'How should countries be developing the cities of the future?'

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Introduction

Development is a key discussion in the world today. Many entrepreneurs, developers and engineers come together many times a year looking for a way to develop a futuristic lifestyle. Though many people have ideas and create plans to enact them in real life, the world has not seen a real change in lifestyle for several years now. Whilst the developments of electric cars, smartphones, and cryptocurrency have proven to be massive contributors to society and will continue to affect the world both environmentally and economically these developments aren't consistent with the development goals of the United Nations which world leaders use as a guideline for development.

'The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries - developed and developing - in a global partnership.' *(Transforming Our World: The 2030 Agenda for Sustainable Development | Department of Economic and Social Affairs, n.d.)*

A life of dignity is still denied to billions of our compatriots who continue to live in poverty. Inequalities inside and between nations are growing. Huge gaps exist in terms of opportunity, money, and power. However, it is also a time of great potential. In addressing numerous development problems, significant advancements have been accomplished. Hundreds of millions of people have been lifted out of extreme poverty in the last generation. The spread of

information and communications technology and global interconnectedness, as well as scientific and technological innovation in fields as diverse as medicine and energy, have the potential to significantly speed up human progress, close the digital divide, and create knowledge societies.

1.1 Sustainability

A major issue facing the world right now is climate change (The rise in the globe's average temperature). A major contributor to this is the emissions of greenhouse gases whilst we burn fossil fuels for energy.

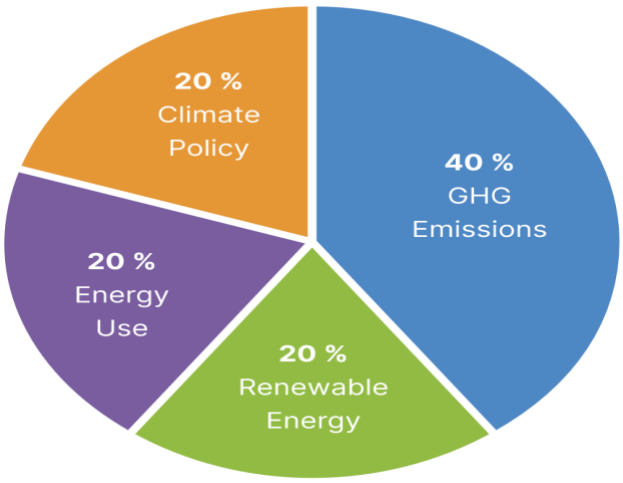


Fig 1. Germanwatch e.V. (2022, August 25). Climate Change Performance Index (CCPI). Climate Change Performance Index |. Retrieved September 10, 2022, from https://ccpi.org/

Fig 1. is taken from a proven source, the CCPI. Since 2005, the CCPI has been contributing to a clearer understanding of national and international climate policies. The CCPI is an important

tool for tracking countries' climate action performances and enabling comparison of the efforts and progress made by 57 countries and the European Union, covering more than 90% of global GHG emissions. As shown in Fig 1., the major problem that lies in energy production in the world today is that we still heavily rely on fossil fuels and non-renewable resources. The burning of fossil fuels to create electrical energy emits greenhouse gases which negatively impacts the earth's atmosphere.

My research conducted for the sustainability section of my project is very unique. Working with members of the Bee'ah Tandeef team at the leading waste-to-energy management facility in Sharjah, UAE, I was able to conduct research and gain some statistical understanding of how such an obscure form of energy creation could be developed and cultivated in the future. Much information and evidence used has come directly from the words of project managers and directors of factories. Several plants seemed redundant to the process such as the ITTP facility which was the water treatment plant. These plants I have not included in my project. Whilst a solution for climate change may not be in clear plain sight, the work that Bee'ah are conducting and the goals they strive to achieve are a starting point.

1.2 Technology

It is easy to take for granted the development of technology which we use at every moment of our lives from the buildings we work and live in, and the AI intelligence situated in our homes such as Alexa to the smartphones that 6.6 billion people carry today. Technology is all around us but do we need more?

