IBE505
13.05.2022
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Question 1)

a) Having fast delivery as an option is great, but that will come at a price, both for costumer and for the company itself. Fast delivery can be done by cargo planes flying to main cities then driven out or transported by train to smaller cities, which would end up in small trucks at the end to finish the delivery by driving door to door. By real life tracking this, I would have set up trackers around the world that automatically scans the cargo when it passes by.

b) The emerging technology I would want to implement to this solution is RFID. RFID would help real life track all the cargo that passes by, using a radio frequency identification device. You would put scanners in the trucks/trains, then tags all over the routes the trucks/trains are destined to drive (maybe someday in the future radio signals can be strong enough to be able to be used on planes as well, which would make the real life tracking easy to follow). This will make the delivery faster since all the cargo is scanned automatically.

c) As a chief innovation officer within UPS my job is to manage the prosses of innovating the organization and bring new ideas to the table to make the organization more efficient. As well as coming up with ideas it is important to also recognize innovative ideas that other people have.

d) If there is a skill gap between the people that are working there and the new solution, I have suggested we should use the most traditional competitive procurement to fully document the requirements for the solution which would need a hardware purchase and a Software-as-a-Service (SaaS) purchase, to then create a Request for Proposal (RFP). After all that is done the RFP is evaluated by a committee that selects a vendor. While this is the most traditional way of doing it, it might not always be the

best. The skill gap also would have to be closed by having courses, where the current employees can learn and take the task at hand with confidence.

e) Goal number 3 Good health and well-being:
This is done by removing the manual scanning making it less tough on the back.

Goal number 5 Gender equality:
Anyone and everyone can do this, there are no better genders. This means that the pay should be the same no matter gender.

Goal number 9 Industry, innovation, and infrastructure:
By using RFID, you have equipment that lasts for a long time.

Question 2)

a) A digital solution to not being physically at the lab could be using augmented reality (AR) and virtual reality (VR). This would allow students to see through a screen how it would look like in real life size on their own desk or in their own room. By using VR, you could do the things you do in a lab, just at home. The VR would be an expensive investment but would be worth the money if this was an ongoing problem.

b) A way to monitor home exams would be to implement that students share screen and have a camera on while also locking the mouse to that screen. This would regulate the student's ability to switch tabs and keep control of what the student is doing.

c) AR and VR are both technologies up and coming. Even though it has been around for a while, it has really broken through the last couple of years. Of course, it is nothing like doing lab work and other things like real life, but I think it is as close as you can get at this moment in time. Also, with working gloves that tracks your grip, movement, and resistance this would make it, all though expensive, a good way to substitute the physical lab with an online one if necessary.

Creating programs that will both monitor your screen and enable the camera for the teachers/ exam sensor with an API which is easily usable.

d) The problem with online learning is that there are too many options around you that are more tempting than watching a lecture. There are TVs, the internet, distractions from other people, so on and so forth.

e) Goal number 4 Quality education:
My solutions would help the quality of education if it were to be done at home by making people try stuff even if they are not there. If students cannot cheat on tests and exams, this will have them more prepared to do a job and would need less time learning at their new workspace.
Goal number 8 Decent work and economic growth:
Decent work and economic growth will come with people graduating, not to take anything away from the people doing the ground profession which we all depend upon.

Question 3)

a) Unfortunately, the medical scene is struggling with shortage in staff. A solution to this could be robots. They could be the one helping in surgeries, be an assistant and deliver equipment. They would take information that is being said by the doctors during surgery and storing it online. This would both offload the nurses and other medical staff, and they demand no salary.

b) Using AI technology would help the robot understand what is going on, and with a voice recognition device it could take commands from the person in need such as doctors, nurses, or patients.

c) In the cloud we got four different models.

Public cloud: This would help families see how their loved ones are doing at the hospital without having access to the journals and private documentations without permission.
Private cloud: By being primarily hosted on the company's location, this would be a safe option to store and save critical data.
Hybrid cloud: Would help combining the two clouds allowing workloads to move between the two as needed for optimum performance, compliance, security, and cost-effectiveness.
Multi cloud: Using both infrastructure and components from different public clouds, this would be a great way to storge data taken from the hospital.

Pros: By saving data in the cloud, you would have a safe space where all the data are easily accessible and manageable by anyone that needs the information. By controlling who can see what, it would help the medical staff have access faster, which could be crucial in a matter of life and death.

Cons: The cloud is an online concept. Unless you host it at the location you are at, you would have to have internet access to enter the cloud. Having internet means vulnerable to cyber-attacks. Having stored journals and private information on the cloud making them available to steal would not be a positive thing for either organization or private person.

d) By having volunteers helping a lot can happen. Having open-source coding for the AI on GitHub would make it quite fast, but would obviously have qualified people watching over, making sure there is no malicious intent.

e) Goal number 3 Good health and well-being: Helping people that needs help and making sure they get the right treatment.

   Goal number 11 Sustainable cities and communities: Making people feel safe with the hospital.

   Goal number 17 Partnerships for the goals: People working together to help others.

Question 4)

a) Defensive strategy: Refers to protecting the business from competitors and disrupters. Example: Most car manufacturers are using this strategy, to hang on to what is "trendy", for example electric cars.

   Offensive strategy: Trying to disrupt the rest of the industry/market.
   Example: Tesla is an example of using the offensive strategy. Newer than most it is leading the market within electric cars, and they are reducing their losses by making a car, by charging a price premium by differentiating itself based on becoming a status symbol and offering new technology, such as driver-assisted technology.

b) "Contactless" is a word that comes to mind when you hear about COVID-19. Contactless payments have massively increased since COVID-19. In for example restaurants you scan a QR code, order and pay directly on your phone. At the grocery store, there are self-service checkouts. Working from home/ remote work.

c) Technical debt referring to implied cost that is taking the easy and less cost-effective way instead of using a better approach

d) Some leading indicators of failure in an industrial digital transformation (IDT) occurs when there are individual projects that does not achieve the values or are never completed and must be restarted. There are critical indicators of the health of transformation:

   1) Lack of IDT strategy
   2) Lack of top-down support
   3) Inward focus rather than industry sector trends
   4) Costumer's perspective, mismatch of planning versus doing

e) Lights-out manufacturing is when manufacturing is fully automated and requires no human presence to do its job.

By digitalizing you remove the presence of human interaction. This means that robots can do the jobs humans are doing, reducing the risk of sickness and health. The only thing humans must do, is maintain the robots if some break or have issues. The world is becoming more and more automated, some like it, others are more sceptic to the future of robots. All in all, we have an interesting future ahead of us, with digital transformation playing an important part.

References: Shyam Varan Nath, Ann Dunkin, Mahesh Chowdhary, Nital Patel – "*Industrial Digital Transformation: Accelerate digital transformation with business optimization, AI, and Industry 4.0"*
Packt Publishing Ltd. 27.nov 2020