



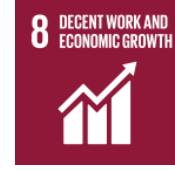
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Critiquing a Sustainability Research Benchmarking Tool



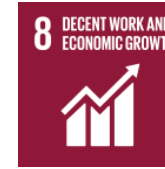


Interactive Qualifying Project

"The Interactive Qualifying Project (IQP) is one of the most distinctive elements of [the WPI Plan](#) and WPI's signature project-based curriculum, giving every WPI student the experience of working in interdisciplinary teams to solve a problem or need that lies at the intersection of science and society. " (WPI Source)

- Sylvester Halama, Aerospace Engineering
- James Macfarlane, Civil Engineering
- Virginia Nunez Mir, Biochemistry and Bioinformatics

Worcester Polytechnic Institute (WPI)

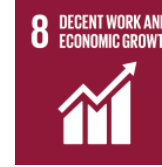


- Located in Worcester, Massachusetts
 - 40 miles west of Boston
- Student population about 5,000
- Staff population about 500
- Emphasis on project-based learning



WPI





- Located in Kingston upon Thames, near London
- Gained university status in 1992
- Student population about 20,000
- Staff population about 2,000
 - 465 staff members were identified as research active

Kingston
University
London





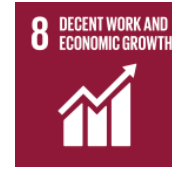
- Founded in 1947 as a training school for teachers/educators
- Gained full university status in 2005
- Student population about 10,000
- Staff population about 1,200



University
of Worcester



Kingston's Methodology



"Benchmarking Sustainability Research: A Methodology for Reviewing Sustainable Development Research in Universities"

Dr Victoria Hands &
Dr Richard Anderson

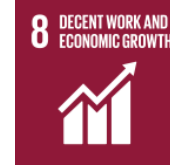
Kingston University (2017)

Kingston's Methodology



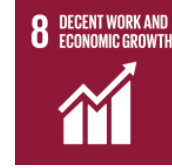
- The Association of University Leaders for a Sustainable Future (AULSF, 2009) issued a '*Sustainability Assessment Questionnaire*' to signatories of *The Taillores Declaration* including 5 questions on sustainability research.
- Proposal of 13 indicators for measuring sustainability in research by Lozano, 2006)

Kingston's Methodology



- Previous benchmarking tools covered all aspects of sustainable development
 - Example: AULSF
- Kingston's benchmarking tool is first methodology to focus exclusively on sustainable development research

Kingston's Methodology



- Benchmarking tool is intended to start a process, it is not the end goal
- Identify and bring researchers together, encourage cross-disciplinary collaboration
- Benchmarking process does not include interviews

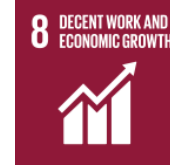
Kingston's Methodology



Analysis based on External Viability Factors

1. Research Impact
2. Knowledge Transfer
3. Sustainability Content

Kingston's Methodology

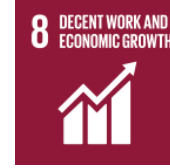


Research Impact

Defined as research that has “an effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia” (HEFCE 2014b).

Source: Hands, V., & Anderson, R. (2017). Benchmarking sustainability research: A methodology for reviewing sustainable development research in universities.

Kingston's Methodology

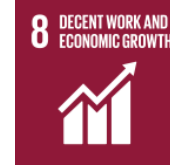


Knowledge Transfer

"Knowledge Transfer encompassed a very broad range of activities to support mutually beneficial collaborations between universities, businesses and the public sector, often linking to the Enterprise agenda."

Source: Hands, V., & Anderson, R. (2017). Benchmarking sustainability research: A methodology for reviewing sustainable development research in universities.

Kingston's Methodology

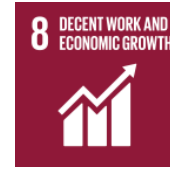


Sustainability Content

"The Sustainability Content was defined via the identification of key words from the latest internationally agreed agenda (Table 3) and the Kingston University Sustainability Policy (Table 4), summarised as: Economic; Social; Environmental; Global and Future Equity."

Source: Hands, V., & Anderson, R. (2017). Benchmarking sustainability research: A methodology for reviewing sustainable development research in universities.

Kingston's Methodology



Sustainability Content Keywords

Goal 1 – Poverty
Goal 2 – Food
Goal 3 – Health
Goal 4 – Education
Goal 5 – Women
Goal 6 – Water
Goal 7 – Energy
Goal 8 – Economy
Goal 9 – Infrastructure

Goal 10 – Inequality
Goal 11 – Habitation
Goal 12 – Consumption
Goal 13 – Climate
Goal 14 – Marine-ecosystems
Goal 15 – Ecosystems
Goal 16 – Institutions
Goal 17 – Sustainability

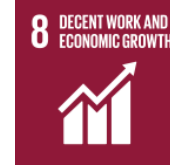
Kingston's Methodology



Full list of sustainability keywords:

