

FOURTEENTH ANNUAL ALABAMA MODEL UNITED NATIONS



U.N. COMMISSION ON SCIENCE AND
TECHNOLOGY FOR DEVELOPMENT

BACKGROUND GUIDE

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LETTER FROM THE DIRECTOR-GENERAL

Esteemed Faculty and Delegates,

Welcome to **ALMUN XIV**. My name is Catharine del Carmen, and I am serving as the Director-General. I am in my fourth year at the University of Alabama's Bachelor of Social Work (BSW) Program. Even after COVID-19 forced us to rain-check last year's conference, I am so excited that you chose to attend one of the Southeast's premier Model United Nations conferences for high school students! We are pleased to offer a diverse array of committees ranging from traditional General Assemblies to the International Court of Justices to a crisis committee based off a viral online video game with everything else in-between. I'm proud to announce that ALMUN XIV will also be implementing its first Plenary Session for the General Assembly during the last committee session on Sunday, February 6th. The fourteenth rendition of ALMUN's secretariat and staff have worked tirelessly to revamp our conference and provide an immersive, engaging, and realistic experience to all delegates who choose to attend.

This is my eighth year participating in ALMUN, and I cannot believe how much time has passed since I was a high school freshman freaking out over debating international policy in a room full of people. Model United Nations has become a passion of mine, and I enjoy joking about the irony of my previous statement with my friends and family. If you asked me eight years ago if MUN would be a key player in my college experience, I would laugh in your face, but it truly has shaped me into the young adult and aspiring professional I am today. The University of Alabama has paid for me to travel to Boston, Chicago, Washington, D.C., and even Montreal, Canada. My heart and mind are with international politics, advocacy, and diplomacy, and I do not believe I could confidently say so if it weren't for my experience as a Model United Nations delegate, staffer, and secretariat member all these years.

I hope you all obtain the same amount of passion, wisdom, and joy that I have from competing in MUN conferences, and I encourage you to take this past high school. My email will be listed below if you have any questions about the conference, your committee, or just Model U.N. in general. I wish you the best of luck in your research and preparation, and Roll Tide!

Best,
Catharine del Carmen
Director-General
almun.dg@gmail.com

a note on Research, Preparation, & Position Papers

Your experience as a delegate doesn't begin on the first day of the conference. Rather, the time you spend leading up to the conference is just as important as the debate and discussion that occurs therein. Proper research and preparation are key to a successful performance, but for new delegates, or those without much experience, the idea of a MUN conference and the preparation behind it can seem like an overwhelming task. The best place to start is this Background Guide written and prepared for you by your committee staff. This document is the perfect jumping off point for all of your research, and it will also help you understand the innerworkings, schematics, and purpose of your character/country assignment and role as a delegate during the conference.

The position paper is a delegate's first impression to the dais and is the final product of a student's preparation and research for any Model United Nations conference. It contains informed perspectives and histories of the state a delegate represents and is crucial to creating an authentic MUN experience.

All delegates are strongly encouraged to submit a position paper. Each country/character represented at ALMUN XIV must submit a position paper in order to be considered for awards. The best position paper within each committee will be awarded the Outstanding Position Paper award by the committee staff.

FORMAT

- The position paper will be two pages, so that each topic takes up space on one page. When finished writing positions for the first topic, add a page break and begin the second topic on the second page. Do not exceed two pages.
- The document will be single spaced, 12 pt., Times New Roman
- The document will begin with a three line header on the left side consisting of the following:

- Name(s) of the delegate(s)
- State represented by the delegate(s)
- Committee in which the delegate(s) will participate
- After the header, center and identify the title of the first topic, such as in the following example:
Topic A: [Insert Title of Topic]
- References will be cited using footnotes in MLA format. Include the URL for electronic sources. We strongly encourage using solely electronic sources for ease of reference.
- **Position papers should be saved as a word document or PDF file with the title "ALMUNXIV_[committee]_[country]"**.

CONTENT

Position papers will have three paragraphs for each topic outlined as follows:

The first paragraph introduces the topic from the point of view of the nation represented. It discusses the history of the topic, specifically in relation to the country.

The second paragraph analyses the topic's context in the nation and expresses most of the research done on the topic. It discusses past action or inaction, success or failure, and the nation's current thoughts and feelings towards the issue.

The third paragraph consists of an informed discussion of solutions to be proposed by the delegate(s) at the conference. It uses the research done on the topic and synthesizes it into new and creative ideas based on the nation represented by the student.

OTHER TIPS & NOTES

- Do not write in first person; write as the character represented (e.g. "The New York Times leans...")
- Avoid the passive voice
- Write matter-of-factly rather than with embellished language
- Remember to cite your sources in-text if necessary

Please use example position paper provided on the ALMUN website for ideas on how the writing and style should look, as well as how to present the information needed to prepare for the conference

If you are looking for more information on how a committee runs and debate flows, please check out our [Delegate Resource Guide](#) and [Handbook for Rules and Procedures](#). These two documents will break down everything you need to know about awards, parliamentary procedure, and even offer a brief rundown and history of your committee's branch.

