INFOSYS 321 Semester One 2021

Assignment 1

Submission due:

By 1:00pm Friday, 26 March 2021

SUBMISSION DETAILS

- Submit one report as a WORD document (not a PDF) containing all your answers. The report must be submitted electronically to Turnitin via CANVAS | Assignments | Assignment 1. No additional hardcopy submission is required.
- The WORD file to be submitted must be named "Assign1_321_yourUPI".
- Your EPC models must be readable in your report and also stored in your designated ARIS database (access to the ARIS database will be disabled after the deadline).
- When completing the tasks, feel free to make reasonable assumptions, where needed, but remember to state them.
- Each submission must have a Title Page stating the Course, Assessment name, due date, and your UPI & Name.
- Your WORD document should be formatted and written in a consistent and professional manner, which supports readability and understandability.
- Markers reserve the right to deduct marks for unprofessional or otherwise 'difficult to mark' work.
- Reference all sources where appropriate. You should use APA referencing style, the standard style required at the Business School. For information about APA referencing, see information provided by the Library via CANVAS | Modules | Getting started | Library Resources.
- By submitting, you agree to the UoA academic honesty principles and practices outlined here: https://www.auckland.ac.nz/en/about/teaching-learning/academic-integrity.html
- Late assignments will receive a 30 mark penalty per (part or full) day late. Final deadline for accepting late submissions is Saturday, 27 March 1:00pm.
- All late assignments should be emailed as WORD file attachment to Aida (a.shams@auckland.ac.nz)

Fictional Case

You are part of a team from a young and aspiring consultancy, *ESSolution*s, which has just won an exciting project with Kiwi Campus, a Colombian-owned start-up company providing food deliveries in California, United States, using largely autonomous robots called Kiwibots.

ESSolution's excellent reputation in the areas of strategy consultation, business process improvement and enterprise systems implementations have persuaded Kiwi Campus to ask for an initial proposal for an overhaul of their general strategic direction as well as their key business processes. Pending their satisfaction with this proposal, a significantly larger project may be awarded to your consultancy.

A senior consultant has provided you with a rough outline for the mentioned proposal, which is phrased in a number of tasks listed on the following pages of this document. You are further required to consult the case background description supplied to you to inform your proposal (see pp. 6-8 'Burrito Delivered by Bot, as Long as Students Don't Trap It'). You are also encouraged to do your own background research using research databases and/or reliable sources from the World Wide Web.

Assignment Tasks **(Total Marks: 100)**

Be succinct in your answers. Do not write more than necessary to directly address each task. Attempt to stay within the word limits given for each written answer.

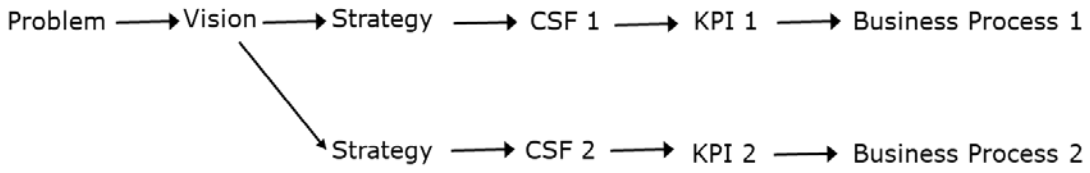


Figure 1: Conceptual linkages between Tasks 1 to 6

1. Identify two key industry **problems** and/or **challenges** for Kiwi Campus to achieve and sustain competitive advantage.

For each problem/challenge, (1) provide a one sentence summary, (2) describe it, and (3) justify why it is a key problem/challenge.

[Maximum total word count across both problems: 300 words]

10 Marks

2. State a **vision** for Kiwi Campus that would (1) enable the company to focus on their key strengths and (2) to overcome the problems/challenges you have identified in Task 1.

[Maximum word count: 100 words]

6 Marks

3. Identify two key **strategies** that would enable Kiwi Campus to achieve the vision that you have identified in your answer to Task 2 as well as to achieve and/or retain sustained competitive advantage.

For each strategy, (1) provide an appropriate name, (2) describe it, and (3) justify why the strategy is essential for enabling Kiwi Campus to achieve and/or retain sustained advantage over their competitors.

[Maximum total word count across both strategies: 300 words]

10 Marks

4. Identify one **critical success factor** (CSF) for each of the key strategies identified in Task 3 (that is **two** CSFs in total, see Figure 1 above).

