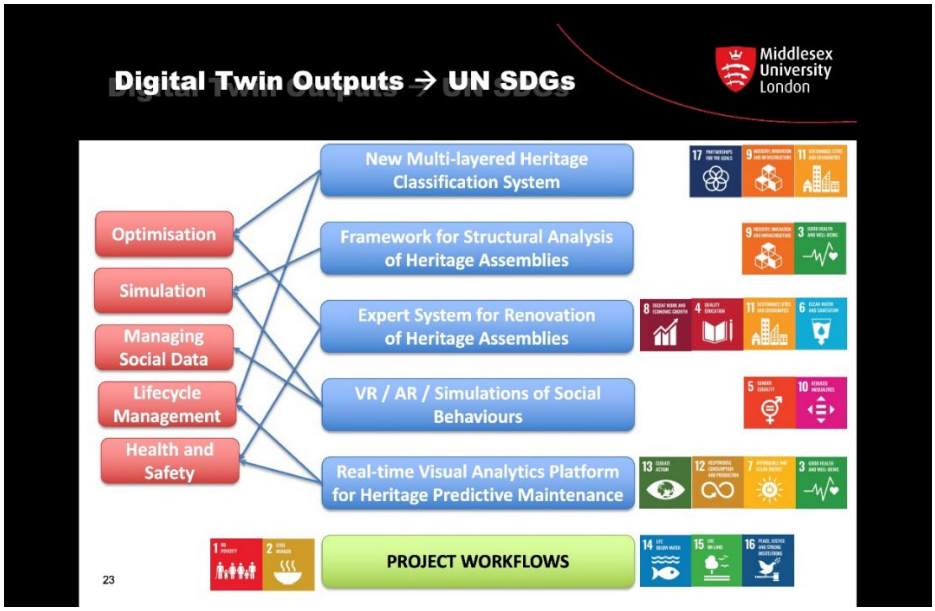
SDG Accord Case Study

The SDG Accord

The University and College Sector's Collective Response to the Global Goals



SDG Accord Case Study

Integration of SDGs in

☐ Institutional governance/strategic level
☒ SDGs in research
☐ SDGs in campus operations
☒ SDGs in curriculum development
☒ SDGs in student engagement activities
☐ SDGs into community activities
☐ SDGs at a whole-institution level

Focus on

☒ Goal 1 - No poverty
☒ Goal 2 - Zero hunger
☒ Goal 3 - Good health and wellbeing
☒ Goal 4 - Quality education
☒ Goal 5 - Gender equality
☒ Goal 6 - Clean water and sanitation
☒ Goal 7 - Affordable and clean energy
☒ Goal 8 - Decent work and economic growth
☒ Goal 9 - Industry, innovation and infrastructure
☒ Goal 10 - Reduced inequalities
☒ Goal 11 - Sustainable cities and communities
☒ Goal 12 - Responsible consumption and production
☒ Goal 13 - Climate action
☒ Goal 14 - Life below water
☒ Goal 15 - Life on land
☒ Goal 16 - Peace, justice and strong institutions
☒ Goal 17 - Partnerships for the goals

Summary:

Funded project – Institutional links with the British Council UK, and the STDF Egypt. Dr Noha Saleeb was Principal Investigator on the project, which built a Digital Twin system of Toson Palace in Cairo to underpin the renovation of the building and enhance sustainability of operations, with the overall aim of enhancing tourism at the site and creating a model for other touristic sites in Egypt, as well as listed buildings globally. Once the project began, the researchers aimed to align the 5 main outputs of the research with all UN 17 SDGs: Heritage Classification System (SDGs 9,11,17), Structural Analysis Framework (SDGs 3,9), Renovation Expert System (SDGs 4,6,8,11) , Social Behaviour Simulations (SDGs 5,10), Visual Analytics Platform (SDGs 3,7,12,13) and aligning some project workflows with the SDGs 1,2,14,15,16 as the work was taking place. For example SDG 14 considered through protection methods for wildlife like bats and snakes on site instead of elimination; SDG 15 through improving drainage systems for reduced pollution in waterflows to the nearby natural waterways to protect under-water life; SDG 1 providing local jobs through the project, and SDG 2 using digital twins of fruit and vegetable farms on the estate to improve produce. Noha Saleeb teaches the MSc BIM Management programme, and used the project

as a case study of how all 17 SDGs could be embedded on a practical digital twin construction project. Students became co-creators in thinking about how the project can align with the 17 SDGs and exploring the challenges involved in setting up the digital twin model to align with the SDGs, as opposed to a digital twin without an environmental sustainability perspective. Students discussed their critical analysis of aligning a digital twin project with the SDGs in their graded research journals as part of the summative deliverables of the course.

3 key benefits of integrating this theme:

1. The project has led to further partnerships for the UN SDGs goals through its innovative approach to embed the SDGs in a holistic way which can be utilised for other heritage and listed sites. For example, the new Heritage classification system developed within the project has since been used by experts during the renovation works on Westminster Palace, London.

2. The Toson Palace is a listed building under the Egypt ministry of Antiquities. The benefit of embedding the SDGs in the research process was that it opened up a conversation with the Ministry of Antiquities about the importance and potential gains to be made by taking a holistic, SDG considered approach and how they could align with the SDGs in their management of thousands of heritage assets.

3. For the students, this approach provided a practical example and showed how SDGs can be applied to live projects in industry where there are currently huge issues with waste, carbon emissions and material consumption, and there is demand for energy efficiency and sustainable, smart cities, and health and wellbeing inside the assets. Students on this course are practising professionals in the construction industry, so integrating a live research project in their curriculum was an opportunity to consider challenges as they arose and come up with innovative sustainable methods in response to these.

Barriers or challenges encountered in integrating this theme and how you overcame these:

1. It was felt that on all 17 of the goals, the construction industry contributes negatively to each of them in some way, so it was important to consider the Goals in an interconnected way and address all those concerns rather than only focus on those which are the usual concerns for the construction industry (3, 6, 7, 9, 11, 12, 13). Some of the SDGs were more challenging to incorporate in the projects in a meaningful way, especially 1, 2, 14, 15 and 16.

2. It was a challenge to incorporate the learning from these case studies into the programme structure and assessment which can be rigid. It was a thought process rather than something they could produce outputs and deliverables for. Therefore, it was felt, as an analysis exercise, it would be best to reflect on these in an academic discussion journal, with reference to wider literature and the class discussions.

3. It was difficult to gain public body permissions to share information from the project with students in order for it to become a learning exercise for them. As the building is listed and we were working with government bodies, there were a number of privacy issues to

consider. To overcome this required added administrative effort and procedures to be mindful of. This resulted in time loss but was overcome.

Conclusions and recommendations to others :

The project has been a great success in terms of developing outputs which can be used as a knowledge-base for further heritage restoration projects to embed holistic sustainable thinking and use the SDGs as a framework for planning and action. That we have been able to use this as a live working example for MSc Students to feed into. has helped us demonstrate our strategic aim to put 'knowledge into action' to address global challenges in a practical way for students. Both the research project and student analysis exercises allowed for practical experiences and thinking about sustainability issues, and aligning with all the UN SDGs as they arise on a project. This is valuable for students as it gives them examples to refer to in professional scenarios in the construction industry going forward. The innovative outputs of the project (Heritage classification system, renovation expert system, etc) demonstrate how all 17 goals can be considered on restoration projects and in building digital twin models in a systematic way, rather than only those normally considered to be important for construction projects. This is a valuable transferable knowledge-base already being utilised by experts, for example for restoration work on Westminster Palace in London.