Please submit all position papers to [this google form](#), no later than February 3rd, 2022 at 11:59 p.m. CT

**DELEGATES THAT DO NOT SUBMIT
POSITION PAPERS WILL BE INELIGIBLE
FOR AWARDS.**

Letter from the Chair

Hey, everyone! My name is Meghan Drane and I am absolutely thrilled to be your Chair for the Commission on Science and Technology for Development Committee, or CSTD. Before we get into conference materials, I'd like to tell you a little about myself. I am from Mandeville, Louisiana and am now a freshman here at Alabama. I'm an Educational Neuroscience major and spend most of my free time dancing or watching true crime documentaries. I was also an active member of my high school's Model UN for many years and am excited to be on staff for this year's ALMUN. As for your committee, science and technology hold immense power in today's world, and as the chair, I am excited to explore all the ways that governments can utilize it to create change in their communities, as well as the implications of widespread technology use. Technology evolves in dozens of fields, in dozens of ways, everyday, so the issues discussed in this committee are some of the most directly impactful topics in the conference. We are excited to provide you all with a fun and controlled environment to discuss and collaborate with your peers and have a few things we want you to be aware of. Please remember that you are representing a country that may have beliefs that do not align with your personal ones. Part of the fun is embracing your role as a "character," so feel free to (respectfully) immerse yourself in the ideology of your country for a few days. Be courteous of other delegates, keeping in mind that experience in and out of our conference varies! If everyone truly embraces the spirit of ALMUN, we hope you walk away with some new friends, new knowledge, and a new appreciation for science and technology based issues in our world. We look forward to debating and hope you have a fantastic weekend!

Letter from the Dias

Hello! My name is Maren Kirkpatrick. I'm from Madison, Alabama. I'm currently a double major in Accounting and International Studies (with a focus in business) and a double minor in French and Religious Studies. Beside Model U.N. and International Relations club I am also heavily involved with Baptist Campus Ministry and my sorority, Sigma Kappa. I also work as a puppy sitter to a hyperactive golden retriever puppy named Lily! I am so excited to finally be apart of ALMUN as a college student! I attended ALMUN in 2019 as a junior in high school and I remember being so nervous beforehand. I ended up having so much fun and falling in love with the University of Alabama during my time at ALMUN. Attending ALMUN helped me realize that I wanted to attend the University of Alabama for my undergraduate degree. I really hope for the delegates just to have fun and to not be too nervous! Just go with the flow of the rules and enjoy yourselves. Model U.N. has helped me learn more about the politics of the United Nations while still having fun. I hope to create a safe environment where the delegates feel comfortable asking questions of us. So please don't be nervous!

Committee Overview

Welcome to the Commission on Science and Technology for Development Committee! Although officially sanctioned in 1992, the origins of the CSTD are in 1979, where it began as part of Vienna's international Science and Technology for Development Conference. In the time between the conference and the committee's inclusion in the UN, humanity entered a world with technological advances only ever considered science fiction. The internet made an appearance, providing easy access to information, for better or for worse. Smartphone technology began emerging, medicine improved, and, as a whole, technology became a more integral part of developed nations. This led to concerns over its boundaries as well as how to best include underdeveloped nations in this progress. In 1992, the UN officially "transform[ed] the Committee into a functional commission of the Economic and Social Council (ECOSOC) and set up the CSTD."¹ It met for the first time in 1993 and since then, the committee has been an integral part of adapting the UN to the technological age, guiding discussions surrounding the different ways science can be used to help aid its member countries. Some of its more recent and relevant discussions include those surrounding artificial intelligence, Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR gene editing), data collection, and energy sources. This committee frequently collaborates with other bodies of the UN, including the "Commission on the Status of Women, ITU, Regional Commissions, [and] UNESCO" (see footnote 1).

¹ About the CSTD | UNCTAD. (n.d.). United Nations Conference on Trade and Development. Retrieved November 20, 2021, from <https://unctad.org/topic/commission-on-science-and-technology-for-development/about>

What to Expect

During ALMUN, you can expect to debate two topics. The first is Healthcare and Technology, which will address the many ways that the two are intertwined. This has only increased its relevance with COVID, and we are excited to see the many ways you interpret this extremely exciting topic. The second is The Job Market and Tech. While science and technology have been largely helpful, it has had employment implications in many industries, from production to food services and even health care. Discussions during this time can cover the idea of efficiency vs humanity or how technology can be used to help human workers, especially in undeveloped areas. We will go further in depth into each topic later in this Background Guide, but this is just a preliminary description to help get ideas flowing. Aside from topics, you can expect a welcoming committee experience where we sincerely hope to hear from every single one of you.

Reminders

As you begin your journey through ALMUN, there are a couple things that we would like to reiterate:

- Treat people with kindness. This conference is meant to be fun and educational, and disrespect only detracts from your experience. Do not make staff members have to take time from debate to remind you of this once the conference starts. We will have a no tolerance policy towards any kind of rudeness towards staff or other delegates and will not hesitate to call out bad behavior. If a delegate receives multiple warnings, they risk losing their chance to speak in further debates.

- Be prepared. The best part of this conference is getting to debate new and exciting topics with people just as interested in policy and international relations as you are. If you are ill-prepared, you likely won't feel confident enough to truly speak your mind. Carefully read over this guide (especially regarding our topics!) and spend a little time familiarizing yourself with the information before diving into writing any resolutions. This includes being well-versed in any country specific information that isn't directly addressed in this guide. Many of the websites cited will be able to help guide your individual research.
- Get excited! Most of all, we want you to be excited about ALMUN, which means participating in debates as much as you feel comfortable! We'll encourage new speakers, and be just as excited as you are to hear everything you have to say. If you get as excited to participate as we are to have you, this conference will be the best it can be!

