Submitted by: University of Sydney Moderated by: Dr. Ehssan Sakhaee **Theme: Digital Technology & Environment**	**Australian Bush Fires** Australian bushfires have burned more than 10 million hectares (100,000 sq km or 24.7 million acres) of bush, forest, and parks across Australia. 30 people have been killed - including four firefighters – and an estimated 1 billion animals have died as a result of the fires. Preliminary estimates suggest the economic damages to exceed $100 billion, making it the costliest natural disaster in the history of the country. 70% of fires are caused by human activity; including arson. Considering the climate and landscape of the continent, how can we prevent fires from occurring?
Submitted by: HP Enterprises Moderated by: John Frey **Theme: Digital Technology & Environment**	**Carbon Reduction Opportunities in Highly Populated Areas** It is projected that 68% of the world's population will live in urban areas by the year 2050. This shift to more densely populated cities offers significant carbon-reduction opportunities in populous urban building structures. Current building management is mostly limited to motion sensors and pre-programmed thermostats. These high-occupancy buildings often have varying power demands that are not accounted for adequately in low-period times of use. How can smart technologies be integrated to better match building utility availability versus demand to reduce power consumption and associated emissions, while facilitating the use of renewable energy sources in the urban environment?
Submitted by: Accenture Moderated by: Andrew West **Theme: Communications & Information Technology**	**Developing Smart Cities** A smart city uses information and communication technologies (ICT) to address public issues with solutions that leverage resources more intelligently and efficiently. As a result, smart cities experience cost and energy savings, improved service delivery and quality of life, and a reduced environmental footprint. Some smart city innovations include artificial intelligence to increase automation, cloud services to improve public experience, and even ride-share apps, like Uber, or home-share apps, like Airbnb, that increase utilization of vehicles or spaces. Develop, replace, or upgrade an existing process or technology that would make a city smarter.

Submitted by: Texas A&M University Moderated by: Rodney Boehm **Theme: Communications & Information Technology**	**Fake News** Fake news is harmful to society as it makes the world less informed and erodes trust in news sources. Social media platforms as well as reputable news outlets have defined 3 focus areas to combat the spreading of false information – disrupting economic incentives, building new products that can detect or curb the spreading of misinformation, and helping people make informed decisions. What technologies can be implemented to stop the spread of fake news or eliminate it entirely?
Submitted by: Airbus Moderated by: Laura Bernstorf **Theme: Aviation**	**Future Engineering Center** As Airbus prepares to retire the A320, it is time to usher in the next generation of passenger planes. The design and testing of this new, modern aircraft will need to be created in an environment that's equally as innovative and well-designed. Design an engineering center of the future – a place where this next generation of international teams can collaborate with one another while being thousands of miles apart. Consider the education, tools, and skillset that future engineers might possess and build a forward-thinking think lab of future aviation.
Submitted by: Andrew West, Accenture Moderated by: Andrew West **Theme: Society & Culture**	**Innovative Parenting in a Developing World** According to 2017 UN data, it's estimated that almost one-half of the world's population lives in countries with lowered total fertility rates. Studies suggest reasons for delaying parenthood include: historically high percentage of women in the workplace, the substantial cost of raising children, and people prioritizing leisure and comfort over parenthood. However, a steadily declining birthrate could be detrimental to the sustainment of mankind - citizens are necessary to run a society and promote economic growth. Design a solution that combats any of the previously mentioned reasons, facilitates parenting in a developing world, and empowers working parents.

Submitted by: Accenture Moderated by: Andrew West **Theme: Energy**	**Meeting Energy Demand Sustainably** As the world becomes increasingly developed, and the standards of living improves for a growing population, the demand for energy will increase substantially. According to a report by the U.S. Energy Information Administration (EIA), global energy consumption is projected to grow by 50% between 2018 and 2050, driven primarily by strong economic growth in non-OECD countries. How can technology be leveraged to meet the growing energy demand, while also minimizing the impact on the environment? In particular, how might your solution address energy consumption in less developed areas with strong economic growth, like Asia?
Submitted by: Airbus Moderated by: Laura Bernstorf **Theme: Aviation**	**Seamless Air Travel** Boarding a flight can sometimes be as turbulent as a bumpy plane ride. Countless lines from baggage check, security, and boarding create opportunities to wreak havoc on a traveler's already tight schedule. Air travel is expected to increase over the next decade, further bottlenecking these various checkpoints. How can we improve the air traveler's experience by creating a seamless experience that is more time efficient and enjoyable?
Submitted by: Airbus Moderated by: Laura Bernstorf **Theme: Aviation**	**Waste Management In Aviation Industry** The International Air Transport Association (IATA) estimates that airline passengers alone create 5.7 million tons in waste each year. While restrictive legislative policy hampers the responsible disposal of airline waste, it does not absolve the carrier's responsibility to crate an environmentally-safe solution. What sustainable waste management solutions can passenger carriers establish that can be implemented world-wide?
Submitted by: HNTB Corporation Moderated by: John Barton **Theme: Safety**	**Preventing Injuries to Distracted Pedestrians** Just as distracted driving has led governments to legislate over the use of mobile devices while driving, some jurisdictions are also taking measures to combat the risks to distracted pedestrians. Laws, ordinances, and safety implementations are already in place, but pedestrian injury and fatalities continue to rise. What new solutions and technology can be developed to effectively reduce the staggering rise in these injuries?

Submitted by: Texas A&M University Moderated by: Erin Williams **Theme: Social Impact**	**Accurately Counting The Homeless Population** The US government estimates that just over 567,700 people experienced homelessness on any given night in 2019. However, the actual number is likely significantly higher as this number only accounted for those in government-based emergency shelters. Funding to combat homelessness is based on inaccurate data, therefore the need is far greater than what is provided for through federal, state, and local budgets. Accurate accounting of the homeless has proven to be an arduous struggle. How can local governments and not-for-profit organizations better collect this data to ensure they are making a positive impact on their unsheltered population?
Submitted by: Texas A&M University Moderated by: **Theme: Environment**	**Ocean Trash Piles** There is growing concern over the "Great Pacific Trash Pile" currently floating in the North Pacific Ocean. However, it's not necessarily the visible plastic waste that poses the largest threat to the environment - it is the small, microparticles. The longer these microplastics are exposed to numerous ocean elements, the more toxic they can become. It's obvious that these garbage heaps need to be removed from the oceans, however, the answers as to how to accomplish this is complex and multifaceted. How do we properly collect and dispose of ocean plastics?
Submitted by: Texas A&M University Moderated by: **Theme: Environment**	**Single Use Plastics Solution** Most single-use plastic waste originates from the need to safely and conveniently store and transport food. While plastic is an extraordinary material with many uses, it's not a sustainable option for singular use. Plastics can threaten animal wildlife and delicate ecosystems immediately after use while microplastics (chemical and toxic particles) can continue to compromise environments up to 450 years after disposal. Design a solution to overcome the food industry's dependency on plastics while still allowing for a material that is versatile and inexpensive to produce.