PART 3: UNDERSTANDING BIG DATA – Student activities

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Activities

- List the global interactions in this article.
- Describe the changes to the top ranking global companies over the past 10 years.
- Explain why the Information and Communications Technology (ICT) industry is growing.
- Debate whether data is more important than oil.
- What is Big Data?
- List the Five Vs of Big Data.
- How many times a day are you and your family handing out information to data collecting agencies? List the data collecting agencies.
- Explain why analytical skills and predicted models are important for future decisions.
- Describe how Big Data is essential for the future of the retail and sports sectors.
- Define 'things'.
- Distinguish between IoT and IoE.
- Describe a smart house and a smart city.
- Big and Open Data is important for the success of the United Nations 2030 Sustainable Development Goals (SDG). What is meant by open? Why is Big Data essential for the achievement of the SDG? How can Big Data from satellite imagery aid the progress of the SDG?
- Explain what is meant by geospatial data and why it is important to future management of the environment.
- Describe the United Nations Data Ecosystem and its aims.
- Big Data is not available to everyone. Discuss inequalities in access to, and use of ICT services across the world. Suggest strategies to reduce inequalities.
- Explain how the following is helping close the climate change knowledge gap:
  - big and open data
  - predictive modelling
  - analytics
  - technology
- Discuss IoT security problems and the implemented strategies aimed to reduce cyberattacks.
- Describe the digital race. Why do you think this race is occurring? Divide your answer into economic, social and environmental factors
- In groups explain 5 of the 50 sensor applications for a smarter world. Present as a photo story – http://www.libelium.com/resources/top_50_iot_sensor_applications_ranking/; https://www.dreamstime.com/stock-illustration-smart-city-concept-internet-things-different- icon-elements-modern-design-future-technology-living-image66500537
- In groups select one topic from the following diagram e.g. disasters. What is GEO? How can Big Data from GEO aid the management of the selected topic? Present as a verbal report.

Understanding Earth: GEO and the SDG environmental agenda

Diagram:http://www.earthobservations.org/images/geo_wheel_small.png

- Couch Surfing – a startup company
  CouchSurfing is a community of over 14 million members. It allows travellers and locals to connect with each other online, so that they can share hospitality, cultures and adventures. Investigate the technology required for a couch surfing company to prosper.

Photograph: http://www.greatbigscaryworld.com/wp-content/uploads/2012/12/couch-surfing-770x567.jpg

- People and Economic Activity
  Investigate one technology company and include:
  - the nature of the economic enterprise
  - locational factors
  - internal and external linkages
  - flows of people, goods, services and ideas
  - effects of global changes on the enterprise

Geofacts

- Since the 1980s the world's technological per capita capacity to store information doubled every 40 months.
- Decoding the human genome originally took 10 years, now it can be achieved in less than a day.
- The Large Hadron Collider data flow is equivalent to 500 quintillion (5×1020) bytes per day, almost 200 times more than all other data sources combined in the world.
- IoT devices surpassed mobile phones as the largest category of connected devices.
- In 2016, three main industries in terms of IoT spending were, manufacturing, transportation and utilities. Consumer IoT spending ranked fourth.
- As a result of volatile global markets and technology, there are a number of 'dead unicorns'.

Resources

- UN data revolution – http://www.undatarevolution.org/report/
- The Internet of Things – https://www.i-scoop.eu/internet-of-things-guide/
- How many times a day do you hand out your data? – http://privacyguidance.com/blog/wp- content/uploads/2013/10/Herold-Tracked-Throughout-Day-Infographic.jpg
- Internet of Things: complete guide – benefits, risks, examples, trends – https://www.i-scoop.eu/internet-of- things-guide/
- The fastest startups to hit $1 Billion valuations – http://www.visualcapitalist.com/fastest-startups-hit-1-billion- valuations/
- Billion dollar startup club – http://graphics.wsj.com/billion-dollar-club/
- Unicorn companies-trends and startups – http://try.alexa.com/resources/running-with-unicorn-companies
- Tracking venture-backed private companies valued at $1 billion or more – http://graphics.wsj.com/billion-dollar- club/?co=Palantir
- Using Big Data for the Sustainable Development Goals – https://unstats.un.org/unsd/trade/events/2015/abudhabi/presentations/day3/02/2b%20A-Using%20Big%20Data%20for%20the%20Sustainable%20Development%20Goals%2010222015.pdf

- Video: Big Data for Sustainable Development – http://www.unglobalpulse.org/about-new
- Earth Observations support 2030 Agenda for Sustainable Development – http://ceos.org/document_management/Ad_Hoc_Teams/UNSDGs/SDG_General%20doc/EO-for-2030- Agenda-for-SD_21Mar2017.pdf
- UN – vital role of geospatial data to achieve sustainable development goals – http://www.un.org/apps/news/story.asp?NewsID=51608#.WTJo2cYlGUk
- Data ecosystem – http://www.networkimpact.org/wp-content/uploads/2015/10/DataEcosystem.png

Cartoon

Source: https://bigdatabigbrotherbigboon.files.wordpress.com/2016/10/5310c94b49b2e946c88ff4c6ca51cc0f.jpg?w=648

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