TOPIC A: Healthcare and Technology

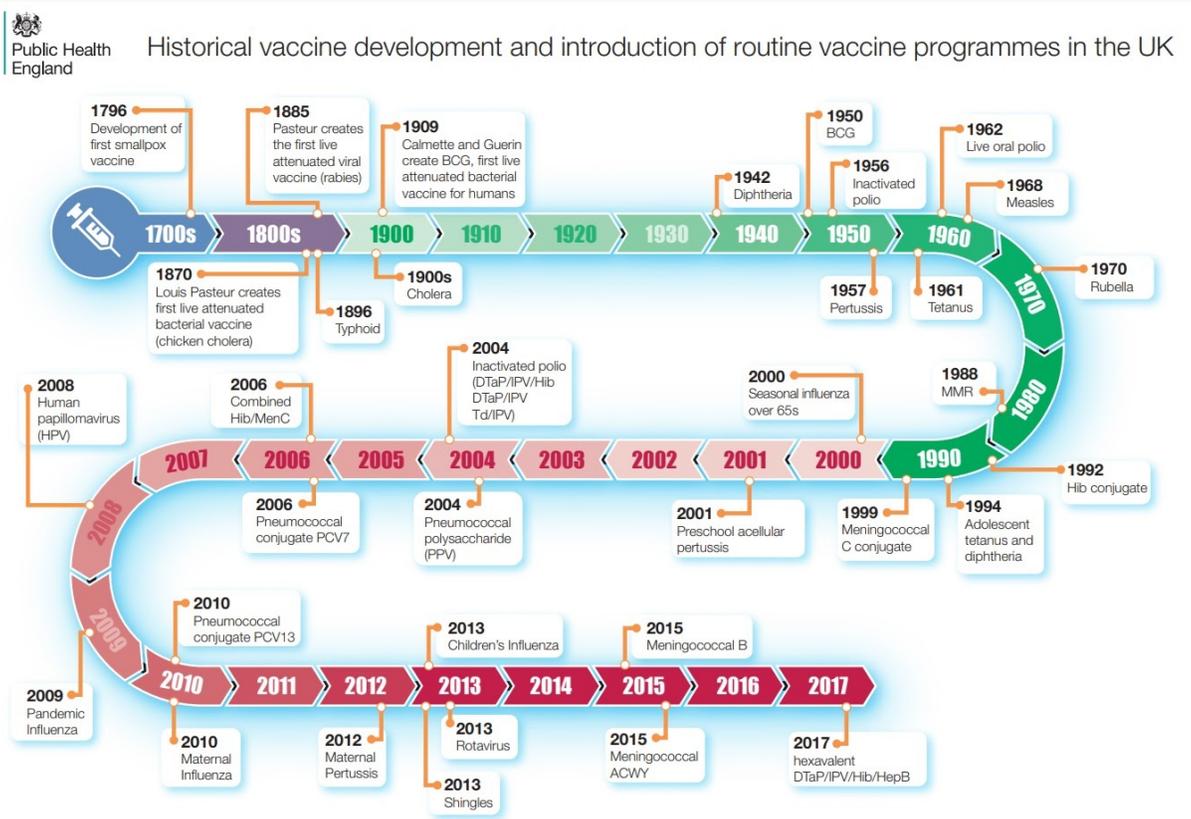
Healthcare and technology is an exciting and diverse topic that covers everything from artificial intelligence to gene editing. Science is inherently a part of healthcare, but technology has significantly advanced healthcare in the last few decades. Because of this, the discussions this topic covers are very broad, so, while you are welcome to conduct your own research about other subtopics, you will find three examples outlined below: vaccines, CRISPR gene editing, and artificial intelligence. These are extremely complex issues with heavy scientific backgrounds, so do not feel discouraged if you do not initially know a lot about these issues. Remember that this is not a scientific conference, so do not feel like you need to have a comprehensive understanding of these processes.

Vaccines

One of the first more modern debates surrounding new medicinal advances is over vaccines. Early vaccine practices can be dated back at least to the 1000s, some say as far back as 200 BC. Although a crude practice, the Chinese began inoculating people against the smallpox. As epidemics spread through nations both ancient and developing, governments began getting involved in the healthcare of their nations in order to best promote the wellness of their citizens. In 1648 in Boston, quarantines were established to protect this port city from the “plague or like in[fectious] disease” and in 1661, the Chinese emperor declared his support for inoculation.² In 1777, George Washington

² Timeline | History of Vaccines. (n.d.). The College of Physicians of Philadelphia. Retrieved December 12, 2021, from https://www.historyofvaccines.org/timeline/all#EVT_100400

declared mandatory smallpox inoculations. However, it was not until 1796 that vaccination was officially invented by Edward Jenner, who used cowpox to encourage resistance to smallpox. This practice gave vaccination its name, since it comes from the Latin word for cow, Vacca. After this, several governments began mandating vaccines for children and banning old inoculation processes in the name of public health. Since then, vaccines have evolved over time, increasing their efficacy and broadening their uses. However, this has not created universal support for these scientific achievements.



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See above: A timeline of vaccine developments since the smallpox vaccine in the UK.

³ Pollard, A. (2019). General Information on Vaccines. Oxford Vaccine Group. Retrieved December 12, 2021, from <https://vk.ox.ac.uk/vk/vaccines>

Because of the general reliability of vaccines, many governments have implemented vaccine mandates to some degree as a public safety protocol. As previously mentioned, some governments just declare their support. This practice was mostly during the inoculation stages of medicine. Some modern vaccine policy includes school vaccine requirements in America, China's COVID vaccine mandates,⁴ and Italy's Green Pass.⁵ Below, you will find a chart detailing some of China's COVID vaccine policies when they were at their most restrictive.

