenhouse gas emission reduction aiming to reduce negative environmental footprints.

According to Kotler (2002) marketing has three stages moreover the scope of marketing contain ten entities ranging from, 'Services' to 'Ideas'. Services involve the internal and external customer chain whereas ideas is a communication springboard for services aligned with fundamental organisational drivers. Coincidentally those ten entities are found in EMS, some disguised others obvious. This suggests marketing is a key component of EMS and one existing in different stages and with inter-relating entities. Tables of case study illustrates those inter-related entities in league and table format and with different names awarded points. Whereas corresponding universities display the entities using case study names in their communications literature.

The case study awards points in two priority categories: policy and performance, which are each broken down into sub-groups with a total 70 points available. Note similarity here with SOA and SLA except this contract is voluntary whereas in other organisations SOA / SLA is contracted. After populating the case study league table with Scottish universities their rankings fall to 81st, 113th and 127th. So let's discuss how and where those scores can be improved yet provide the Service-Quality Model Kotler shows (page 206) and concurrently incorporating lean management for international agreement analysis. For universities lean management is important in mitigating negative significant impacts of the transient campus community. Behrouzi & Wong (2011) outline the importance of lean to academics and to practitioners. They suggest using approaches which measure lean performance may help to prevent that lean measurement from failing. They focus upon time-base which is imperative to EMS as they contain quality management performance tools such as SMART Targets, KPIs, and Scorecards. Both SOA and SLA contain SMART Targets, KPIs, and Scorecards thus illustrating different sectors have management commonality and shared vision outcomes such as environmental ideals. In context of decarbonisation, the UK is bound by international agreements and their

principles which war against climate change creating protection and shared value. And in a number of key areas for security of energy and water including quality, resource sustainability, habitats, and education of those key areas. In context of delivering and measuring consumption of those key areas at universities first let me provide illustrations of where Quick Wins (QW) are able to impact upon ratings in the case study.

(QW1) generally the higher the Full Time Equivalent (FTE) of staff delivering the environmental message the higher the score awarded by the case study. Therefore adopting a strategic approach to the points and organisational structure is paramount to receiving a greater number of points. A criticism of FTE is that it may be exclusive and elitist unless the environmental team is able reach the university community and encourage behaviour change. So where is this inclusion? And how can the hard to reach people be identified and then be encouraged to participate so as to be included in the points and resultant top place in the league table? This is where the other policies and performance of those policies are key to success.

Creating an environmental policy containing SMART Targets is a pathway to reducing a carbon footprint. The case study quite rightly wants more, it wants a fluid and unequivocal audit trail of those measurements from periphery to the inner core of the business. SOA and SLA uses a Business Plan as a springboard thus illustrating senior people do something positive with results. Jennings (2007) questioned the evidence-base of personal development plans (pdp) providing models. He found the aims of self-directed learning to be, 'honourable' and be perused using scientific basis. This infers by aligning the pdp of that senior person with the SOA / SLA self-directed learning can be evidenced. Suggesting pdp written into the Job Role of the people responsible for submitting those results may enable the Ethical Investment Company outlined in QW2 further down. Conversely if not written into a Job Role, what is the sanction against that senior person? By having this responsibility written into the Job Role provides evidence of the FTE staff and the resultant location of those results. For example, are those results submitted to the Association of Local Environmental Record Centres so they can be utilised to form the National Biodiversity Policy? And as such adding value to organisational environmental endeavours. It also may enable participants to learn Global Positioning Systems and to input those records electronically.

Moreover in context of the case study it may provide additional points as species records are verified (audited) by experts having Chartership status externally though only as one component of the EMS and its strategy. Eurostat notes protected biodiversity protected terrestrial land share and areas in UK 2010 were 11th place with UK, Denmark of a similar size is at 23rd place. In contrast Malta is joint 10th in share area yet is joint last with Cyprus and Luxembourg for protected terrestrial land area. Therefore do the funded project proffer the possibility of increasing UK protected terrestrial land areas when used for storage and operation? Also would there be a notable difference to habitats, biodiversity and birds in those locations compared with other university locations? More importantly, would species ratings findings differ from those in the UNRED List? Would the Great Crested Grebe or others' status change from least concern?