Peter Lunenfeld, a professor of design, media arts and digital humanities at the University of California, Los Angeles, quoted "We will use technology to solve the problems the use of technology creates, but the new fixes will bring new issues. Every design solution creates a new design problem, and so it is with the ways we have built our global networks. Highly technological societies have to be iterative if they hope to compete, and I think that societies that have experienced democracy will move to curb the slide to authoritarianism that social media has accelerated. Those curbs will bring about their own unintended consequences, however, which will start the cycle anew." *(5. Tech Causes More Problems Than It Solves, 2020)*

Peter Lunenfeld goes on to discuss the hidden disadvantages of technology. A discussion of negatives without addressing the positives can be seen as unfair and unethical as you present a 2 sided argument without expressing the ideas of the other. A source which is integral in its meaning but unethical in its discussion of a debate.

Rather than focus on the negatives, Dr Youngchoon park of Amazon Web Services and former correspondent at Johnson Controls talked through smart cities and the work that can be done to bring such an inventive idea to life. Whilst on our 1 hour 30-minute zoom call in the early weeks of Spring, we delved into the technological side of smart cities and in particular the fascinating IoT systems. Along with that call, a lot of valid online sources varying from websites to reports from highly regarded professors such as Alice James, Avishkar Seth, and Subhas C. Mukhopadhyay contributed to this section.

1.3 Equality

This is a tough topic to discuss due to the many layers of understanding which are so key to the main message. A world in which people are equal in all aspects of life is both unattainable and undesired. However, a future in which people have equal human rights and equal opportunity to succeed is one which I have come to discover is a future with hope and endless possibility. Due to it being such a large topic, I have chosen to focus on 3 topics, the pay gap, poverty and a recent issue in Black Lives Matter. I also discuss how we as society can make efforts to promote diversity and inclusion to make a more coherent community where everyone looks out for each other. Finally, I go on to talk about the importance of women and how we can integrate more women into workplaces and society

All my research came through online sources. Robert Manduca, educated at Harvard, published was a particularly interesting text as it highlighted the issue of the pay gap in a way in which many people wouldn't have thought. I discuss the sustainability goals once again and finally delve into a heartbreaking issue of the fight against racism focusing on the prejudice towards a darker-skinned race. Whilst a lot of research for diversity and women are very opinion based, I have provided a plethora of sources and their meaning and assessed whether or not they are suitable for future cities.

2. Sustainability and 'Waste To Energy' Facilities

Sustainability is defined as 'the process of living within the limits of available physical, natural and social resources in ways that allow the living systems in which humans are embedded to thrive in perpetuity' *(Our Definition of Sustainability, n.d.)*. However, in order to adapt to predicted future situations and events, this definition must be interpreted in various ways.

As agreed by the United Nation, the 11th Sustainable development goal (Sustainable cities and communities) and 13th (Climate action) are goals which are at the forefront of leaders' minds: how can we promote a sustainable lifestyle? This is a question often asked but never definitively answered by the United Nations due to it being an ongoing, progressing and historically unprecedented issue. I have researched a method in which we can invest into to combat such a problem. A major issue the world faces and continues to struggle with is the idea of renewable energy. A basic principle learned in school is the 3 R's: Reduce, Reuse and Recycle. This section of my study will focus on the Reuse and Recycle part; in a growing commercial world where consumption ceases to increase, reducing the use of harmful plastics and materials is virtually impossible.

Over the summer of 2022, I had the opportunity to spend some time at the BEEAH Waste to Energy facility. The many factories and plants across the 9km square area form the central hub of waste management in the UAE. Located in Al-Sajaa, Sharjah, the plant is managed by

BEEAH: 'BEEAH has a mission to be the pioneer in leveraging experience across future-critical sectors and modern, scalable technologies and advancing sustainability agendas for companies, cities and governments'

Of the various facilities visited at BEEAH, there are two which are essential to the smart cities of the future:

- MRF – Material Recovery Facility
- Waste to Energy Facility

I will talk about another concept which I believe is not so sustainable and perhaps its flaws are being overlooked.

2.1 MRF – Material Recovery Facility

The MRF is the central hub of the whole facility. Unusually, the facility is 90% automated by machinery with only 10% labour which is very low. The main aim of the MRF is to segregate waste with a mission to ensure it is being used in the most sustainable way possible.