⁴ Huang, Z. (2021, November 12). COVID-19 Vaccination Policies in China: A Legal Analysis. Dove Press. Retrieved December 13, 2021, from <https://www.dovepress.com/public-health-and-private-life-under-covid-19-vaccination-policies-in-peer-reviewed-fulltext-article-RMHP#t0002>

⁵ U.S. Mission Italy. (2021, December 9). COVID-19 Information. U.S. Embassy & Consulates in Italy. Retrieved December 13, 2021, from <https://it.usembassy.gov/covid-19-information/>

Province	Territory	Policy Details	Dates
Henan	Tanghe County	1. Suspension of salary and work for unvaccinated public employees 2. Proof of vaccination required to enjoy public services	11 July 2021
Zhejiang	Qingtian County	1. COVID-19 vaccination required to enjoy public services such as access to healthcare and education 2. All persons coming to Zhejiang must have been vaccinated 3. Restricted access to rural markets before vaccination	21 July 2021
Zhejiang	Ninghai County	1. Mandatory vaccination for public officials 2. Restricted access to public and social places as well as schools	25 July 2021
Jiangxi	Dingnan County	Restricted access to hospitals, schools, and other public places	26 July 2021
Jiangxi	Anyuan County	Restricted access to hospitals, schools, and other public places	26 July 2021
Jiangxi	Yuehu District, Yingtian City	1. Restricted access to public places 2. Persons visiting the city must be vaccinated 3. Vaccination is required to run businesses	26 July 2021
Jiangxi	Ruijin City	1. Public officials to oversee mandatory vaccination of their relatives for up to three generations for an unlimited period 2. Mandatory vaccination of retired cadres 3. Mandatory vaccination for persons aged 18 or older 4. Restricted entry to critical public places such as schools and health facilities 5. Mandatory vaccination for all family members of students; proof of vaccination is required at the start of the academic year	26 July 2021
Jiangxi	Jinggangshan City	Restricted entry to public places such as health facilities and learning institutions	27 July 2021
Sichuan	Gao County	Restricted entry to public places such as health facilities and schools	27 July 2021
Fujian	Jinjiang City	Restricted entry into public places	1 August 2021
Anhui	Xuning County	1. Restricted entry into public places 2. Restricted access to public transport	1 August 2021
Guangxi	Beiliu City	1. Restricted entry into public places such as health facilities and schools 2. Learning restricted to vaccinated individuals	1 August 2021
Hubei	Echeng District, Ezhou City	Unvaccinated will be included in personal integrity records	15 August 2021

Notes: The information collated in Table 1 was extracted from reliable news outlets and official websites of various jurisdictions in China¹²⁻¹⁷.

(see footnote 4)

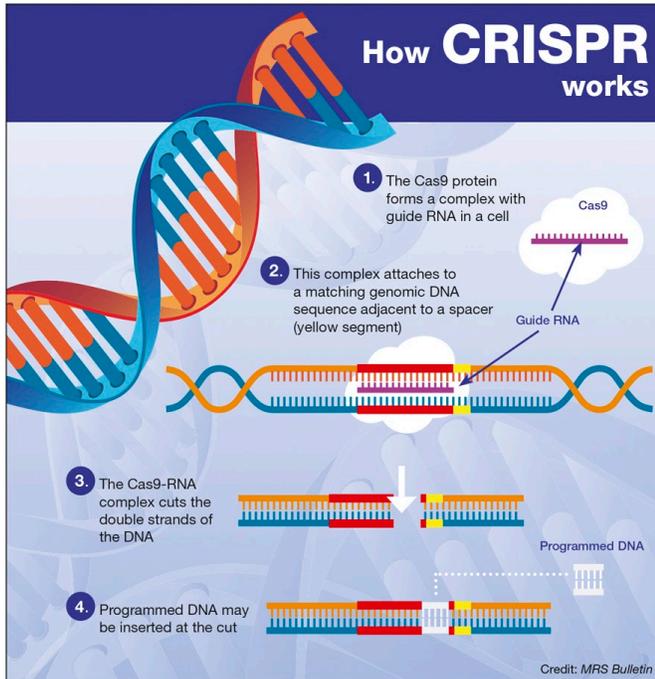
In China's case, many people considered some of these consequences to be too harsh, especially where it involves revoking salary, causing the mandates to be lightened. Even at its lightest, proof of vaccination was still needed to participate in public services. In Italy, the Green Pass is used to distinguish between individuals' level of COVID protection. Super Green Passes are given to those who are vaccinated or recently recovered. Basic Green Passes are given to those who test negative.

Differences in vaccine requirements between countries pose many questions and challenges to the international community. These differences reach into immigration, citizenship, and the ability to collaborate in person between country leaders. This is

something that the UN has had to deal with. “The Department of Operational Support (DOS) is leading a coordinated, UN system-wide approach to ensure the availability of vaccine to UN personnel, their dependents and implementing partners” in a series of phases.⁶ Discourse surrounding the ethical concerns of mandating medical treatment and allowing for any religious exemptions have also led to disagreements between governments and some of their constituents.

⁶ United Nations. (n.d.). COVID-19 Vaccination. United Nations Covid-19 Response. Retrieved December 13, 2021, from <https://www.un.org/en/coronavirus/vaccination>

CRISPR



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Divides such as the ones created by vaccinations also plague other realms of science and technology in medicine. One such field is CRISPR gene editing. CRISPR, which stands for Clustered Regularly Interspaced Short Palindromic Repeats, has its origins in 1993 when Francisco Mojica first discovered and began researching the CRISPR locus.⁸ It

wasn't until twenty years later that Feng Zhang and other researchers successfully used to edit eukaryotic cells (cells with a nucleus). In 2012, Dr. Jennifer Doudna and Dr. Emmanuel Charpentier published their Nobel Prize-winning research on using CRISPR for gene editing. This CRISPR technology is groundbreaking for several reasons. There had been other gene editing technologies in the past, but CRISPR is cheaper and more effective than many of these other options. It allows for prime editing, which “is predicted to be capable of treating 89% of genetic mutations in humans.”⁹ This technology could then help increase the viability of children, which would be especially helpful in countries with low birth rates and high infant mortality. It has often been

