Industrial Digitalization Exam

Rasmus Gullikstad Klokkervold
KN: 64

Question 1: UPS Digital Aid

a: I would suggest that UPS make up different paying and services for how they can ship products from sender to receiver. As shown with the FAA where they used drone to transport medical parchments, there are many different tasks, objects, and item's which the company seem to be shipping across the US. With a normal payment plan for businesses, people and industries, UPS can manage and deliver packages in regards of what they are transporting.

Medical Plan: This would be for companies in the medical industry which need products, organs and tests delivered quickly across nondigital boundaries. With the drone solution, or speeder drivers, this important package would be transported in quick time to their end location rather quicker.

Ordinary Packages Plan: This would be UPS as it as always been, transporting packages from sender to receiver with normal payment options. Changes needed for this would be a better tracking system, which would utilize GPS tracking for the packages by which truck they are on. As when a package arrives at the sorting bay, it will be registered to the trucks driving the roots of delivery. Once the package arrives at the sorting bay, it will notify the receiver when the truck is on route to their residence.

Company Plan: With partnership to UPS or local agreements with the distribution centres, the trucks will transport the given packages to companies only, in a direct fashion. Instead of long routes to local home's, this truck's missions is to handle direct transport to the businesses which they have written agreements with.

b: Medical Package: For this, tech like drones would have to be developed to make it easy and safe for a drone to travel long distances between medical institutions. This, in turn would need a control of either GPS or camera which will allow the drone with travel without having a man controlling it the entire trip. Only by lift off and arrival, would someone need to take control to make sure it doesn't just crash onto the landing area. But for mid-flight it would travel across the distance given, in a attitude which allow it free flight.

Ordinary Package: For this, it will need a registry which give the addresses for the packages registered to your truck and plot a route from the list of addresses of the quickest route. So if a driver got 15 streets in his zone, then instead of sending the driver down all 15 for the 40 packages that drive. With let's say 30 of those packages been on 7 different streets, it will save the driver time for not having to check in on the last 8 streets. All packages then which needs to be picked up, will also be registered to this system, as the customers will be given the opportunity to order a time for pickup within each given hour.
With such a GPS tracking system in place, they will be able to send out and pick up packages in a orderly order, without wasting time checking each area of their zones.

Company Package:

With defined trucks needed for company only drives, UPS will just have to buy in larger trucks which can handle larger loads of packages.

c: As the chief innovation officer (CINO), it would be my responsibility to have a overview on the different innovation idea's which either I or other's in the company bring forwards to help innovate in any sector within the company. This mean whenever I or any other come with a idea of innovation, that I will have to see if it is a liable and doable change, which will help the business grow and work better then before. To lead through from the start to end of this change.

d: With the innovation I have suggested, I will need to get in touch with someone who can help build, program, and develop the drones, tracking and other systems which are within the 3 packages. This by either reaching out to a IT firm or getting UPS IT department. To see if the company's department can handle it, or to get a development firm that can.

e: Industry, Innovation, and Infrastructure: With the 3 package plans, transportation will be innovated for the customers which chose to use UPS for the postal needs.

Question 2: Labs During Covid Lockdown for Students

a: A solution to allow students to have close to the same feelings and experiences as real labs from their own home, could be for the institution to design and develop a VR environment which will allow the students to join in groups together to play around in a Virtual Room. There they can run any academic lab exercises from chemistry to computers with just a couple go glasses and a desktop app. This in turn, would enable the teacher to split them of in groups, where they can communicate and work together with 3d digital models of what they are testing, in the moment.

Seen how VR experiences has come a long way to design both coding libraries, games, and platforms for people to share and experiences others work. It would be reasonable to believe that a Digital environment could be produced to give students the chance to still work on their lab projects, in the digital world were their work is saved to the cloud. Saving to the cloud, to limit and make is accessible for even those with the lowest specs on their systems.

b: For a exam survival system for students, it would be tricky to actually program or develop something that will both monitor and disable them from reaching given sites. Since the question is just monitoring, it will be rather easier. With lockdown browser, students are already limited to a space where they can only open certified tabs, like Inspira or canvas. With a similar system, instead of locking of other sites, this system will now register which domain the user is on and report back to the exam console whenever they are opening sites or apps not in the permissions list.

Like a system called Panda, which allowed the teachers to add a approved site list into a pool. Our system will have a allowed site list, for then whenever they are outside that scope, it will trigger a alert to the main console about who they are, what site they are looking up and at what times. This will limit how many sites they can visit and if they visited site's they shouldn't, then the console will log that so that the examiner can take the activity into consideration.

c: Digital Labs: VR technology would have to be experimented with to make digital room's which the students can work in, with any computer to run the system with a low memory cost and opportunity for the cheapest VR glasses on the market for the college to buy in for the students. The system will have to developed with a VR engine like UNITY, which allow any programmer to develop a simple VR environment from scratch, with community tools.

Monitored Exams: System programming of a system which monitors your screen/system to see if you are just opening the approved tabs for the exam. This not then allowing any abs or websites like Discord, Facebook, twitter, etc for students to share or talk with each other. This would be easy to implement on pc, but it would be hard to acquire legal points for having the student to download it on all his devices. Moral and laws might be stretched on that.

d: 1: Students interest to learn from programs they might have a hard time at first to get into.

2: Learning teachers first how they work, so that they can easily help the students start up. As if the teacher doesn't know how it work, then the students will not. Making it a quick way for the students to believe the system to not work for their learning goals.

3: Getting students to pay attention and do honest work on their exams. Morality in turn play a role here, but locking down all pc's, phones and other systems might cause a uproar from some students.

4: The Total shift from practical to online learning is hard enough with most students not used to using online media to communicate.