For each CSF, (1) provide an appropriate name and (2) justify why the CSF is critical to the success of the related strategy.

[Maximum total word count across both CSFs: 300 words]

8 Marks

5. Identify one **key performance indicator** (KPI) for each of the CSF you have identified in Task 4 (that is **two** KPIs in total, see Figure 1 above).

For each KPI, (1) provide an appropriate name, (2) justify why the KPI is effective in measuring the related CSF, and (3) indicate if an increase in the measured value of the KPI would be beneficial or detrimental for the related CSF.

[Maximum total word count across all KPIs: 300 words]

8 Marks

6. Identify one **key business process** for each of the KPIs you have identified in Task 5 that could help improve it (that is **two** business processes in total, see Figure 1 on p.3).

For each business process, (1) provide an appropriate name and (2) justify why efficiencies in the business process are strongly related to the respective KPI.

[Maximum total word count across all processes: 400 words]

8 Marks

7. Business process reengineering (BPR) is not only known as a highly effective technique to bring about organisational change, but also as being considerably expensive. Prepare the following TWO modelling and reengineering examples to persuade Kiwi Campus management of *ESSolution*'s expertise in this area as well as of the merits of BPR in general.

The senior consultant in your team has had a long chat with Kiwi Campus's Chief Technology Officer (CTO). Given Kiwi Campus constant Research and Development efforts in Kiwibots, he is focused on significantly improving the 'Quality Assurance Process'.

Your manager thinks it is crucial for the success of *ESSolution*'s proposal to outline how you could help to improve the 'Quality Assurance Process' for Kiwi Campus.

a. Create a number of **connected** Event-Driven Process Chains (EPC) to represent Kiwi Campus's 'Quality Assurance Process'. The EPC must align with the information provided in the box below. Place an image of your EPC model in your report that is well-readable at 100% zoom. Also save your answer in your ARIS database under the AS-IS folder.

30 Marks

For Kiwibot to remain relevant and outperform its competitors, the quality of the robots themselves must be held to the highest standards. Because of this, one of the main value-adding processes for Kiwibot is its Quality Assurance Process. Once the robots from production are completed, they are sent to the Quality Assurance Lab to undergo testing. Here the robots will be checked for any minor or major faults that may have occurred during the production process. Each robot is issued with a Quality Inspection Number (QIN) in the system so that all the results affiliated with a specific robot can be recorded efficiently.

The robots are then visually inspected, and they undergo a tech scan simultaneously. When a robot undergoes a tech scan, it needs first to be attached to the scanner by a Tech Assistant. The scanner will then simultaneously scan the software and the hardware, ensuring the system is running correctly and that the hardware is up to scratch. The software scan must check that the system is running smoothly and ensure there are no security breaches. While the scans are being undertaken, the Tech Inspector (TI) does a visual inspection of the robot to ensure that anything that the scan has not picked up can be addressed. To ensure any debris is not in the way of

the visual inspection, the TI quickly wipes down the robot with alcohol wipes, and from here, the visual inspection goes underway.

Once the scans and visual inspections are complete, the results are recorded in the system against the robot's QIN. From here, the system will determine if there are either no faults, minor faults, or major faults. If there are multiple faults with a robot, the system will categorise that based on the most serious type; e.g. if a robot is deemed to have both minor and major faults, it will be categorised as having major faults for the purpose of being repaired.

If there are no faults with the robot, it is approved and will proceed to be packaged and sent for delivery. Minor faults are addressed by the Repair Assistant (RA) on hand, who will tend to the robot and fix any minor faults. Once minor faults have been fixed, the robot is reassigned a QIN and is put through the tech scan and visual inspection again to ensure minor faults have been successfully fixed and will not cause any further issues. Unlike major faults, which cannot be dealt with on hand in the Quality Assurance Lab, they are sent back to the production department to be reassembled or reconfigured.

Consider the following constraints when designing your models:

- No EPC should contain more than SEVEN levels of **functions**. If you exceed this number, use drill-down models as shown in the labs.
- Each of your EPC models should contain at least two objects for each major pillar of the ARIS house (Function View, Control View, Data View and Organisation View).
- Your EPCs should describe one connected process.

b. Conduct a **business process reengineering** exercise on Kiwi Campus's 'Quality Assurance Process' (as modelled by you in part 7a.) that addresses ONE problem/challenge (answer to Task 1) and supports your vision (answer to Task 2) for Kiwi Campus. Consider the same modelling constraints as in part **7a**.