⁷ Ball, P. (2016, November 17). CRISPR: Implications for materials science. MRS Bulletin. Retrieved December 13, 2021, from <https://www.cambridge.org/core/journals/mrs-bulletin/news/crispr-implications-for-materials-science>

⁸ Questions and Answers about CRISPR. (2018, August 4). Broad Institute. Retrieved December 13, 2021, from <https://www.broadinstitute.org/what-broad/areas-focus/project-spotlight/questions-and-answers-about-crispr>

⁹ Doudna, J. (n.d.). The Ultimate Guide To CRISPR: Mechanism, Applications, Methods & More. Synthego. Retrieved December 14, 2021, from <https://www.synthego.com/learn/crispr>

tested in conjunction with sickle cell disease, which is more prevalent in malaria ridden areas. In the past decade, the technology has been implicated in curing “neurodegenerative disease, blood disorders, cancer, and ocular disorders” as well as in agriculture, energy, and diagnostics (see footnote 9).

While this could have life-saving benefits, questions have been raised concerning the ethics of gene editing. First, there are concerns about this technology being used for bio weapons, which is obviously a concern on an international level. There have been limits about weapons for other types of potentially destructive weapons on the world stage, so there have been questions about whether limits should be extended to CRISPR. Theoretically, this could allow parents to genetically modify their children, which has been considered an ethical concern. Modifying a fetus is more consequential than other types of fetal procedures as the results of this editing could quite literally change the course of the child’s life. Even if consent isn’t typically needed for fetal procedures, the lasting effects have raised concerns. Additionally, in countries with strong religious ties, concerns have been raised about altering God’s plans. Many people and governments have already posed concerns about other types of genetically modified organisms, and CRISPR has further implications. Ethically, there are concerns about CRISPR being ‘unnatural’ and invasive. It could also theoretically be used for minute genetic changes for things like eye color, causing a concern over ‘designer babies.’



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Because this technology is so new, there haven't been any real policy strides but there have been several conversations about how it should be handled. The United States included gene editing like what CRISPR is capable of to its 2016 and 2017 Worldwide Threat Assessment¹¹. Some governments have provided necessary funds for research into this exciting new field to help better understand it and drive any further policy decisions. Some governing bodies, like the European Union, have included CRISPR in its GMO regulations in an attempt to prevent unnecessary and dangerous modifications. Canada has banned germline editing, or editing to a fetus, although this policy has been challenged. This technology is exciting despite its concerns, and could be used to revolutionize healthcare.

¹⁰ Haliburton, R. (2020, November 18). The Case of the Designer Baby. The Cape Breton Spectator. Retrieved December 13, 2021, from <https://capebretonspectator.com/2020/11/11/bioethics-case-study-gene-editing/>

¹¹ Crowder, L. (2020, August 10). Crispr goes global: A snapshot of rules, policies, and attitudes. Bulletin of the Atomic Scientists. Retrieved December 13, 2021, from <https://thebulletin.org/2018/06/crispr-goes-global-a-snapshot-of-rules-policies-and-attitudes/>

Artificial Intelligence

Another revolutionary new piece of healthcare technology is the use of artificial intelligence. Artificial intelligence has long been a piece of science fiction and was first realized in the 1950s when research began. In the 70s and 80s, medical researchers were first able to use artificial intelligence for diagnostics by using “patient information input by physicians and a knowledge base... [to] provide a list of potential bacterial pathogens and then recommend antibiotic treatment options adjusted appropriately for a patient’s body weight.”¹² The uses of artificial intelligence have since been expanded with larger knowledge bases and wider diagnostic backgrounds. Artificial intelligence is also used to help aid surgeries like colonoscopies.

10 Applications of AI in Healthcare



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¹² Vivek, K. (2020, June 18). History of artificial intelligence in medicine. *Gastrointestinal Endoscopy*. Retrieved December 13, 2021, from [https://www.giejournal.org/article/S0016-5107\(20\)34466-7/fulltext](https://www.giejournal.org/article/S0016-5107(20)34466-7/fulltext)

¹³ Martin, R. (2019, February 15). 10 Ways Artificial Intelligence is Transforming Healthcare. Ignite Ltd. Retrieved December 14, 2021, from <https://igniteoutsourcing.com/healthcare/artificial-intelligence-in-healthcare/>

There are several benefits with implementing artificial intelligence in healthcare. For example, artificial intelligence is a 24/7 worker that doesn't require a salary. For the most part, the artificial intelligence diagnostic databases are easy to operate, therefore it does not require skilled workers to input information. For the artificial technology that is involved in surgeries, processes are very precise, helping to ease any human error.

As with most technology, there are several concerns concerning privacy and data collection. Many artificial intelligence systems are self learning, meaning that as data is inputted, it is integrated into its knowledge base. Because of this, patients' information is included in other diagnoses and would be hard to pull if asked to. Additionally, information is typically calibrated to a default population, which is typically caucasian. Other populations are less accurately diagnosed due to these biases. Patients often are not fully informed of these issues, which cause further ethical issues. There are also liability concerns. If there are incorrect diagnoses, should the blame fall on doctors or the AI developers? There are also employment implications, as a single AI program can transcend geography and population, making it possible for fewer humans to work with and diagnose the same patient population. These complex issues make artificial intelligence an important technology to learn more about and regulate.