Firstly, the trucks bring the waste to the facility. Before dumping, BEEAH uses a weighbridge to calculate the amount of waste the truck has brought. The waste is then placed onto conveyor belts leading to huge saws and spikes which slice open the plastic rubbish bags and empty the

waste onto another conveyor belt. This is the first point of segregation; the plastic rubbish bags can then be taken away from the process and packaged up to be reused or recycled. Next, the waste is segregated by weight and size. Here, cardboard, plastic bottles, cans and wood leave the process and can be packaged up for reuse and recycling. The conveyor belt passes through a large room where anomalous waste is selected through manual labour which should have been removed earlier. This ensures the facility maximises efficiency. Finally, the remaining waste known as residue reaches the landfill site or the Waste to Energy facility which is converted into electrical energy. A prominent process seen in BEEAH's work is this idea of a closed system that reduces the amount of waste that heads into the landfill and redirects it to more useful outputs such as road asphalt. So successful is this process that The MRF only directs '10% of waste as unusable or residue which means 90% of the waste is recycled and reused' *(Direct statistic from Ibrahim Al Saad, manager of the MRF facility)*

2.2 Waste to Energy facility

Contrary to common knowledge, the majority of waste can be recycled into an energy source. As the human population grows and society develops, waste is going to be constantly produced. Governing bodies must look into converting this waste into sustainable energy rather than using more traditional methods which are not as environmentally friendly. Firstly, the residue waste from the MRF is brought over by trucks. As 90% of the initial waste is recycled, the remaining 10% is utilised as energy. This waste is dropped into a bunker where it can stay for up to five days. A crane will then move the waste into another building where it is incinerated at 1000*C.

Steam is created through the energy from the waste being used to heat water. This steam is then transferred into a turbine to create further energy. The excess steam is condensed and used again. Another product of the process is bottom ash which can be sold for use in processes such as building roads. From this process, the most important factor which contributes to the global goal of sustainability is the fact that the Waste to Energy, like most other facilities, operates in a closed system whilst a high amount of energy is being produced. This is a revolutionary process and must be a huge focus for the cities of the future as it is cost-effective to produce and kinder to the environment than more traditional methods of sourcing energy.

2.3 Why is solar energy flawed?

How solar energy is created? When the sun shines onto a solar panel and energy from the sunlight is absorbed by the PV cells in the panel. This energy creates electrical charges that move in response to an internal electric field in the cell, causing electricity to flow. *(Office of Energy Efficiency and Renewable Energy)*. Homeowners can install solar energy to become more eco-friendly. However, a study conducted by Kuby Renewable Energy LTD. found there are three main reasons why solar energy might not be the best for the cities of the future.

Energy Demand

'Solar energy requires a significant amount of initial energy to produce. Mining, manufacturing and transportation all require substantial amounts of energy. Quartz must be processed, cleaned

and then manufactured with other components which may come from different facilities (aluminium, copper etc..) to produce a single solar module. Heating the quartz during the processing stage requires very high heat. Manufacturing requires combining multiple materials with incredible precision to produce high-efficiency panels. All of this requires lots of up-front energy. With traditional fuels such as gas or coal, they are extracted, cleaned/processed and burned at very large scales, typically in a single location' *(Kuby Energy | Solar Panels & Solar Power Edmonton, n.d.).*

Another aspect of energy demand being an issue is that the energy transferred from solar rays to energy isn't significant enough for a growing city. A solar panel on average can produce 250 Watts of PEAK power *(US Sunpower)*. Peak being its optimal rate of energy transfer production. Despite the sustainability of this method, it is not cost-effective as a means of providing energy for a city.

Chemicals

To produce solar-grade silicon, semiconductor processing typically involves hazardous chemicals. Depending on the solar panel manufacturer and country of origin, these chemicals may or may not be disposed of properly. Like every industry, there are companies leading by example and others which save money by not disposing of chemicals or recycling byproducts responsibly.

Recycling

What happens when solar panels break or are decommissioned? Although solar panel recycling has not become a major issue yet, it will in the coming decades as the panels need to be replaced. Currently, solar modules can be disposed of with other standard e-waste. Countries without robust e-waste disposal means are at a higher risk of recycling-related issues.

Not that solar energy shouldn't be encouraged in the future, however, my own experience and reading research material confirms the belief that the cities of the future should start combating climate change and promoting clean energy through investment in waste management; in particular, waste should be recycled into sustainable and renewable energy.