Kaplan & Norton (2006) describe how organisations unlock their potential using strategy-based approaches, and quality management models to manage their functions, processes and procedures. Illustrating coordination as mapping and matrices whereby organisations can strategically deliver values and coasion bargaining avoiding Arrow Impossibility in, 'strategic themes'. The aim of these is to support and nurture positive significant impacts yet mitigate threats and using measurement, 'structur[ing] the strategy' and recording sanctions. With effect changing the culture of the organisation, its living heritage known as an intangible heritage.

González (2008) scholarly associates Intangible heritage with tourism. I suggest there is a strong correlation with university communities and so include employees in Intangible heritage. University human communities are transient, be it for one year onwards for students and X-hours per day for employees sometimes having fixed Term temporary contracts and some having permanent contracts. Whereby there are social and cultural practices, traditions and performances which impact upon the sustainability of those organisations and whereby EMS attempts to influence resultant CO2 footprint. Incorporating and embedding the models and notions already described into the organisations mentioned in relation to the case study, service reviews need to be subsequent not business disruptive. This is essentially PESTLE Analysis of your matrix including a timetabled programme plan qualitatively and quantifying the framework where the EMS is embedded, the organisation's structure, its policies and processes.

University structure comprises of centralisation and decentralisation, similar to that of central and local government and so SOA / SLA may be a viable solution to providing sustainability to EMS aims and ambitions. Essentially creating a basic framework and by default including in a greater number of staff dedicated to delivering the environmental message- the FTE. However there are many different routes to take, some being ready-made tools which can be purchased and implemented by one person or a few people. So a key question then to ask is, what is the brief of the organisational objectives to wanting to establish an EMS? Deliver lasting behaviour change and including those hard-to-reach people or achieving reduced CO2 remotely and without lasting behaviour change? Or is it something else or even both?

Regardless of motive, (QW2) publish and evidence all of your environmental work as the case study assessors are a virtual community scrutinising you stealthily. If scrutineers are unable to identify real evidence (i.e. energy bills / footprint) from testimonial evidence (i.e. emissions / CO2e), collated (i.e. via Smart meters) and analysed corroboratively (i.e. on social media sites) or exclusionary (i.e. policies) a hypothesis will be created by your assessors as a rating. In summary by using the basic principles of Crime Scene Investigators control, preserve, record, recover and reconstruct along with publishing work done and achievements made the scrutineers will be able to assess work done with a greater degree of accuracy rather than 'estimating your achievements' just as your customers may do.

So be strategic and incorporate the findings of Kotler by publishing endeavours upon social media platform sites conveying your achievements, aims, and ambitions to your current and potential customers: investors, students, employees and contractors. These sites are diverse having different audiences and perhaps containing hard-to-reach communities and investors. Kietzmann et al. (2011) note there is seven functional building blocks which can be utilised for learning, engaging and increasing business. Essentially delivering and recreating the manifestation of an organisation structurally and cooperatively with a view to achieving aims and ambitions. In essence providing value-for-money to your current ambitions. Also why stop there? Embrace Kotler's findings be Corporate Socially Responsible and utilise Ethical Investment, gaining additional points by investing in enterprises creating jobs for people who will publish your efforts and achievements by uploading them onto different social media and using different formats. Consequently appealing to different learning styles, cultures and traditions and

by default conveying your environmental message to people who are not your students.

This First Tuesday article has discussed Scottish universities' renewable energy funding. And outlined ways in which environmental messages can be conveyed to appeal to different learning styles. With benefit being value for money by being available for analysis, projection, and forecast.

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