Exam IBE505 Industriell digitalisering

Kandidatnummer: 21

Question 1.

a) Let's start with fast delivery:

Today UPS ships packages using drivers (cars), trucks and aircrafts. Cars must drive a route based on where packages must be delivered. This Is time-consuming, but with the help of an another fairly new technology mostly used for photo, video, and reconnaissance the shipping might get faster. Drones is my solution as CIO.

Real-time packaging tracking:

Today, packages are scanned on every new location the package hits. By that information and data, customers can see where their package where last scanned. This is not telling the story good enough. When packages are between two scanning stations, nobody knows exactly where it is. By setting GPS trackers on the packages, both UPS and customers knows exactly where the package is, at every given moment.

b) For solution one, the merging technology to use is drones with AI.

Drones with AI is autonomous, in this solution and case, the drones will be given a destination and package from the warehouse. The AI pinpoint where the customer lives, sends a notification to the customer, and takes off form site to deliver the package directly from the warehouse, home to the customer. AI drives the drone and calculate where to drop the package on the customers lawn. This will reduce the number of packages the drivers need to deliver and fastens the delivery time to the customers. Drones can take smaller packages, and drivers can take larger (too heavy for the drone).

For solution two, the merging technology to use is GPS.

The GPS will always give the exact position of the package. And a plus GPS is, if a package gets stolen or lost, the customer and UPS will know where the package is.

c) My role is Chief Information Officer. In short terms, IT chief. I have responsibility for drifting IT systems, applications, security and so on. (Intermin u.d)

d) To give all my employees the skill to both monitor the drones and use GPS tracking systems I will do in-house training classes, conferences with off-site training and maybe degree programs and other courses.

e) Goal 9.
Goal 9 is Industry, innovation, and infrastructure. With drones and GPS tracking the infrastructure to UPS will be significantly better. UPS get another way of delivering packages and reduce the delivery time. At the same time, GPS tracking will give customers precise location of the package, and that will contribute to a very positive impact on both UPS and customers. UPS get happier customers, and the customers get happy by shortened delivery time and real time knowledge of where their package is.

Question 2.

a) I do have a good solution to this and have experience in it as well. The XR industry (VR and AR) is getting good enough to use in daily tasks. The tech has been cutting edge in a few years now and is very promising in the future, since big companies as Meta, Valve, Microsoft, and HTC is heavily invested in it.

VR has the ability to take you anywhere you want digitally, and with VR gloves or controllers, you can interact with objects within the virtual world. So, building a lab virtually, connect people with VR headsets and create objects in the virtual world to interact with, would in my opinion be the next best thing to the real situation (heaving labs).

b) There is an easy solution to that. Make every student connect to a remote pc on the school, to do the exam on a machine where teachers and exam watchers can monitor the students screen

activity.

c) For solution one: The emerging technology to use to solve solution one is using VR (Virtual reality) / AR (Augmented reality) / XR (Extended reality) to be able to meat and cooperate with other students from home, in a virtual setting.

   For solution two: The solution does exist today (remote desktop), but to further improve on the solution, we can implement AI to monitor the screens for suspicious activity. Let say it is 200 students taking the exam, it's difficult for the "watchers" to look at everyone at the same time. But by implementing an AI in the software, it can monitor the students for chatlogs, websites, programs etc.

d) The social aspect of meeting with fellow students is a challenge for many, including me. The motivation goes down, and it much easier to get depressed. It's an evil circle. Zoom meetings does not work very well, the concentration just falls through the roof. Teachers have no knowledge on if the students understand the subject. That is the problem with online learning.

   If the question is about my solution: The VR industry is still in early stages, so there will probably be some bugs and errors when using VR, that might impact the learning ability because of hardware and software problems.

e) Goal 3 and 4 is the more accurate SDGs to my solutions.

   Goal 3: A good health and well-being is likely achieved with the VR aspect. Yes, the student is not actually with other students in real life. But you get the feeling of collaborating with you fellow students by virtually seeing, talking, and touching. Its like a digital twin of yourself, and that's the goal. This will most likely spice positivity among the students.