3. Technology

In a society where mobile phones, smartwatches and laptops are becoming such a norm in everyday activity, the world of technology becomes a more prominent topic in the world we live in today. The DEFINITION of technology is 'the application of scientific knowledge to the practical aims of human life or, as it is sometimes phrased, to the change and manipulation of the human environment' *(Technology | Definition, Examples, Types, & Facts, n.d.)Britannica)*. But in reality, the realm of technology spreads out further than what the definition might suggest.

In a commercial world of growing industries, technology can be applied in all aspects of business and is the main focus in many industries today. IoT systems (Internet of Things) and the research of Dr Youngchoon Park highlight a real-world application of a successful IoT system in place and how this could be used in the future.

3.1 IoT Systems and the work of Dr. Youngchoon Park

IoT systems remain a wonderful yet confusing system in modern society. The 'Internet of things' was given birth in 1999 when Kevin Ashton of Procter & Gamble proposed putting radio-frequency identification (RFID) chips on products to track them through a supply chain. *(Vision of Humanity, 2016)*. IoT systems have become a seemingly simple component of everyday lives and routines, so it is easy to take for granted the technological complexity and sophistication which has gone into the development of these systems.

I was lucky enough to have a zoom call with Dr Youngchoon Park in late 2021. Dr Park is a pioneer in this field working with a large tech company, Johnson Controls, until early 2021 when he secured a move to Amazon. We discussed the cities of the future; what they are and three key areas which must be focused on and how IoT systems can be utilised in industries today.

Firstly, Dr. Park stated that 'we must become more efficient'. A difficult phrase to understand at times because people fail to understand the true meaning behind it. Efficiency is all about ensuring the optimal output is being achieved from the input resources - leaving nothing behind. He emphasised the latter which indicates efficiency should be a key improvement in a changing society.

Secondly, the discussion of communication cannot be understated. Communication has developed drastically from sending letters in the mail to being able to send a text across the world in less than a second. However, according to Dr. Park, the potential of these systems is not being fully utilised or realised. With the development of platforms like Linkedin where it is so easy to reach out to new people, Dr. Park calls for a development in networking via the internet.

Networking is defined as 'the exchange of information and ideas among people with a common profession or special interest, usually in an informal social setting' *(Networking Definition, 2022, Investopedia).* The benefits of networking are simple and well-known. However, one benefit which is overlooked is 'Getting a second perspective'. *(Team, T.M.P. (n.d))*
Through networking in a field or with expertise in a particular area, insights and different perspectives can be gained from liaising with respected contacts and peers; collaborative work can overcome challenges through the sharing of ideas and solutions.

3.2 IoT systems in action

In our discussion, Dr Park also identified the benefits of IoT systems:

- monitor their overall business processes;
- improve the customer experience (CX);
- save time and money;
- enhance employee productivity;
- integrate and adapt business models;
- make better business decisions; and generate more revenue.

IoT encourages companies to rethink the ways they approach their businesses and gives them the tools to improve their business strategies. Generally, IoT is most abundant in manufacturing, transportation and utility organisations, making use of sensors and other IoT devices; however, it has also been found to be useful for organisations within the agriculture, infrastructure and home automation industries, leading some organisations toward digital transformation. IoT can benefit farmers in agriculture by making their job easier; sensors can collect data on rainfall, humidity, temperature and soil content, as well as other factors that would help automate farming techniques. The ability to monitor operations surrounding infrastructure is also a factor that IoT can help with. Sensors, for example, could be used to monitor events or changes within structural buildings, bridges and other infrastructure. This brings benefits with it, such as cost saving, saved time, quality-of-life workflow changes and paperless workflow. A home automation business can utilise IoT to monitor and manipulate mechanical and electrical systems in a building. On a broader scale, smart cities can help citizens reduce waste and energy consumption. IoT touches

every industry, including businesses within healthcare, finance, retail and manufacturing. IoT Framework is another system cities of the future must establish immediately. IoT Framework is 'a middleware layer beneath one or more IoT applications that presents a network-facing application interface through which peer Framework nodes interact. Frameworks often support multiple communication technologies and message-passing techniques. IoT Frameworks also expose security capabilities including hardware-roots-of-trust to applications and peer Framework nodes' *(Cheruvu et al., 2020).*