Some examples of current artificial intelligence policies include the European Union's High-Level Expert Group on AI and the United States' several bills and regulations in the FDA and Congress.

Final Thoughts

While this may seem like a lot of scientific information for a political conference, understanding some of the biggest new technologies in healthcare will allow you to have

more informed discussions during debate. The legality and ethics of many of these procedures are hot topics right now, especially in a world during COVID. During conference you will not be expected to know the ins and outs of complex medicinal technology, but being able to understand what they do, along with the pros and cons, will help you write relevant resolutions. Make sure to conduct research surrounding your country's views on the reach of their legislative power, the amount of time and resources put towards medicine, and the accessibility of these processes across socio-economic groups.

Questions to consider:

- Should ethical concerns over genetic editing or artificial intelligence prevent people from getting life-saving treatment? Should this technology be handled differently depending on age and awareness of the patient (i.e. fetuses vs adults)?
- How much should governments be able to interfere in the healthcare of their nation? Should procedures be mandated for the sake of public health?
- How can the lack of accessibility to new healthcare technologies be addressed? Whose responsibility is the development and distribution of this technology?
- Should healthcare technology development be encouraged by country governments? How might this encouragement come about?
- Does your country tend to prioritize individual liberties or the collective good? How far would politicians push for public health issues and how far would citizens allow them to go?

TOPIC B: The Job Market and Technology

Automation	
Pros	Cons
<ul style="list-style-type: none"> • More efficient production • Higher labour productivity and higher wages/profit. • Cheaper goods <u>increases</u> disposable income of consumers. • Avoids boring, repetitive jobs • Can enable a shorter working week • Can improve safety and remove risk of human error • Can give consumers greater choice of goods. 	<ul style="list-style-type: none"> • Some workers displaced – possible structural unemployment • Creates winners and losers – possible increase in inequality • Automation could increase monopoly power • Loss of human interaction – dealing with computers leads to lower quality of life. • Automated systems can show lack of empathy with events. <p style="text-align: right;">www.economicshelp.org</p>

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The next topic we will be discussing is technology and the job market. This topic is considerably less complex than the last, so you will find that the issues posed translate more directly into more familiar topics like unemployment. This topic has direct implications for nearly every job field, including manufacturing, teaching, and, as discussed in the previous topic, medicine. The biggest concern of the growing presence of electronic alternatives to human employment is the loss of jobs it can cause. This process of using “technology applications where human input is minimized” is called

¹⁴ Pettinger, T. (2021, October 14). Automation – benefits and costs. Economics Help. Retrieved December 15, 2021, from <https://www.economicshelp.org/blog/25163/economics/automation/>

automation.¹⁵ Like most things, the impact of automation is not completely consistent between fields and regions. Because of this inconsistency, it is difficult to precisely measure these risks. According to a report done by Oxford University, “major emerging economies will be at high risk.”¹⁶ Countries in this category include China and India, whose risks for automation were found to be 77% and 69% respectively. The same study proposed that 47% of U.S. jobs were at risk (see footnote 16). However, another study from the University of Mannheim gave only 9% and the Organisation for Economic Co-operation and Development (OECD) gave 14%.¹⁷ Funnily enough, the differences in these estimates can be partially attributed to the artificial intelligence models used in the studies. The Oxford study gives us a perfect example of the allure of automation. The head researchers themselves explained that using artificial intelligence to collect data and determine which jobs were truly automatable proved to be more useful than relying on the opinions of the researchers. The artificial intelligence program was credited with “saving time and labour” as well as correctly including jobs like waitering in its automatable population (see footnote 17). This shows that even highly esteemed professions like researching can be replaced by electronics.

Automatibility also reaches into less esteemed professions like manufacturing to a more detrimental extent. In fact, “four manufacturing industries account for 70 percent of robots” in the United States.¹⁸ According to one study, “each additional robot added in manufacturing replaced about 3.3 workers” in the United States (see footnote

¹⁵ What is Automation? (n.d.). IBM. Retrieved December 14, 2021, from <https://www.ibm.com/topics/automation>

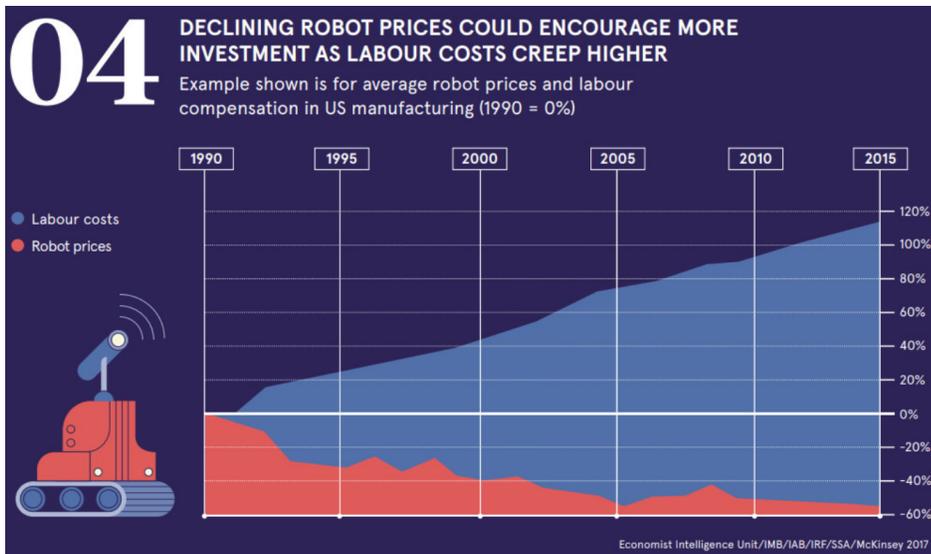
¹⁶ Khor, M. (n.d.). Automation, robots and the threat of economic disruption in developing countries. Third World Network Berhad. Retrieved December 14, 2021, from <https://www.twn.my/title2/resurgence/2017/319-320/cover01.htm>