   Goal 4: Goal 4 hits both of my solutions. "Quality education" and "remote delivery of education" is represented in the VR solution and remote desktop (AI) solution. With VR the quality might improve the learning and education possibility in a positive manner. With the remote desktop (AI) solution, the quality and delivery of the exam might get a lot more secure and accurate of what the student knows.

Question 3.

a) Robots are the future. They can replace the hard-working nurses and doctors to do time consuming and regular treatment, either autonomous based on parameters of the patience or remote control with doctors and nurses. This saves time in that nurses and doctors don't need to move all over the hospital and can cooperate with other hospitals as well.

b) Technologies withing this robot solution is AI and 5G. The AI aspect of the solution is treating the patients based on their parameters and how sic they are. The 5G ultra band has a low latency and nurses / doctors can do tasks with high precision on the patients, even remote on other hospitals to help.

c) We have four different cloud models: public cloud, private cloud, multicloud and hybrid cloud.

   Advantages: Everything the robots and doctors/nurses are doing is logged in the cloud, for easy access to the people who need that information (debugging if errors, and information on patients for nurses and doctors).

   Disadvantages: If the cloud ever is not reachable because of an outage, nobody will get the information they need to check on patients and debuggers can't improve on errors.

d) Since we are in a pandemic, money gets thrown everywhere to improve on the situation. Since this is in public sector, the government should be funding some of the innovations, and donations from rich contractors and people with a lot of influence. Writing in the media will likely get the people onboard as well, to push for donations and the government to fund the project.

e) Goal 9, Goal 17

My robot and 5G solution hits both Goal 9 (Industry, innovation, and infrastructure) and Goal 17 (Partnerships to achieve the goals). By building and implementing my solution the infrastructure, and innovation will blossom. Infrastructure on the hospital will get much better, with Ai robots and better could and information systems. To achieve there need to be innovation from both the nurses/doctors and the companies that's make the systems and robots.

With Goal 17 in mind, the partnerships between the innovative companies (private) and public health workers working together to make this crisis better for patients, and workers.

Question 4.

a) Defensive strategy: In a defensive strategy the main problem to tackle is to protect the business for all of its disrupters and competitors.

Offensive strategy: In an offensive strategy the business is trying to disrupt the marked its in, do something new and innovative to attract customers from the defensive businesses.

The perfect example to this Is the car industry where Tesla is using a very offensive strategy to disrupt the rest of the marked within cars. To give an example of a tektology that has disrupted the marked is "Over-the Air (OTA)". With OTA the car can be updated for further fixes, bugs, and new features to improve the car further production is done.

b) There have been some innovations linked to solving the COVID-19 situation. The first example is different phone tracking applications to notify a person if he or she has been near an infected person.

Ventilators and masks are also a good example. In the start of the pandemic, the world

had a massive shortage of it. So, to solve the problem, 3D printers and its material was heavily discussed and researched about to get enough to the people who needed them. With ventilators, Intel and Medtronic worked together to digital transform ventilators with remote features, so that nurses and doctors could care for their patients with distance. This to stop spread to doctors and nurses.

c) Technical debt refers to when software development teams need to prioritize fast or speedy delivery of the code, rather than a perfect one. This often means that the code needs to be refactored later.

d) Some of the leading indicators of failure in an industrial digital transformation occurs when projects did not reach the expected value or the project never got finished, and therefore must be restarted. Some examples: lack of top-down support (support from the leaders of the business), not a good enough IDT strategy, the planning is a mismatch in contrary to doing it, and so on.

e) Light-out manufacturing is where the entire production line of the factory is automated. There are workers there, but their job is to maintain the factory and repair.

   The Moore's law is a driver for digital transformation in light-out manufacturing. There is a prediction that the number of transistors will double every two years. So, to stay true to this prediction, the industry has worked hard to stay on that path.

Kilder:

Uten dato
https://www.interimnorge.no/cio-cdo-eller-cto-hva-er-forskjellen/