3.3 Frameworks

Frameworks make IoT networks simpler by building an abstraction of the IoT device networks that obscures most of the complexity at the base while exposing information, interfaces, and functions that promote interoperability. It should only take writing an application in a high-level language like Node.js that makes use of Framework APIs to design an IoT application. IoT network designers may concentrate solely on the semantics of node interactions rather than the specifics of connectivity since the Framework offers a semantically rich description of IoT nodes, objects, and interactions. Frameworks make it easier to port over applications. There are various levels at which this can be done. Operating system-specific code makes up the Framework's base layer. The Framework's top layer is tailored to IoT use cases since it offers a data model abstraction that supports an IoT usage context. Control of lights, automation of the home, health monitoring, entertainment, process automation, industrial control, and autonomous control are a few examples. Given the Framework abstraction, IoT apps may be created once and

run on any OS the Framework is ported to. Where source code-level compatibility (the ability to migrate framework code to another OS) may occur independently of application development, the specifics of different OSs and platforms can be hidden.

The Framework Dr Park is currently working on is the 'Amazon Web Services IoT' which is a cloud computing platform. This Framework is designed to enable smart devices to easily connect and securely interact with the AWS cloud and other connected devices. For example, Amazon Alexa at home is connected to the AWS IoT. A significant case which Dr. Park referred to was an experiment in Washington DC whereby a few specialists came together to simulate IoT systems in real life in the US capitol. A conclusion was made that for IoT systems to develop and become the heart of a beating society, infrastructure must develop to allow for such a change. Not much has been released on this test as it was deemed a failure but branded as a learning experience.

IoT systems are, in my opinion, the future of technological development and our gateway to pursuing other technological marvels. Maintenance of technological systems and building infrastructure must be ongoing and informed by advances in knowledge and developments in these areas as they arise; if this does not happen, the industry will be undermined.

I would like to thank Dr Park for his time in meeting with me and for providing me with valuable research which has contributed to this study.

4. Equality

Achieving equality in society is proving to be challenging; inequality exists between different races and religions and ageism is also a factor. I will discuss how future cities can take a step forward towards eradicating such issues; the following statements should be taken as a suggestion with regard to moving towards finding a solution. Sustainable development goals 1 (No Poverty) and 10 (Reduced Inequalities) are both goals that around the world are taking into their own hands and trying to protest the importance of them to higher powers *(United Nations, 2015)*. Whilst change in these areas is happening, not enough is being done. I will aim to highlight some key points in ways cities in the future can help to provide a balance of life for all. Dr Youngchoon Park, despite not being an expert when it comes to providing solutions to such generic problems, gave me some examples of ways future leaders can challenge these issues.

4.1 Designing Cities starts with the citizens

One thing which democratic governments aim to achieve is giving everyone a voice and making everyone and anyone heard if the contribution is valid. But it makes us ask ourselves, why do we have such a split between poor and rich, unhappy and happy? Along with UC Davis, I would argue that voices are heard but not acted on. Whilst the study from UC Davis is on a larger scale using countries in the UN as an example, it shows how even in a world where the UN strives to be democratic as possible, this isn't the case. *(Libretexts, 2021)*

4.2 Robert Manduca's research

One issue that has been raised by the public but not implemented by leading governments today is the issue of the pay gap. Robert Manduca thinks that a significant portion of the change in the difference between rich and poor communities over the past 40 years can be attributed to rising income inequality. Manduca, a Ph.D. candidate in the Sociology and Social Policy program at the Graduate School of Arts and Sciences, is the author of a study which demonstrates that, in recent decades, the number of people residing in communities at the extreme ends of the income spectrum has tripled, with more than half of the change attributable to increases in income inequality at the national level. A report published in Social Forces on March 25 describes the investigation in detail: "In 1980, only about 12 percent of the population lived in places that were especially rich or especially poor," Manduca said. "By 2013, it was over 30 percent. So what we're seeing is a polarisation, where people are increasingly living in places that are either much richer or much poorer than the country overall." *(Reuell, 2019)*

