ThinkBox

The quest for achieving United Nations sustainability development goals (SDGs)

Infrastructure and innovation for responsible production and consumption

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1. Introduction

Since the sustainability development goals (SDGs) were unveiled in 2015 (United Nations, 2015), there has been an enhanced drive for individuals, organisations and governments to know how to best achieve them. This is illustrated in the analysis provided by Parker (2017) which shows a clear trend of increased number of publications (from 13 to 25 per cent) related to sustainability science since 2000. The importance of addressing the SDGs is very high, but *how can academics, practitioners, policy-makers and wider stakeholders help achieve them?*

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Academics with interest in sustainability are drawing upon knowledge from different disciplines to tackle some of the complexities of achieving SDGs. Research "hot" themes such as; sustainability, resilience, complexity, risk, development, etc., have come to the fore in many grand challenges and related research projects. However, such big projects have their own complexities in their execution as they span boundaries not only in terms of disciplines, but also in terms of countries, cultures, vested interests, etc. So it has been suggested that a system's thinking approach is needed (PRME, 2019) which provides a holistic view for the management of the complexity that the sustainability issues bring.

In the triple bottom line sense, the dimensions of sustainability are: economic, social and environmental dimensions; however, each these are sometimes in direct opposition to one another. Despite evidence that organisations should pursue both social and environmental targets to be truly sustainable (Wang and Sarkis, 2013), there is growing evidence that most of the time, organisations aim to survive financially and that is what takes priority. So *how do we bring together divergent views and provide an agreement for achieving SDGs?*

It has been argued that education is paramount (Parker, 2017) because of its direct impact on economic growth, innovation, responsible consumption and development of partnerships, which will then foster looking after life in our environment (land, water and energy), which will then lead to the achievement of all the other SDGs. In this vein, organisations such as Principles for Responsible Management Education (PRME, 2019) foster responsible management education, by forming the leaders of the future with a conscious preparation on environmental issues. So *is management education enough to achieve SDGs?*

Tools such as the SDGs Industry Matrix (United Nations Global Compact and KMPG, 2016) and the step-by-step guide on incorporating SDGs into the business' strategy (Anthesis group, 2019) can be useful for organisations to start conversations and mapping towards achieving their SDGs. For example, some opportunities for shared value can be identified, namely: sustainable products, sustainable production, low cost products and enterprise development. Also, some general tips for climate change profits (UN Global Opportunity Explorer, 2019, p. 37), such as: know your climate change facts and options, set targets and timescales, tackle barriers together, do not be late to the game and get the pricing right. *So can these tools, processes, etc., align to progressing SDGs that are in the language of the change makers?*

From the industrial perspective, we can see the challenge of how industry can relate to some but not all SDGs. For example, global organisations, such as McDonald's and Unilever, have identified the key SDGs and started mapping their initiatives towards achieving them within their supply chains and wider stakeholders. In the case of McDonald's (2019), their focus on SDG 2: zero hunger, SDG 8: Decent work and Economic growth, SDG 12: responsible production and consumption and SDG 13: Climate Action. They have set up yearly goals and present their annual progress on their website. In the case of Unilever (2019), it is proposed that 14 of the 17 SDGs are strongly linked to their initiatives. They have set ambitious targets, for example, to become not only carbon neutral but also carbon positive by 2030. However, this raises the question of: *whether the SDGs comprise a universal language to communicate with stakeholders, for example, policy-makers, suppliers, consumers, etc.?*

Some commentators (Euromed Management France, 2012) suggest that the 2030 deadline to achieve SDGs is too soon, given that most of the damage to the environment has been self-inflicted by the human race for centuries. So *how can the next decade of action help organisations achieve sufficient progress towards the SDGs?*

This paper is provided as follows. First, a comparison is given between the UK and Brazil, in terms of their contexts and feasibility of progress towards these SDGs. This is because of the combination of industrial maturity with relative natural resources scarcity (UK) versus industrial emergence with natural resources abundance (Brazil) highlight the importance of these two countries to achieve SDGs in the next decade. Second, it will provide a challenge around guiding industrial sectors towards sustainability. From an organisational strategy point of view, SDG 9: on infrastructure, industrialisation and innovation and SDG 12: on responsible consumption and production, appear as a starting point for the journey. Third, a future research agenda and a possible way to measure success is provided.