¹⁷ Osborne, M. (2019, May 9). Automation and the future of work – understanding the numbers. Oxford Martin School. Retrieved December 14, 2021, from <https://www.oxfordmartin.ox.ac.uk/blog/automation-and-the-future-of-work-understanding-the-numbers/>

¹⁸ How many jobs do robots really replace? (2020, May 4). MIT News | Massachusetts Institute of Technology. Retrieved December 14, 2021, from <https://news.mit.edu/2020/how-many-jobs-robots-replace-0504>

18). Considering these numbers, the fact that Europe implemented 1.6 robots for every 1,000 workers from 1990-2007 has raised concerns for employees, politicians, and economists. These problems also disproportionately affect lower income workers in lower income areas, increasing wage gaps. Not only does automation cause workers to become unemployed, it has also been proven to decrease the wages of the remaining workers since robots can complete the same task more efficiently and without requiring worker's benefits. Wages dropped almost half a percentage point in the areas that faced automation concerns. This means that even if workers in sectors such as manufacturing avoid being laid off during an automation spike, they will likely face a decrease in wages instead.

Automation is also becoming easier. Initially, new technology was expensive, allowing current workers to retain their jobs. However, as the technology became more



refined and the demand increased, prices became cheaper. At the same time, the cost of workers rose, as seen in the chart below.

19

¹⁹ 7 charts on the future of automation. (2020, February 8). World Economic Forum. Retrieved December 15, 2021, from <https://www.weforum.org/agenda/2019/02/the-outlook-for-automation-and-manufacturing-jobs-in-seven-charts>

These unfortunate trends further encouraged phasing out human workers in fields where this was appropriate. Easy examples of increased automation can be found in any supermarket, where self-checkout lanes are becoming more and more prevalent.

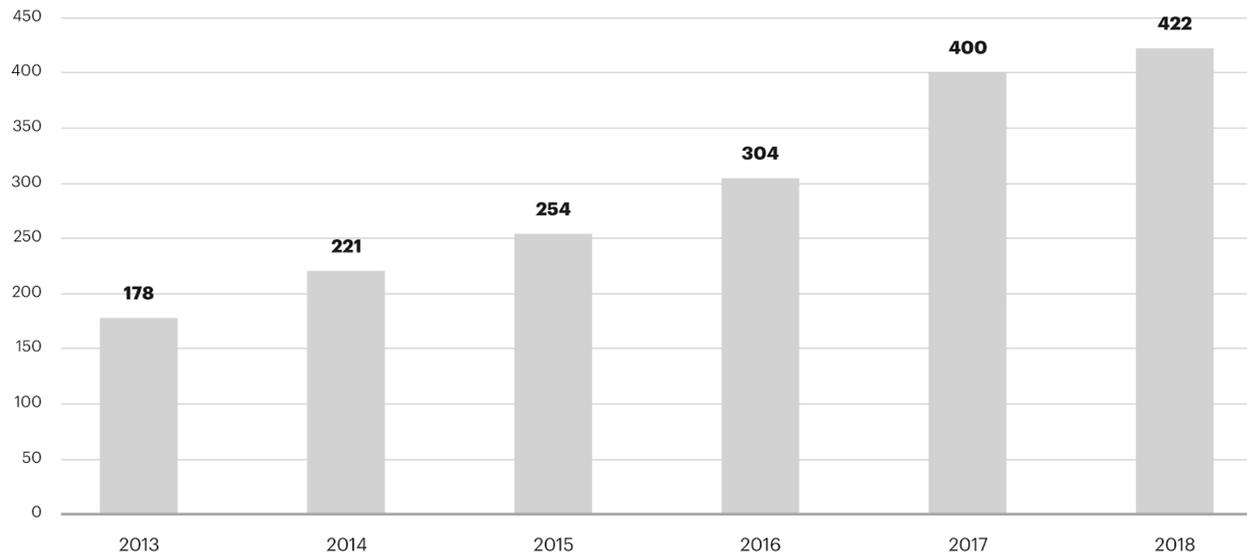
COVID greatly exacerbated the already worrying trends of automation. In a time where in-person work was much less feasible due to health concerns, electronic alternatives were encouraged to help offset the loss of workers. Before the pandemic, researchers identified the worrying risk for automation as seen below.

Figure 2

Worldwide installations of industrial robots have grown over the past decade

Annual installation of industrial robots

Number of units (in thousands)