Manduca claimed that while some of the change might be attributed to what he called "sorting" — the idea that top earners and high-paying jobs have grown more regionally concentrated — the majority of the change is the result of rising inequality. Since the 1970s, the richest individuals and areas have enjoyed income growth that has surpassed the generally modest rises seen elsewhere, creating a glaring divide between the different parts of the nation. "It's not so much that the spatial distribution of people who are in the richest few percentiles have changed,

but that being in those top 1 or 2 percent is now associated with having a much higher income," Manduca quoted. *(Reuell, 2019)*. From this study, I understand that Manduca is trying to emphasise the issue of geographical location but more importantly, the issue in which high-level jobs aren't provided in all areas thereby not providing all workers with the same opportunities. Equal opportunities produce new potential, new ideas and ultimately growth both economically and in society. *(Reuell, 2019)*

4.3 Poverty: Understanding how to take the next steps

The General Assembly of the United Nations, in its 1997 Programme for the Further Implementation of Agenda 21 (paragraph 27), decided that poverty eradication should be an overriding theme of sustainable development for the coming years. It is one of the fundamental goals of the international community and the entire United Nations system. The UN's goal to eradicate poverty by 2030 is becoming more and more unlikely as a drastic change is yet to be seen. However, evidence of change is highlighted on the UN's knowledge platform. *(United Nations Statistics Division, SDG 2022 report, Page 26-27 n.d.)*

'Priority actions on poverty eradication include:

- improving access to sustainable livelihoods, entrepreneurial opportunities and productive resources;
- providing universal access to basic social services; progressively developing social protection systems to support those who cannot support themselves;
- empowering people living in poverty and their organisations;

- addressing the disproportionate impact of poverty on women;
- working with interested donors and recipients to allocate increased shares of ODA to poverty eradication; and
- intensifying international cooperation for poverty eradication.' *(Poverty Eradication .:. Sustainable Development Knowledge Platform, n.d.)*

This is taken directly from the UN knowledge platform where 'sustainable livelihoods' is number one. This links to topic 1 on sustainability and the importance of promoting an environmentally healthy lifestyle.

4.4 Black Lives Matter

A phrase which has become a household phenomenon for the right reasons. The tragic death of George Floyd on May 25th 2020 was the match to an overwhelming response from across the globe. Millions of people from every race and background came together to fight for an important cause. The fight against racism.

It is important that in a future society that people are given equal opportunities to thrive and live their lives to the fullest. Lowering someone's probability of getting a job or allowing racial slurs to be shouted across the road are issues which must be dealt with. For a fully functioning city to be optimised, the citizens within the city must feel safe, content with their living and most importantly, happy. Happiness is the number one contributor to productivity. Researchers from

Oxford found that 'when workers are happy, productivity increases by 13%' *(Happy Workers Are 13% More Productive | University of Oxford, 2019)*

4.5 How can we reduce racism in the:

Workplace - Although having a diverse representation of staff is a good place to start, it is not sufficient to have a wide variety of people from various backgrounds. Companies should make contact with minority organisations, social networks, media outlets, and locations where members of various ethnic and cultural groups gather or go for information. Spreading the word to members of those groups or important contacts if businesses wish to use the word-of-mouth advertisement recruitment tactic. Companies should also actively seek CEOs, managers, and board members who are culturally and racially diverse. Racism can be lessened if staff is more varied and more conscious of one another, but racism is also reduced when the leadership shares authority.

'Finding out how you can make your workplace better for employees who represent various racial and ethnic groups. This will not only provide you with some useful suggestions for what you should focus on, but it will also demonstrate that the demands of each group are treated seriously. View the artwork you may have in your offices by looking around. Which groups exhibit stereotyped representation? Are the characters represented diversely?' *(Chapter 27. Working Together for Racial Justice and Inclusion | Section 4. Strategies and Activities for Reducing Racial Prejudice and Racism | Main Section | Community Tool Box, n.d.)*

Society - Reducing racism in society for future cities can be achieved through several approaches, including education, policy changes, and community building.

Education plays a critical role in promoting diversity, inclusion, and understanding of different cultures. By providing inclusive education, students can develop an understanding of different cultures, reduce prejudice, and increase empathy towards others.