2. Country contexts: the UK vs Brazil

The polarised contexts of two chosen countries is presented next. First, the UK provides an example of post-industrialisation with relative scarcity of natural resources. Second, Brazil provides an example of an emerging economy with abundant natural resources and good industrialising capabilities. So *how can the SDGs be achieved by organisations operating in these two polarised contexts?*

On the one hand, the UK was the origin of the industrial revolution a couple of centuries ago (BEIS, 2016, p. 5), which has in part served its purpose for its economic prosperity, but it has also incurred in the depletion of some natural resources. As a developed country, one of the grand challenges in the UK industrial strategy is clean growth (BEIS, 2018), and as a result, some steps towards achieving its reduction in carbon emissions have been taken, that is, 43 per cent of 1990 levels in 2017. With a view of achieving 80 per cent reduction by 2050 (CCC, 2019), it faces some sustainability-related challenges, such as: low productivity in comparison to other developed economies and the gap between regions in terms of distribution of wealth (Roberts, 2018, pp. 20-21).

On the other hand, Brazil is a developing country, part of the so called "BRIC" countries (Brazil together with Russia, India and China), which has high potential for industrialisation and wealth in future. However, basic problems, such as (lack of) sanitation, safety and equal opportunities, are still present. So Brazil has identified the following SDGs: 1, 2, 3, 5, 9 and 14 as its priorities (Brazil Government, 2017). Brazil can be arguably regarded as the most bio-diverse country in the world, as its geographical territory holds most of the Amazon in our planet, so sustainability is to be embedded in any future plans for progress and development (OECD, 2018). So it is of interest to monitor its carbon emissions targets because of deforestation in the years to come.

3. SDG 9: build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation

The opportunities for shared value are listed by the United Nations Global Compact and KMPG (2016) and can be summarised as: the need to create sustainable industrial zones, find alternatives to traditional building materials, microfinance, government dialogue.

In the case of the UK, innovation is at the centre of its government actions and their future plans. It is difficult to find an area where innovation is not mentioned, from data analytics, to helping the ageing society; innovation appears many times in BEIS (2016). In fact, there is the perception that the UK is the world's most innovative economy. The UK government provides funding and helps organisations become innovative; many of the initiatives can be aligned to SDGs and sustainable industrialisation (Innovate UK, 2018).

In the case of Brazil, it is proposed that SDG 9 provides an opportunity to integrate economic growth with social inclusion (Brazil Government, 2017). In that report, it is stated that

there are some initiatives, such as the Investment Partnership Programme to foster collaboration between Public and Private sectors, to contribution towards generation of jobs and increase the contribution to the gross domestic product (GDP). As well as, the National Programme Start-up Industry connection can match industry needs with start-ups available. In this vein, another recommendation in the OECD (2018) report is that more focus on lending activities need to be carried out for start-ups and innovation projects. On the fostering innovation part, it is suggested that Brazil has been fostering the scientific and technological research capabilities in the past few decades. In this connection, the Geostatic Satellite for Defence and Strategic Communications was to be activated in 2017 to increase the traffic of communication and enhanced internet broadband provision (Brazil Government, 2017).

As we can see both the UK and Brazil face some opportunities and challenges ahead, progress is being made in relation to SDG 9.

4. SDG 12: responsible consumption and production

The opportunities for shared value are listed by the United Nations Global Compact and KMPG (2016) and can be summarised as: design and produce equipment which is easy to repair, refabricate, take circular economy principles on board, embrace innovative technologies, reduce, recycle and energy efficiency and lower energy consumption. The challenges around the circular economic and the need for collaboration serve to emphasise the need for a systems approach to develop the UK's established industrial base further.

