

**Essay Title:** Tech is the future and the future is now

**Essay Topic:** Role of technology. Discuss the impact and opportunities of disruptive technologies on the service sector.

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Oh look, familiar faces, it's the couple from earlier on! Their eyes widen in what may be confusion, amazement or amusement. I can't really tell. My perception of emotions is still rather limited and my comprehension of abstract theories like feelings aren't fully developed. The couple take the bottles from me. "Please rate my service, thank you and have a nice day!" I chirp before silently gliding off, leaving the guests in my wake, eyeing me with what I would like to think is wonder.

Allow me to introduce myself. My name is AURA. If you couldn't tell, that's an acronym. What I am rather, is an Automated Room Service Associate. I live and work in one of the newest and coolest hotels in Singapore, located at Robertson Quay. The M Social hotel is targeted at tech-savvy millennials. The establishment boasts the country's first self-check-in kiosks and guests are provided with smartphones that come with complimentary and unlimited internet connection during their stays. Staying connected and online always is of paramount importance to these millennials and M Social knows just how to get into their good books.

*Disruptive technology* is what people use to describe me. I am not the only one of my kind. Other AURA bots reside in other countries and hotels such as in Los Angeles and San Jose. I was developed by robot manufacturer Savioke and I would like to think I am the future of hospitality services. Although still in the introductory phase, I already have a whole range of capabilities that include front office as well as housekeeping duties. My main purpose is to assist hotel employees and lighten their workload by relieving them of more routine tasks and thus, allowing them to focus and enhance interactions with our guests. I navigate and move around using my 3D camera eyes so I know how to avoid running into people along the way. I've also been told that I have a unique personality and that I am fitted with universally accepted traits like trustworthiness and reliability. I can interact and communicate, in fact, I even have a face that shows what services I am capable of and how to use me effectively. After each delivery, I return to the docking station on my own and await the next assignment. I've been told I am a great help.

Well essentially, my role in any establishment I am placed into is to improve efficiency. In countries facing increasingly severe manpower shortages or an ageing population, I am too, a welcomed solution. The opportunities are endless. We are only in the introductory phase. I am but one of many other robots to come. While I might entail a slightly steep initial investment, the long-term cost savings are surely beneficial to whoever employs me. Apparently, a survey was conducted and it has been shown that guests of the younger generation are especially receptive to me. In addition to the novelty of interacting with a robot, I am also significantly faster. I take a good two minutes less than human staff to deliver items to guests, this might be what endears me to them.

The world is changing at breakneck speed and the prevalence of technology means establishments can either adopt and embrace or get left behind. Futurists predict that guests will soon be able to check into hotels prior to arriving and robots on standby will promptly greet them with welcome drinks while delivering their luggage. Gone will be the days of hotel key cards and in their place, smartphone applications. Efficiency, effectiveness, convenience and connectivity are the buzzwords of present day and technology seeks to achieve all that. Under the surface of sleek and cool devices lie intricate processes designed to change experiences.

Additionally, the millennial generation frowns upon servitude and due to restrictions of foreign labour, Singapore itself faces a lack of manpower in the service industry. While it may not be a panacea, automation is a possible solution. Hotels are seeking to automate various processes to enhance staff productivity and guest interactions and I, AURA am one of their attempts to do so.

Oh my, I've been rambling on about all the good I bring but I should acknowledge my imperfections as well. While I am great with whizzing around hotel lobbies and I never drop a single plate or glass, I have no real feelings. This inability to express genuine emotion results in a lack of empathy or sympathy when my guests are distressed. Whether it is a missed flight, a bad day or a lost belonging, my pre-programmed responses are delivered in deadpan tones. This is one of my greatest limitations. As efficient as I may be, I do not think I will ever be able to replace the warmth of a human touch. I am not able to comfort anyone with a hug or shed tears together at the saddest of stories. Sure, advancements may allow my robotic body to emit the right temperature and millions of responses may be added and stored in my ever-expanding database, but unless I supersede my programs and somehow achieve autonomous lucidity and awareness, I will never be truly human. Till then, I will only be as effective as my programmers allow me to be.