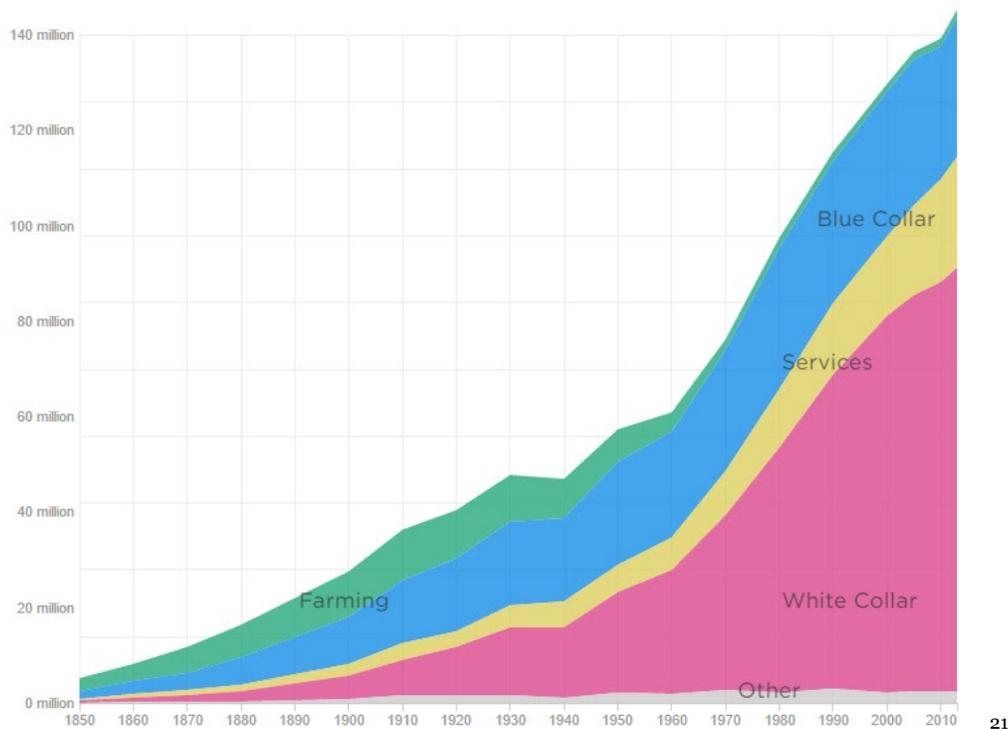


Sources: *World Robotics Report 2019*, International Federation of Robotics; Kearney analysis

²⁰ Peterson, E. (n.d.). Robots vs. COVID-19: how the pandemic is accelerating automation. Kearney. Retrieved December 15, 2021, from <https://www.kearney.com/web/global-business-policy-council/article/?/a/robots-vs-covid-19-how-the-pandemic-is-accelerating-automation>

Because pandemics and recessions cause “humans to become comparatively more expensive than automated alternatives,” automation increases, exacerbating unemployment concerns (see footnote 20). Increased technology use and focus on isolation also changed how many jobs were being done. Many businesses have increased opportunities to work from home. Teachers learned how to remotely teach classes. These changes are sure to remain in some capacity after we’ve moved on from the pandemic, but only time will tell.

Automation is not all bad. It increases efficiency and can be more cost effective, helping increase production. Additionally, although automation replaces some jobs, it helps create others. The chart below shows how automation has shifted the job market over time.



²¹ Desjardins, J. (2016, June 29). How Machines Destroy and Create Jobs. Visual Capitalist. Retrieved December 15, 2021, from <https://www.visualcapitalist.com/how-machines-destroy-and-create-jobs/>

The issue with automation then becomes more clear- it disproportionately affects jobs that are considered to be low skill level, traditionally held by less educated people with less money. Countries with low GDP and few technology based resources are not able to reap the benefits new technology could offer, further inequality.

Currently, countries are beginning to show a divide in the way they manage the increased use of robots in the workplace. The EU tried to implement a 'robot tax' that would increase the taxes on automated work to help offset the economic gains from firing less efficient employees, but it was not passed. South Korea revoked their previous encouragement for developing and implementing robots to help slow down the rate at which workers were being replaced. Even Bill Gates has supported such a tax.

Final Thoughts

This information could easily directly impact your future employment and is important to understand regardless of discussions at this convention. For our discussions, you should have a general understanding of how the use of robots and artificial intelligence impact workers across regions and business sectors, as well as its disproportionate impact on different socio-economic classes. When conducting research, consider your country's relationship with technology as well as its status as a developed, developing, or undeveloped economy. This will help you to understand how your country is currently affected by automation and how technology could help your country develop.

Questions to Consider:

- Should humanity or efficiency be prioritized when considering the best way to fill jobs and meet demand?
- How can technology aid existing employees?
- How many resources should be diverted to the development and upkeep of workplace technology?
- What should happen to employees laid off in the wake of new and more efficient alternatives?

Important Resources

While all sources found in our bibliography contain extremely useful information, the following sources might be particularly helpful when it comes to understanding the more complex issues in this committee and identifying where your country might fall in terms of policy making.

Topic A: Healthcare

- Understanding CRISPR:

<https://www.broadinstitute.org/what-broad/areas-focus/project-spotlight/questions-and-answers-about-crispr>

- CRISPR pros and cons: <https://explorebiotech.com/crispr-pros-and-cons/>

- CRISPR policies:

<https://thebulletin.org/2018/06/crispr-goes-global-a-snapshot-of-rules-policies-and-attitudes/>

- Uses of artificial intelligence:

<https://www.aidoc.com/blog/artificial-intelligence-medical-diagnosis/>

<https://www.mobihealthnews.com/news/contributed-top-10-use-cases-ai-healthcare>

- AI concerns: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7332220/>

Topic B: Job Market

- Analyzing automation studies:

<https://www.oxfordmartin.ox.ac.uk/blog/automation-and-the-future-of-work-understanding-the-numbers/>

- Viewing trends:

<https://www.weforum.org/agenda/2019/02/the-outlook-for-automation-and-manufacturing-jobs-in-seven-charts>

- Viewing the rise and fall of jobs between sectors:

<https://www.visualcapitalist.com/how-machines-destroy-and-create-jobs/>

These are just a few of the simplest and most direct sources to help you best understand where these topics stand today. If you find yourself wanting to dive deeper, any sources in the works cited are helpful for the basic concepts. When conducting country specific research, remember to check dates to ensure that your information is as relevant as possible, as policies can be implemented and reversed quickly.