One of the challenges that is recognised for industry is the complex nature of problems and opportunities and hence the need for collaboration. It is recognised that common, open-source toolboxes are needed to support change of practice. Such toolboxes need to span all business disciplines and be supported by a common language. If professionals working across the disciplines within a single company (from purchasing to engineering to finance) and across sectors can communicate easily, then practices for responsible consumption and production will develop and spread more readily (IET, 2017).

It is estimated that by 2050, the world will need around 60 per cent more food to cope with the increased demand from the projected population of 9bn (BEIS, 2016). So the drive for clean growth in production but also in consumption is paramount. In this connection, the UK is making efforts in the Circular Economy front by fostering investment in different initiatives, such as: "farm to fork", design for recycle and bio-economy strategy (BEIS, 2016). In relation to food: Brazil's global major exports (Brazil Government, 2017) include: soybean (10.4 per cent), iron ore (7.2 per cent), chicken and beef (5.6 per cent), petroleum oil (5.4 per cent), cars and planes (4.9 per cent), sugar (4.5 per cent), cellulose (3 per cent) and coffee beans (2.6 per cent). There is a report by DEFRA (2006) on the effects of how the consumption of soybean in the UK and how that appears to affect deforestation in Brazil. So this highlights the need to see the global connections of supply and demand in the world. More recently, the UK's 25 Year Environmental Plan specifically refers to SDG 12 where the UK's domestic consumption has an impact on other countries (DEFRA, 2018a).

Within the UK, there are significant initiatives (such as Made Smarter) as well as significant practitioner events and publications on digital manufacturing. There is the recognition that lean systems can be further enhanced through the deployment of digital innovations. Currently, the emphasis is on greater material and labour productivity; however, there is the opportunity to extend this specifically to resource efficiency as well as sustainable development more widely.

Furthermore, the alignment of legislation on climate legislation and the SDGs to be supported by benchmarking. This is especially important given the new Environment Bill will put environmental ambition and accountability at the very heart of government (DEFRA, 2018b).

Also, in the UK, the promotion the "future of mobility" transportation grand challenge will look at ways to achieve low carbon transport, which currently accounts for 40 per cent of total energy used. In particular, it is emphasised that the cost of clean technologies, systems and services should be reduced in all sectors. It is noted that Brazil is reported to have a relatively clean domestic supply of energy with 40 per cent energy coming from renewable resources (Brazil Government, 2017).

In relation to SDG 12, both the UK and Brazil have synergies that can be utilised for further improvement towards the achievement of their vision.

5. Future research agenda

Based on the research questions placed in the introduction, we would like to propose the following research agenda topics for the next decade. First, the need to consider the context in which the goals are going to be affected, that is, in a developed country where many things that are taken for granted: education, health, safety, etc. The application of the SDGs will have a different lens than if they were to be applied to a developing economy. Such consideration of context would recognise the potential challenges for a developed economy where there is significant legacy and, therefore, significant challenges in changing from industrial assets to education provision. Second, SDGs are prioritised in different ways according to their importance in the context and predominant sectors, for example: infrastructure and innovation take priority in developing countries, whereas responsible consumption and production take priority in developed countries. However, it would not be advised to ignore the level at which the other SDGs place a role too. Third, develop a common language that is understood by academics, practitioners and policy-makers which allows for the synergy of ideas to be meaningful and make progress more quickly. Fourth, increase our understanding how the consolidation of existing digital technologies and new technologies emerging could be exploited to improve the efficiency and effectiveness of our consumption and production systems. This would include both maximising the efficiency of our use of resources as well as maximising the sharing of our knowledge of tools and practices that deliver such resource efficiency. Finally, it is paramount to acknowledge and assess the connections between the different supply and demand patterns that affect one another in relation to a systemic approach to development.

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