

INFO-H420
Management of Data Science and
Business Workflows
Practice Session – Solutions
Qualitative Analysis

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University Admission Process

In order to apply for admission, students first fill in an online form. Online applications are recorded in an information system to which all staff members involved in the admissions process have access. After a student has submitted the online form, a PDF document is generated and the student is requested to download it, sign it, and send it by post together with the required documents, which include: certified copies of previous degree and academic transcripts; results of English language test; curriculum vitae; two reference letters.

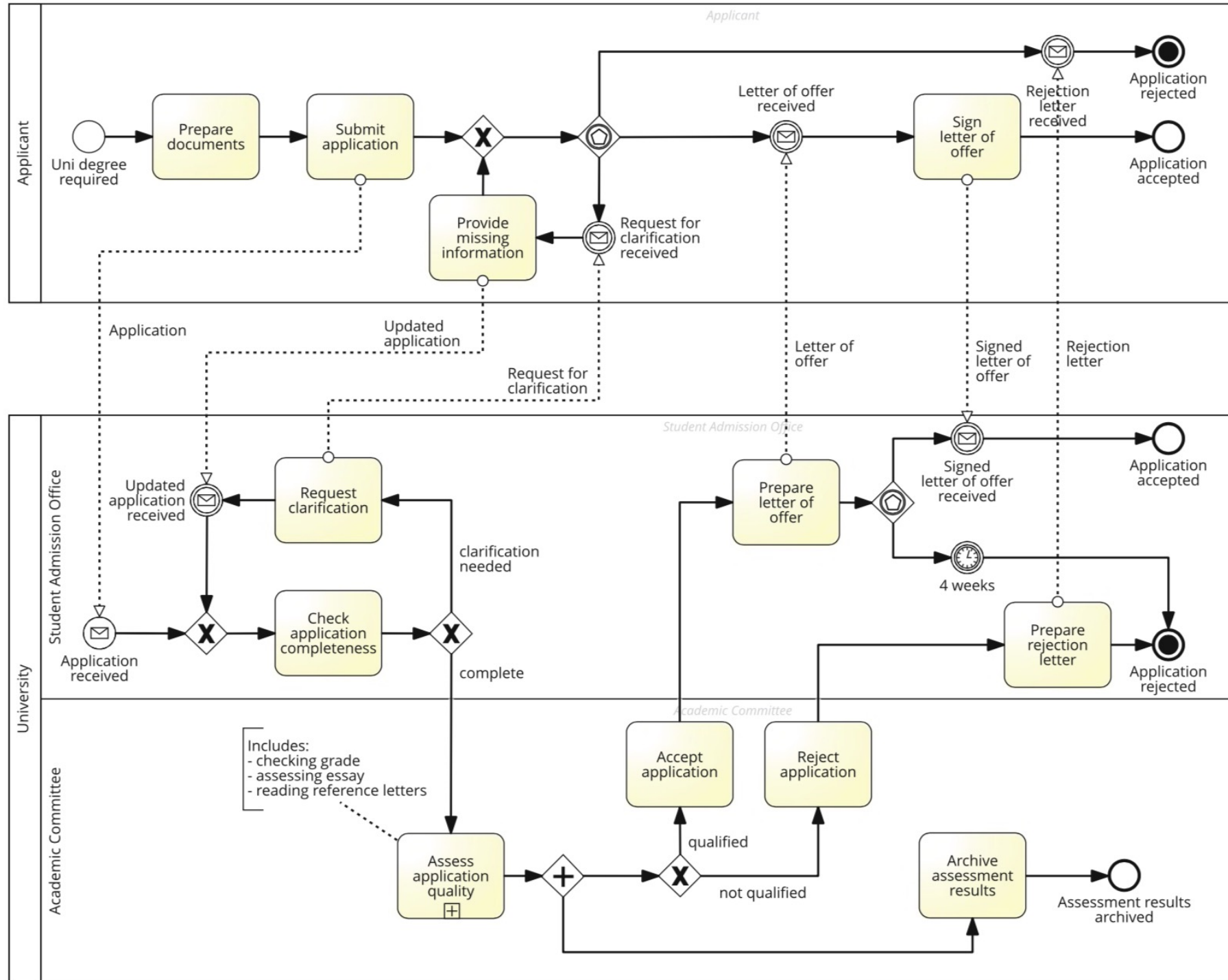
When these documents are received by the admissions office, an officer checks the completeness of the documents. If any document is missing, an email is sent to the student. The student has to send the missing documents by post. Assuming the application is complete, the admissions office sends the certified copies of the degrees to an academic recognition agency, which checks the degrees and gives an assessment of their validity and equivalence in terms of local education standards. This agency requires that all documents be sent to it by post, and that all documents be certified copies of the originals. The agency sends back its assessment to the university by post as well.