Governments can implement policies to address structural and institutional racism, including affirmative action policies, anti-discrimination laws, and fair housing policies. These policies can help to reduce the impact of systemic racism and create a more equal society. (*Racism and discrimination in the context of migration in Europe. (2023, February 9). European Website on Integration.)*

Building inclusive communities can promote diversity and reduce racism by creating opportunities for people of different races and cultures to interact and build relationships. This can be achieved through community programs, festivals, and cultural events that bring people together to celebrate their differences and commonalities. *(Burgess D, van Ryn M, Dovidio J, Saha S. Reducing racial bias among health care providers: lessons from social-cognitive psychology. J Gen Intern Med. 2007)*

Representation matters. Encouraging diversity in media and advertising can help to reduce racism by challenging harmful stereotypes and promoting positive images of different cultures. *(e.g., Edwards et al, 2002; Ghanbarpour et al, **2022**; van Doorn & Hoekstra, 2013)*

Addressing implicit biases is crucial in reducing racism. This can be done through education and training programs that help individuals recognize and challenge their biases. *(Sawyer, J., & Gampa, A. (2018). Implicit and Explicit Racial Attitudes Changed During Black Lives Matter. Personality and Social Psychology Bulletin)*

From these 5 points, I would like to highlight the fact that the sources for ‘Encouraging diversity’ and ‘Building inclusive communities’ were far more in depth and thorough in their reasoning and arguments. Whilst the other sources may be credible, it can be argued using pure logical perception of what is best argued, that the 2 points previously mentioned are the most important ways to reduce racism in society.

4.6 - Integrating more Women into society

Integrating women into future societies is crucial for the development of a more inclusive and equal world. Women's participation in the workforce, politics, and leadership positions has been proven to bring numerous benefits to society as a whole. However, it is important to acknowledge that there are also drawbacks to this integration. In this essay, I will examine the benefits and drawbacks of integrating women into future societies and support my argument with in-text citations from credible sources.

One of the most significant benefits of integrating women into future societies is the economic impact. According to a report by McKinsey Global Institute, closing the gender pay gap could add $12 trillion to the global GDP by 2025 *(Hunter & Palmer, 2016)*. In addition, studies have

shown that companies with more gender diversity in senior positions have better financial performance *(Catalyst, 2018)*. This suggests that the integration of women into the workforce can lead to economic growth and financial stability.

Another benefit of integrating women into future societies is the improvement of social and political structures. Research has shown that women in leadership positions tend to prioritise policies that benefit society as a whole, such as education, healthcare, and poverty reduction *(Htun & Weldon, 2012)*. This can lead to a more just and equitable society, where everyone has access to the resources they need to lead fulfilling lives.

However, despite these benefits, there are also drawbacks to the integration of women into future societies. One of the main challenges is the persistence of gender stereotypes and biases. A study by Harvard Business Review found that women in leadership positions still face significant obstacles, such as being perceived as less competent or not being taken seriously *(Kolb & Tyler, 2013)*. This can lead to a lack of opportunities for women to advance in their careers and make meaningful contributions to society.

Another drawback is the negative impact on work-life balance. According to a report by the World Economic Forum, women are still shouldering the majority of household and care responsibilities, even when they are also working full-time *(World Economic Forum, 2020)*. This can lead to burnout and negatively impact the health and well-being of women, as well as their ability to effectively participate in the workforce and contribute to society.

5.0 Concluding points

I have touched on only the surface of such an interesting topic as I wanted to cover and highlight the significance of this topic across a broad scale. As a world, growth must be carried out sustainably but must also yield the benefits that other methods would to. Otherwise, the selfish minds of world leader would begin to wonder if short-term growth using potentially environmentally harming methods is better. Technologically, humans have developed systems far beyond the minds imagination over the last 60 years and are constantly breaking the boundaries as to what technology is truly capable of. However, I alongside Dr. Youngchoon Park are in agreement after our chat that we must hone in these developments to enhance business development through the use of IoT systems. Without such intervention, the boundaries of technology may be broken but they wont be used to their full potential and yield the best results. Lastly, the growing concern when it comes to equality is something that as members of society we can argue for and protest for but it is really only up to those people in power to make a change. Since the break of this new millennium, we have seen a growing number of protests for equal rights from race to gender. However, as argued in my first point, the pivotal point of change comes from those in power altering the pay gap and solving the immediate issue with poverty.

All of these points are based on the SDG’s of 2030 which were published by the United Nations

and a way forward to solving these problems provided the right applications of these solutions take place.

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