5: Separation from people and the teacher on a online classroom.

e: Quality Education: This helps to give the same level of education to those now locked at home (at least back in 2020). With them having access to systems and programs which will give them close to the same tools they had at the actual school to develop their knowledge of things.

Question 3: Medical Digitalization.

a: With the pandemic still roaring over us into it's third year, many companies have to push into the digital space with changes to their business model. With medical personal also getting the virus, there is quite many who has to stay at home, shorting out the working bodies to aid the sick back at the hospitals. Here are 3 suggestions for what might help the workers in the hospitals, raise patient satisfaction and help save costs.

1: Self check systems: Since there is a lack of workers in periods during the pandemic, there is a great chance that minor check-ups take longer to schedule. For those who needs just a check with their doctor, home call's might be a great way of checking with their patients instead of the traveling. This will greatly lower the risk of infection for the hospital, while still aiding those stuck at home.

This will mean web cam check-ups, which allow them to see and determine if there are needs for a actual physical check-up. Here the doctors can ask questions, while the patients help answer and test wherever the doc asks.

2: Robot technologies: There are already machines which is today operating on people. The Davinci medical system is a operating tool which allow a doctor to carefully operate on patients, with near perfect accuracy without the disadvantages of a human. Like shaking or nerves movements. The robots will cost to first get installed, but once it is the operating team can lessen which give time for other's check-ups instead.

3: Survey's: A simpler suggestion, but one that might help in either capacity. With having the sick take surveys about their conditions, will make and allow the doctors to quicker and easier help aid the patients in a more efficient way. The quicker they know what is wrong, the quicker they know how to handle it. This also won't cost much to implement, by either money or time.

b: Tech needed for the suggestions would be research more into the robotic technologies for medical purposes. If a A.I can help lower the time needed on each case, which in turn will also learn over time to perform similar operations, then there won't be any issue during understaffed moments.

c: Advantages: Quicker and more efficient use of their time. More personal and close aid to those in need. Simpler data collection for decision making. Cost reduction on sampling and testing to determine the conditions.

Disadvantages:

Down Net: If the web or power goes, then the systems and machines will have to be connected to the backup generators. Even if the machines have their own build in power supply, it would still leave time for recharging if the blackout last longer than the battery.

Training: There is going to take a lot of time and power to get the personal in sync with the new systems and machines. Teaching them will be worth it in the long run, but not at the first weeks.

Private, Public, Multi and Hybrid.

d: For these services to be developed and delivered to the public in a quick fashion, outside parties must be called in to work and develop each suggestion. Cost would be covered by the state if the hospitals are not to supply the funds. There are already companies out there like Boston Dynamics who are developing systems and robotics for the medical industry, but it would take time to develop and test all of the given suggestions before they would be actually safe for the public.

e: Good Health and Wellbeing: This would help to give quicker and more detailed help to the people who needs it during the pandemic. Either they are needing much or little help with any medical cases.

Industry, innovation, and Infrastructure: With the development of machines to help with medical cases, there might finally be a start of A.I that can aid to function as a helping hand for operations and check-ups in the future. Who know, we might get close to the age where a human doctor won't be needed during any procedure.

Question 4: Industrial Digitalization for Business

a: Defensive strategies: This is when you build something which is to stay afloat during a recent time. Like, if your competition has developed something new, then you will have to make the same thing to stay in the game. It's to adapt and survive while your competition changes the play book. Example of this would be when Android started to make smartphones in 2005, with the first touch screens. Apple two years later then launched the iPhone, to get into the mobile market, but also to keep it's company floating during a new time.

Offensive strategies: This is when you as a company, is the first one to make the new rules. You are the one who is pushing a new change to the market, which will make all other's adept to the changes you are making. You are Android in this situation, while everyone else is Apple which is trying to stay in the ocean without sinking.

b: When a crisis happens which touched your industry in a mayor way, you either adapt to find ways to survive it, develop solutions to come out on top during it or crash and burn for your lack of survival instinct. When a crisis hit down, your business model will be tested to see if it will survive what the crisis bears with it.

Let's take the transport business as a example. In countries where tsunamis and floods are common, it must be hard to get packages to your doorstep in such dangerous weather. For local transport companies, they would have to invent ways to get the packages safely to their targets. If the danger is their car getting stuck in a mud slide, then they would have to find other routes in time. It's the basic instinct of changing how to do a job, to get the most preferably goal out of it.

When covid hit the world, many companies needed to send their people home, for then to change meetings from board rooms over to Zoom calls. A hard and crazy change for those used to the long tables, but a needed one of they wished their companies to continue during and after the pandemic.

c: technical debit is when a group or company speeds up the development of a project or product to the point where it matters more that they meet the deadline, instead of making sure the project is 100% prepared in the correct way. For then having to go back on the development to fix any faults that their rushed job might have caused with the lack of proper testing time.

Like a phone who launches with 50 bugs, which then 2 weeks later get a hot fix for those issues the company could have spotted before launch.

d: 1: Implementing new tech, into broken systems

2: Worker's resistance to new changes

3: Miscommunications of the end goals

4: Wrong people for the work needed

5: Lack of commitment

6: Poor data collection for changes that need them

7: Overestimating benefits, underestimating cost.

e:

Lights-out Manufacturing is the process of any production been automated to the point where there is no need for a human. So that the ventilation and lights in the room can be shut off, and the machines running on their own to produce whatever that factory might be producing. With the practice in digital transformation, is the main point of what is driving development into this pracess. As factories and industries start doing Lights out, means that the production has reached such a level that it can run without anyone having to operate the machines. Repairs and overseeing might be needed, but no actual personnel would be needed for fish to be put in the can. Some benefits to this practice would be:

- Reducing the operational costs
- Achieving higher efficiency with automatics
- Reducing downtime
- Rising safety concerns for workers
- Production customisation
- Labour shortages