Access to justice	Environment	Inclusive education	Productive employment
Accountable institutions	Environmental	Inclusive human settlements	Reduce inequality
Affordable energy	Equitable education	Inclusive institutions	Reliable energy
All ages	Equity	Inclusive societies	Resilient infrastructure
Biodiversity	Ethical	Industrialization	Resources
Cities	Ethics	Inequality	Sanitation
Climate change	Food security	Infrastructure	Social
Community	Foster innovation	Innovation	Sustainability
Conserve oceans	Future	Justice	Sustainable agriculture
Consumption	Gender equality	Land	Sustainable consumption
Decent work	Girls	Land degradation	Sustainable development
Desertification	Global	Long-term impact	Sustainable economic growth
Economic	Global Partnership for Sustainable	Manage forests	Sustainable energy
Economic growth	Development	Marine	Sustainable growth
Ecosystems	Healthy lives	Nutrition	Sustainable industrialization
Elderly	Human settlements	Oceans	Sustainable oceans
Employment	Hunger	Opportunities for all	Terrestrial ecosystems
Empower women	Inclusive cities	Peaceful societies	Water
Energy		Poverty	Well-being
		Production patterns	Women
			Work

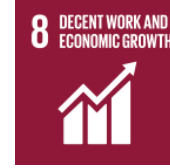
Kingston's Methodology



Limitations of the methodology

- Availability and accuracy of online publicly available staff profiles
- Scores are based on the interpretation of user

Our project



Stage 1: Compilation of staff profiles potentially linked to sustainability research

- Both: Use the same list of sustainability content keywords

Our project



Stage 1: Compilation of staff profiles potentially linked to sustainability research

- Kingston Methodology: Used a dedicated page to find research staff by their research interests

Research interests directory

Here you can search for research staff at the University. You can search on the basis of keywords (eg cancer, sustainability, older people) or by staff name. You can also browse the directory.

Search by research subject or staff member

Enter a subject or name:

Our project

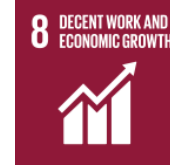


Analysis of sustainability keywords

- Some keywords returned no results
- Some keywords returned many results

Access to Justice	Climate change	Social
0 results	10 results	210 results

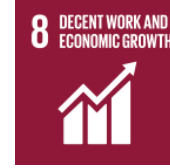
Our project



Stage 2: Analysis of the profiles compiled in stage 1, to determine what research is being performed and whether it is related to sustainability

- Both: Combine elements of content analysis & thematic analysis

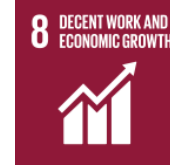
Our project



Stage 2: Analysis of the profiles compiled in stage 1, to determine what research is being performed and whether it is related to sustainability

- Kingston Methodology: Assign scores based on user's interpretation on how related the profile is to the three external viability factors

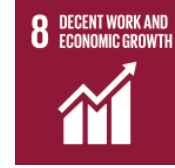
Our project



Stage 2: Analysis of the profiles compiled in stage 1, to determine what research is being performed and whether it is related to sustainability

- Our project: Assign scores by comparing context in which keywords are being used to predefined definitions
 - Reduces subjectivity from user's interpretation by standardization

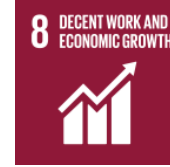
Our project



Developing the list of definitions

- Analysed 575 staff profiles that matched to at least one keyword
- Assessed the context in which the keywords were used within the staff profiles
- Assigned a score to each context based on how much it related to the three external viability factors
- Compare results for each keyword from all profiles to develop tree of definitions

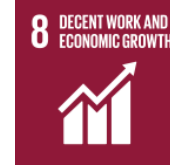
Sample Run



	High Profile SDR	Potential SDR	Links to SDR	N/A
Staff Profile 1	x			
Staff Profile 2		x		
Staff Profile 3			x	
Staff Profile 4			x	
Staff Profile 5		x		

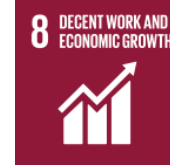
Ratings provided by Dr. Richard Anderson, one of the Kingston methodology authors.

Future improvements



- Potential for "snowballing"
 - Online faculty database was not complete in all faculty
- Analysis of keywords
 - Keywords can be too vague and bring too many results

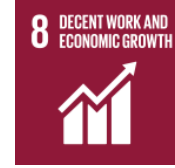
Get Involved



See how our process was performed

You will be given a handout with mock profiles developed as examples. These profiles will have sustainability keywords marked. How would you rank the level of sustainable development research in the profiles?

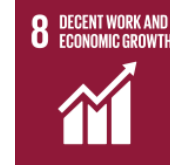
Survey



Please help us continue by completing a quick survey!

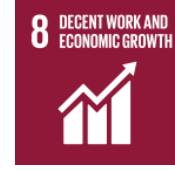
1. Would you consider your staff profile to be up to date?
2. If not, when was the last time you edited it?
3. Are you required to update your profile by your university?

Comments? Questions?



We would love to hear your input and answer any questions.

Acknowledgments



We would like to thank:

- Dr Victoria Hands, Kingston University
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- Dr Robert Krueger, Worcester Polytechnic Institute