(1) State an objective for your reengineering,
(2) Justify how this objective relates to your identified problems/vision, and
(3) Describe the changes you have made to your original EPC.

Place a well-readable image of your reengineered process model into your report and document your changes, as needed, with partial screenshots throughout your written change proposal. All images of your process model must be well-readable at 100% zoom. Also save your reengineered model in the TO-BE folder in your ARIS database.

[300 words in total for Task 7b].

20 Marks

Burrito Delivered by Bot, as Long as Students Don't Trap It

A student at U.C. Berkeley, receiving an order from a Kiwibot (Photo Credit: Ulysses Ortega for The New York Times)

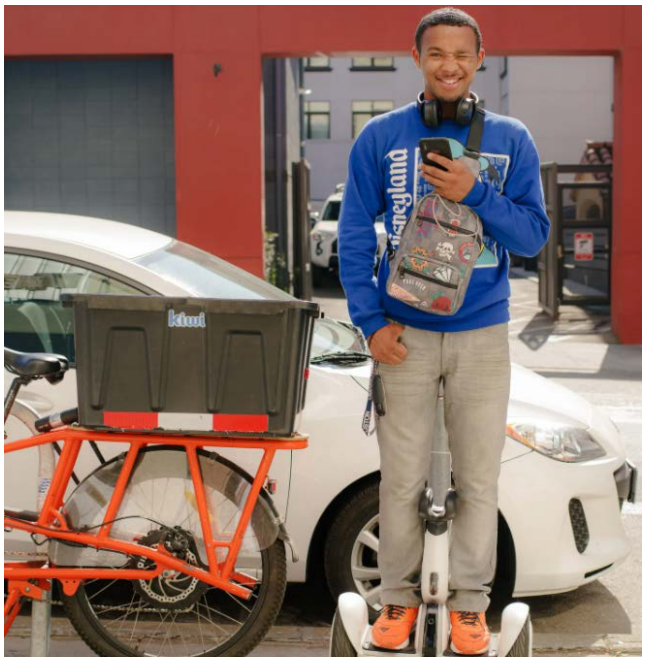
Come lunchtime on the campus of the University of California, Berkeley, thousands of students rush out for a bite to eat and head back to class. However, for more than a year, a few hundred have stayed put and instead summoned a knee-high robot bearing a burrito, a burger or other meals from a nearby restaurant. The robot invasion is underway, and the intruders are bringing hot pizza.

Kiwi Campus, a start-up that operates in the square mile surrounding the university, has made more than 60,000 robotic food deliveries in the past two years. "There's nowhere in the world that robots are a more integral part of its sidewalks than Berkeley," said Sasha Iatsenia, Kiwi's head of product. "It's ultimately a social experiment to see how robots get accepted by a community."

The company takes a trial-and-error approach. The path followed by each robot at first was guided entirely via remote control by Kiwi employees 3,800 miles away in Medellín, Colombia. So-called pilots, still in Colombia, where the founders are from, now set and adjust a series of waypoints along a path. The delivery bot is about the size of a proverbial breadbasket, and it carries a single cubic foot of cargo. The devices, which have an onboard computer and six cameras, cost about $3,500 each to produce in China. The final assembly takes place in Berkeley.

Maya Goehring-Harris, associate director of external relations at U.C. Berkeley, is a superuser of the Kiwibots. "I generally don't leave my desk for work," she said. "All of a sudden, there was a way for my favourite places to bring food to me rather than having to go walk for 10 minutes." Ms. Goehring-Harris does not like people-based food deliveries, which she believes can be unhygienic. "Food safety means less human involvement," she said. Besides, the economics work out better. "I don't tip a robot." She was so frequently placing orders — at

$2.80 per delivery — that she upgraded to the company's Prime account at $15 a month for unlimited use.



Turhan Ammons, a Kiwibot courier in Berkeley, said nearly half his orders need to be delivered on a Segway or on foot because the bots run into problems.(Photo Credit: Ulysses Ortega for The New York Times)

A few weeks ago, Turhan Ammons, a 20-year-old Kiwibot courier and a student at Berkeley City College, was perched atop a self-balancing electric scooter, rifling through shelves of to-go orders at Chipotle on Telegraph Avenue. He quickly snatched a brown bag and went searching for the robot designated to transport the burrito. Mr. Ammons and the four other so-called Kiwi Mates on the shift repeat this process over 350 times a day. "It's like an assembly line," he said.

