Scenario Planning

In November 2018 a small group of staff was asked to consider contingencies to improve resilience of the main diet processes in the absence of key SQA online based applications.

The group presented some recommendations on how SQA might respond to a significant disruption to the delivery of the 2019 Main Diet in relation to:

• A critical shortage in the number of available appointees
• A critical failure of IT system(s)

The following contingencies were considered in early 2019.

• Proposal #1 – the Minimum Viable Product (MVP) approach, assuming that the main entry/award database, RP [result processing system] and/or RM Assessor [e-marking system] are unable to produce and/or receive data
• Proposal #2 – the RP failure approach, assuming that RP fails at some point before certification processes begin, therefore some/all results need to be gathered and produced manually

In the MVP plan, it was assumed that:

a. All existing Disaster Recovery (DR) / Business Continuity Processes (BCPs) will be invoked first
b. SQA teams will be available if required and will support the recovery
c. It should only be invoked as a result of all systems failing
d. All contingency solutions work as designed (as not all will have been fully tested)
e. Third-party service providers will operate within agreed Service Level Agreements (SLAs)
f. The telecommunications infrastructure (required for contacting staff and suppliers) remains fully operational
g. Someone from the statistics team is available to run the weekly/daily backup scripts – low risk
h. Someone from the statistics team is available to retrieve the file in the event the contingency is to be deployed – low risk
i. The process of further distribution/communication of results is assumed to be handled by other areas as this contingency covers the creation, storage (‘existence’) and retrieval of the file in the event of it being required. It does not cover matters of relaying information to centres/candidates and associated communications.

Minimum Viable Product (MVP)
The MVP approach is the worse-case scenario whereby SQA has no marks or assessment data, due to multiple systems failure, and needs to revert to the use of estimate marks supplied by centres (the teachers’ best estimates of the likely attainment of each candidate).

There is no Business As Usual process for this. This process will not take place outside of catastrophic system failure and in the situation where large volumes of course assessment data are unavailable and SQA is required to issue candidate results under time pressure with no more appropriate solutions available.

In the event of the MVP contingency being considered for implementation, the organisation will already be aware of ongoing and persistent system issues, which could have significant reputational impact. Given that MVP is the final contingency when all other options are exhausted, it is likely that the wider contingency plan for the education system in Scotland
will have been invoked, involving Scottish Government and SQA, as well as wider stakeholders - the Qualifications Contingency Group.

Awarding results/grades without considering course assessment performance is not ideal however in this situation, estimates are the only information available to make any assessment decisions.

Partial data being processed prior to the major failure poses a significant challenge to the use of MVP, as potentially the results for a subset of the candidates will have been established. It is possible to envisage a scenario when MVP is considered to be used for the remaining candidates. This is unlikely, however, given that in the presence of partial systems where marks are being processed (albeit, slowly), it is likely that other contingency approaches would be preferred instead of MVP.

The process of getting the MVP results outside of SQA to centres/candidates etc. remain undetermined – this is partly due to the fact that it likely will depend on the specific circumstances SQA find themselves in under such a catastrophic situation. Regardless, the mechanism of distributing MVP results to wider stakeholders needs to be determined.

Context

As part of the main diet contingency planning, several options were explored for the Minimal Viable Product [MVP] contingency plan, in the instance assessment data are not readily available from some SQA system. The aim is to facilitate a decision to be made on the formal process to be adopted in such cases.

In all proposed options, consideration has been given to SQA's Code of Practice and Governing Principles (SQA, 2017).

Status

In the instance where SQA is unable to process assessment marks, the aim of any approach is to use what little information is available to determine the most appropriate and fair assessment outcome for all candidates. The 'most appropriate and fair assessment outcome’ will for any sensible approach have to be firmly based on the primary source of information that is available to make such a decision; which in this instance would be centre estimates.

Any proposed model for the MVP should, if at all feasible, factor in the qualification and qualification level to account for any differing level of inaccuracies for each qualification/level combination.

Underlying Pre-requisites

As far as can be possible, the process to be adopted should be simple, transparent, and not influenced by the personal opinion of any SQA personnel; this ensures consistency in the process and protects SQA from accusations of bias in any direction.

The process to be adopted must only be used where actual assessment evidence for candidates is not available. Where assessment data is available, sensible use of this data would be a necessary requirement. The value of estimates is greatly diminished once SQA has the majority of the course assessment (marks) data obtained through the planned assessment. Any process adopted will be based on predicting assessment outcomes in the absence of/prior to any assessment data being available.
This paper does not set out or demonstrate any methodology or application of any rules but is merely to highlight possible options available. In the instance that an alternative solution presented below is the preferred option, further considerations regarding the methodology, practicalities and feasibility of applying the rules would be required.

**National Model**
A model that attempts to consider the relationship between the estimates and the actual grade received for the previous academic year. For each qualification/level combination, at the national level, an adjustment would be applied to the current centre estimates to determine the candidate’s final results.

**Education Authority Model**
A model that attempts to consider the relationship between the estimates and the actual grade received for the previous academic year. For each qualification/level combination, *at the education authority level*, an adjustment would be applied to the current diet’s centre estimates to determine the candidate’s final results.

**Centre Model**
A model that attempts to consider the relationship between the centre estimates and the actual grade received for the previous academic year. For each qualification/level combination, *at the centre level*, an adjustment would be applied to the current diet’s centre estimates to determine the candidate’s final results.

**Variations on Proposed Solutions**
Variations of the proposed solutions should also be taken into consideration as they could reduce any possible limitations.