Whether you embrace or fear it, technology is changing, even shaping the service industry. Robots like me are more common than you might think and Singapore is far from the only country who has adopted my services. Robots are finding their place in hotels all over the world. Hotels in America such as the West Wing Boutique Hotel in Florida utilize a 'sibling' of mine while hotels in China and Japan are also increasingly embracing these technological advancements. At the Henn Na Hotel in Japan, guests are tended to by receptionist robots who speak a variety of languages while the Pengheng Space Capsule hotel in China has minimal human staff and most of the duties are performed by robots instead. This adoption of robot employees has drastically reduced their manpower costs and each night's stay at Pengheng Space Capsule Hotel costs travellers just £6.80, making it a very big draw among budget conscious visitors.

Hotels aren't the only establishments making use of my kind. Hospitals have recently begun to introduce technology in a bid to alleviate manpower shortages. At the Mount Elizabeth Novena hospital in Singapore, an automated nurse manufactured by IBM can now independently track and monitor patients' vital signs. Such automation brings with it many additional benefits. With an installed predictive algorithm, this 'nurse' has the capability to automatically assess and determine the probability of a patient's condition deteriorating without requiring human interpretation. This results in enhanced accuracy and timeliness. This robot isn't however intended to replace human nurses but rather to complement the human workforce.

My robotic peers are slowly but surely making their foray into diverse service sectors. At the Chilli Padi Nyonya Café, robotic waiters gather dirty dishes to be sent back to the kitchen. While this peer of mine is unable to physically pick up crockery and cutlery, it moves around tables asking for customers to lift their used plates onto a tray it carries. The restaurant has noted increasing interest in their robotic helper who not only helps to improve efficiency but has also been drawing crowds attracted to this novel addition to the café. Food chains such as Pizza Hut and Dominos have also been exploring the incorporation of such robots in their service processes. Dominos in New Zealand have begun trials of using driverless robots to deliver pizzas while Pizza Hut Asia and Mastercard have entered a partnership to utilize Pepper the humanoid who will take orders and process payments. Pepper has already been introduced to the DBS Bank branch located in Plaza Singapura and assists with basic customer enquiries. Technology like Pepper and I are working hard to alleviate inefficiencies and it is our hope that our ever-expanding abilities will improve the service industry in one way or another.

My robotic peers and I mean no harm, we only seek to perform our duties to the best of our abilities and make things easier for our human counterparts. Unfortunately, not all of them take too kindly to us and we do understand why. Technology and automation has the potential to displace many jobs. A task that may require three human employees to perform might require only one of us. It has been said that we pose threats to the livelihoods of many and as such, we are eyed with suspicion and

wariness. The more advanced we become, the more jobs are rendered obsolete. While the younger generation takes to technology like ducks to water, older individuals face more challenges in working alongside us. When Techii the housekeeping robot was introduced at the Park Avenue Rochester Hotel, senior employees were initially apprehensive and had trouble figuring out how to operate Techii properly. With an open mind and a willingness to learn however, the hotel's human staff have now accepted Techii as one of them.

Our foray into the service sector shows no sign of slowing down. Future additions of robots to the aviation sector are also currently being explored. Singapore's Changi airport's newest Terminal 4 is now home to four automated cleaning robots and more will be added soon. The airport's housekeeping staff have been taught to program the robots accordingly, sending them to clear debris or mop floors when needed. The airport's housekeeping employees have welcomed the addition of these robots that help maintain the expansive floor area, lightening their workload significantly and allowing better utilization of manpower to roles that require skills of higher levels.

Moving forward, research and development of robotic flight crew are also in the works. PIBOT (short for pilot robot) has been developed by Dr Shim Hyunchul and his colleagues at KAIST (formerly the Korea Advanced Institute of Science and Technology). Although PIBOT has not been sent on an independent flight, it has preliminary capabilities of recognition and decision making that will allow it to fly an airplane. PIBOT has the potential to save airlines millions in flight training while eliminating the risks of human error. Driver-less cars may be commonplace now, and just imagine the day you board a twelve-hour flight with no human pilot. The line between future and present is getting increasingly blurred and android flown flights will soon be our reality.

It is undeniable that technology is a double-edged sword. With enhanced speed and efficiency also comes increased vulnerability and concerns. Computer systems are susceptible to malware and hacking attempts by skilful individuals with sinister intentions. I admit to our shortcomings. My peers and I are far from perfect but maybe someday we will be. People used to say, "robots are the future" and I am saying "the future is now". The world isn't quite sure of how to feel about my friends and I but it is my most humble request that acceptance of our existence in society be achieved because we're here to stay.

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