Decision-Support Tool: HalSTAR

http://www.halcrow.com/Areas-of-expertise/Sustainable-development/HalSTAR-Halcrow-Sustainability-Toolkit-And-Rating-system/

Summary

HalSTAR enables project decision-making based on key sustainability issues and stakeholder priorities. These are identified and used to develop relevant criteria with which to evaluate proposals and determine appropriate improvements. Graphical outputs convey key issues and impacts in a simple diagrammatic format, providing a clear and auditable demonstration of holistic sustainable thinking over the full project cycle. This results in a context-specific sustainable solution that reduces risks and highlights opportunities for innovation, efficiency and added value.

Developer: Halstar was developed by Halcrow who were acquired by CH2M HILL in 2011. Halcrow is now known as CH2M HILL.

Applicable sectors				Function			
All Infrastructure	Water	Energy	Organisations	Design Guide	Option Appraisal	Construction Guide	Op&M Guide

Countries	Worldwide
Deployment & developments	HalSTAR has now been used across transport, energy, water and urban planning sectors at many different stages of the project lifecycle including concept, preliminary and detailed design stages. Due to its relatively recent development, it has yet to be used through construction and operational phases but 2013/14 will see the application of HalSTAR to existing projects as they progress into these stages. HalSTAR 'Lite' has now been developed to give quick, initial indications of the sustainability performance of projects at various stages, and HalSTAR Systems has been developed to give an in-depth analysis of the interactions of issues through the use of causal loop diagramming and system dynamics models.
Guidelines for sustainable design	The use of HalSTAR framework and process is driven by a software package which accompanies the assessment with information including best-practice guidance, recommended strategies for improvement and case studies with lessons learned.
Use with other tools	HalSTAR development was based on a review of the sustainability themes of 450 other existing DS and R&C tools and guidelines. It is therefore broader in scope than most and can thus be tailored to clients desiring compliance with rating tools such as BREEAM and CEEQUAL or assessments such as sustainability appraisal, environmental impact assessment, corporate responsibility etc.
Level of support services	HalSTAR can be embedded as part of the service that Halcrow provides to clients and their projects in different sectors but also as a stand-alone tool. The software-based tool is used to create a bespoke sustainability assessment according to the project's requirements.

Process summary	HalSTAR employs an iterative five step process. During the *Scoping phase*, the HalSTAR Sustainability Wheel is consulted to identify which sustainability issues are of relevance to the project, taking into consideration client requirements, stakeholders needs, regulatory constraints and project-specific information. Once key issues are identified, quantitative and qualitative *Criteria* are selected to assess project performance against each issue. The *Assessment phase* is tailor-made and can be as simple as a checklist, using a traffic-light system to enable rapid appraisal, or can involve assigning of weightings and employment of multi-criteria analysis to aggregate performance. Results are reported to decision-makers and stakeholders, and follow-up actions are decided on, such as design development to mitigate negative impacts.
Design option appraisal functions	Once the sustainability issues and sub-issues relevant to the project are identified, indicators are selected to enable appraisal. Appraisal can take the form of a simple checklist, otherwise a participatory process is used to assign a value of performance of the project against each indicator, using a colour-coded traffic-light system. Additional colours are available for 'don't know' or 'not applicable'. Indicators are accompanied by information on compliance, good and best practice and evidence requirements to aid in the assessment. The results of the assessment are presented as detailed output diagrams with supporting tables of indicators. Simplified diagrams involving aggregation can be produced which incorporate context-specific weightings. Causal loop diagrams can aid understanding of the interactions between different issues.

Sustainability criteria	The HalSTAR Sustainability Wheel can be used for managing sustainability, risk, value and quality. It presents sustainability issues across three dimensions: the 5 capitals dimension (financial, social, natural, human, manufactured), spatial dimension (global, regional, local, client) and the temporal dimension (short-term, medium-term, long-term). These issues are divided into 900 sub-issues. Simplified versions of the wheel are used at the initial stages of the Scoping phase, followed by a more detailed wheel incorporating all three dimensions. Teams choose from a database of 5000 qualitative and 2500 quantitative indicators to assess project performance for each issue.	**Level of materiality (tailoring)**	The first round of tailoring of the HalSTAR assessment takes place during the scoping phase. A simplified and then a more detailed holistic sustainability wheel is used to identify which issues and sub-issues are of relevance to the project given client and stakeholder needs, the focus of the assessment and regulatory requirements. If desirable, weightings are assigned to the issues from a scale of 1-10 according to priorities. A second tailoring takes place where quantitative and qualitative indicators for each of the identified issues and sub-issues are selected from a list of 5000 indicators, depending on requirements. Multi-criteria analysis is used to take into account both the impacts of decisions on stakeholders and the importance which they assign to those impacts (through weightings).
Fee	HalSTAR is sometimes embedded as part of the service that Halcrow provides to its key clients and their projects in different sectors, in which case there is no extra cost. However, it can also be an optional extra ranging in price from £500 for a 'Lite' assessment up to £50,000 for a full project life-cycle assessment including bespoke system dynamics modelling.		

Case study

Project: Southampton Station Quarter North: Public Realm Improvement
Client: Balfour Beattie Living Places

Brief Description:
CH2M HILL are working for Balfour Beattie Living Partnerships to improve the public realm of the north of Southampton Central Station. The ultimate client, Southampton City Council, are aiming to provide a high class, consistent urban realm environment that stretches from the central station to the cultural quarter of the city centre to meet a diverse range of stakeholder aspirations. HalSTAR is being used to: manage a wide range of sustainability issues on the project; ensure that all relevant planning policy requirements have been integrated into the design; incorporate best practice and innovative solutions; and demonstrate that stakeholder concerns have been identified and addressed.