University Admission Process

Assuming the degree verification is successful, the English language test results are then checked online by an officer at the admissions office. If the validity of the English language test results cannot be verified, the application is rejected (such notifications of rejection are sent by email).

Once all documents of a given student have been validated, the admissions office forwards these documents by internal mail to the corresponding academic committee responsible for deciding whether to offer admission or not. The committee makes its decision based on the academic degrees and transcripts, the CV, and the reference letters. The committee meets once every three months to examine all applications that are ready for academic assessment at the time of the meeting.

At the end of the committee meeting, the chair of the committee notifies the admissions office of the selection outcomes. This notification includes a list of admitted and rejected candidates. A few days later, the admissions office notifies the outcome to each candidate via email. Additionally, successful candidates are sent a confirmation letter by post.



Exercise 1

What steps can you extract from this process? Classify these steps into VA, BVA, and NVA.

Exercise 1 - Solution

- VA: receive online application, assess application quality, send notification to student
- BVA: check completeness, archive assessment results
- NVA: receive physical documents from students, forward documents to committee, notify admissions office.

Exercise 2

Identify wastes in the process and classify them according to the seven types of waste.

Each year, the university receives in total 3,000 online applications. There are 10 study programs. Each study program has 30 study places. The top-5 applicants in each study program are offered scholarships in addition to a study place. Applicants initially ranked in positions 6 to 30 in their study program are offered a study place but without a scholarship. After the committee has examined the applications, each application is either: (i) accepted with a scholarship, (ii) accepted without scholarship, (iii) admissible but not accepted unless a study place is freed up by a higher-ranked applicant, or (iv) rejected due to low scores or plagiarism.

Successful applicants must accept or decline the offer at most two weeks after notification. If an applicant declines the offer, his or her study place is allocated to the next admissible non-admitted applicant in the ranking of his or her study program. If an applicant with an allocated scholarship rejects his or her study place, the scholarship is allocated to the next applicant in the corresponding ranking who does not yet have an allocated scholarship.

Exercise 2

Applications are rejected or discarded for the following reasons:

- 20% of applications are rejected initially due to deficiencies in the online application form (e.g., missing documents). In half of the cases, the applicant manages to fix the identified issues and the application passes the administrative check after the second try.
- 10% of applications are rejected because the hard copy is not received on time.
- 3% rejected due to a negative advice from the academic recognition agency.
- 2% rejected due to invalid English language test.
- 5% rejected due to plagiarized motivation letter.
- 5% rejected due to poorly written motivation letters.
- 15% rejected due to low GPA.
- 20% of applicants are offered a place but decline it. In 60% of these cases, the applicant declines because he or she expected to get a scholarship, but his or her score was insufficient. In another 30% of cases, applicants decline because they had already accepted an offer elsewhere. The rest of cases where applicants decline an offer are due to personal reasons.
- 20% of applicants are declared admissible but do not receive an offer due to lack of study places.

The admissions office handles circa 10,000 emails from applicants concerning the application process, including questions about the application form, the required documents, the eligibility conditions, the application status, etc.

Exercise 2 - Solution

Transportation. Right from the start of the process, we can spot transportation waste in the form of physical documents sent by the student to the admissions office, emails from the admission office to the student, and further documents sent by the applicant if the initial application is incomplete. The latter events can also be seen as defect waste. We also note that there is a handoff from the admissions office to the committee and back. These handoffs are transportation wastes too. Other transportation wastes come from the interactions between the admissions office and the external academic recognition agency.

Waiting. When the admissions office finds that an application is incomplete, an email is sent to the student asking for the missing information or documents. The fact that the application is put on hold until additional input is received from the candidate is waiting waste. Later in the process, the committee batches the applications and examines them every three months. This batching generates waiting waste. There may also be idleness waste during the period when the admissions office is waiting for the decisions of the academic committee, but without further information, it is not possible to assert that this idleness indeed occurs in practice (it may be that the office handles other work in the meantime).

Exercise 2 - Solution

Inventory. Given the committee meets every three months, we can hypothesize that at a given point in time, there are several hundred applications in a pending state. This constitutes inventory waste.

Defect. When an incomplete application is sent back to the applicant, the application needs to be checked again after the student resubmits a revised application. This second verification of completeness is rework, hence defect waste.

Exercise 2 - Solution

Overprocessing. Officers in the admissions office spend time verifying the authenticity of around 3,000 diplomas and language test results submitted by the applicants. In the end, however, only 5% of cases reveal any issues. Later on in the process, three quarters of the applications are passed on to the admission committees. The university ends up making a study place offer to only 20% of the applications that they receive. The fact that the document authenticity was verified for all the applications rejected by the committee is an example of overprocessing.

Overproduction. We can see two sources of overproduction waste: cases where an applicant rejects the admission offer he or she receives (20% of cases) and cases where the applicant is declared admissible but does not receive a study offer due to lack of places (20%).