Unfortunately, the robot meant to deliver the burrito was pranked by students. They placed it behind a traffic barrier, effectively caging it. "My job is to go around and rescue food, as when people interfere with the robot, it can take much longer time to deliver the food," said Mr. Ammons, who has seniority on the team.

In a previous instance, one of the KiwiBots went up in flames – highlighting the risks of lithium polymer batteries that have become popular in gadgets from drones to e-scooters. Kiwi Campus says the fire resulted from a good battery inadvertently being replaced by a defective one. A custom monitoring software is now installed to avoid it from happening again.

Kiwibot is a work in progress. Its bots frequently lurch in front of pedestrians. The GPS is imprecise, so couriers and customers need to hunt down the robot's locations, sometimes behind bushes. Although these Kiwibots can navigate most sidewalks and deliver products, time and research are needed to improve their autonomy. As Mr Iatsenia, Kiwi's product chief had pointed out, they have tried going fully autonomous and that it worked. Well, most of the time. However, most of the time is still not good enough for commercial service.

Next, while people have, in general, become relatively accepting of these robots, some take exception. There are regular reports of minor bot abuse by those protesting high-tech invasiveness. Ms. Zambrano, manager of business development for Kiwi Campus, noted instances where some people kicked the robots a little bit while others displayed anti-social behaviours towards the robot by acting violently towards it. Josh Hooks, a UCLA mechanical engineering graduate, agrees. "I saw someone with a bike slammed into it just to find out what happens when you make it go flying. People don't think it's a crime. I think there's a

disconnect because it's a robot. Also, if you took food from a human, it's very easy to understand that that was a crime, but if you mess with a robot, people are kind of disconnected from that." Hooks said.

Mr. Iatsenia, is undaunted. Kiwi Campus plans to eclipse a million robotic deliveries on college campuses before the end of next year, and Mr. Iatsenia is guided by a grand vision of displacing car delivery. "DoorDash and Uber Eats use two-ton Hondas to deliver a small container of hummus. That's very inefficient," he said.

He cited the use of a tall orange flag (to help find the bot) and a digital smiley face on the bot (to endear it to pedestrians) as design innovations. "A lot of companies in the space are focused on building the best robot that works amazingly in a lab, but that doesn't mesh seamlessly within the fabric of our sidewalks as the Kiwibot does," he said.

Kiwi Campus is not the only company getting into the autonomous robot delivery business. Many companies, for instance, Aethon, Nuro, Savioke, and BoxBot, already create robots that serve enclosed premises such as corporate campuses, hospitals, and universities and might soon be seen on city streets. These bots deliver paperwork, food for snacks and lunches, lab tests, and more. Some of these companies are backed by large organisations such as Toyota, ThyssenKrupp, and SoftBank Vision Fund, and are all trying to develop their particular niche of service in autonomous delivery robots.

These small bots could, in theory, solve many of these "last mile" problems by offering an efficient, quick, and inexpensive way to get your stuff whenever you needed it. This is easier said than done; there are plenty of unanswered questions about how these bots should operate in society. They must be good citizens, respect humans, and do their job as invisibly as possible. All without getting into accidents, attacked or bursting into flames first.

Case is adapted from:

Berman, B. (2019, November 7). *Burrito Delivered by Bot, as Long as Students Don't Trap It.* The New York Times. https://www.nytimes.com/2019/11/07/business/kiwibot-delivery-bots-drones.html#commentsContainer

Coldewey, D. (2019, April 26). Kiwi's food delivery bots are rolling out to 12 more colleges. TechCrunch. https://tcrn.ch/2GxO6c1

Marr, B. (2020, May 29). *Demand For These Autonomous Delivery Robots Is Skyrocketing During This Pandemic*. https://www.forbes.com/sites/bernardmarr/2020/05/29/demand-for-these-autonomous-delivery-robots-is-skyrocketing-during-this-pandemic/?sh=697947e57f3c

Shapero, J. (2021, February 23). *Human interference with Kiwi Bots may result in reduced service quality*. Daily Bruin. https://dailybruin.com/2018/10/30/human-interference-with-kiwi-bots-may-result-in-reduced-service-quality