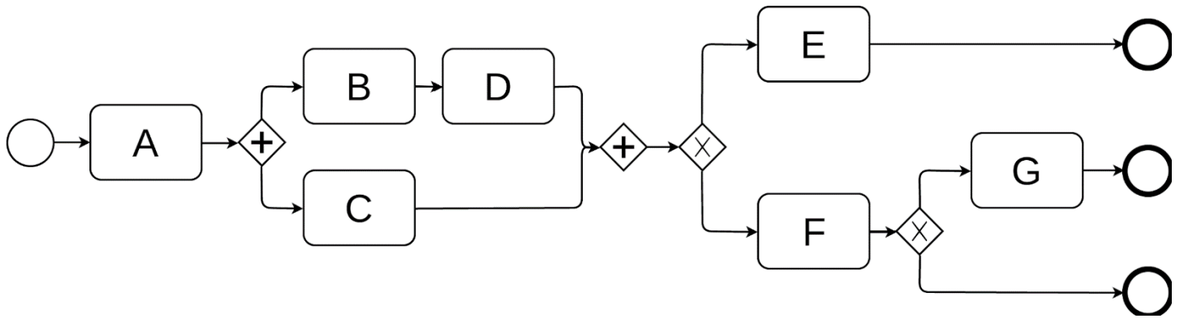
Process Model 1 - Behaviour Documentation

This page contains all the documentation which is available for process model 1. Process executions which comply to this documentation should be assumed as being benign while deviations from this documentation should be considered as anomalous.

Control Flow related documentation

The control flow should be executed in accordance to the given process model. Note, that sometimes the process execution system does not log executions of activity B due to an internal implementation error. Note, this is not harmful nor anomalous and will be fixed in a future release.



Process Documentation

All applications are submitted via official Application Centers (A), who have responsibilities that include the verification of the applicant's identity. Prior to the introduction of the eApplication interface, all of these applications have been submitted using paper-based application forms. These were scanned, and the data contained within them was keyed manually onto the DBS systems for further processing. Such a paper-based process provides an opportunity for errors to be introduced, either on the paper form itself or during manual keying. Such errors may not be found until later in the process, introducing delays. Some As already capture much of the data present on the application forms in their own systems, so the data may be keyed twice.

The introduction of the eApplication interface provides a mechanism for so called "eAs" (As who are registered to use the eApplication service) to submit applications electronically to the DBS and receive notifications electronically concerning the result in the form of an "eApplicationResult". The given BPMN diagram shows a typical example how the process with the introduction of eApplication looks. In the example shown, all of the information required for the employment application and the DBS application is provided, by the applicant, on a single form.

Using the existing paper-based process, *As* send application forms to the DBS and further verification steps individually or in batches. The eApplication interface similarly enables As who use the interface to submit batches of one or more applications. The eApplication service enables to the verification of the citizenship *(C)* state of an applicant along with the verification of attached Building Permit Applications *(B)*. Note, we have experienced complaints about a potential bias towards specific citizen birthplaces in the Building Permitted Applications Departments. Accordingly, this department only receives, from now on, anonymized applications and it must be ensured that **not** the same employee processes the same application in both departments. Hence, for *B* & *C* a SoD constraint exists.

The latter is the case as solely citizens of this state are permitted to own and develop property. Finally, the Disaster Information and Prevention Department *(D)* checks the location of the building permit for potential hazards. The latter was necessary as the number of landslides has significantly increased in recent years - a consequence of deforestation, heavy rainfalls and storms. Hence, while *B* checks for statical and design issues *D* verifies that the chosen location is most likely safe to build on. Note, that Application Centers and, in particular, their employees, continue to have responsibilities in respect of the applications that they submit by eApplication, as laid out in the DBS Code of Practice and accompanying guidance. As is the case for paper submissions, this includes responsibility for verifying the identity of applicants but also that the same employee is responsible for handling the application during the initial application submission in *A* and the disaster relation analysis in *D*. Hence, for *A* & *D* a BoD constraint exists.

Depending on the outcome of *C*, *B*, and *D* an application can either be granted or declined. If it is declined the exclusion criteria are documented and reformulated by the Application Exclusion Department *(E)*. This reformulation can typically be performed quickly, however, it was found that when the initial application submission is complex and takes long then also the documentation of the extraction criteria takes overly long. Hence, if activity *A* takes overly long it is expected that *E* takes also overly long. It was found that, on average activity *A* takes about 70-110 minutes and activity *E* about 60-97 minutes to complete.

This is likely related to the fact that the related applications are overly complex or not following the intended way of representing all the relevant information. The latter became especially relevant in recent years as the Application Centers are increasingly flooded with applications. Thus, it seemed logical that a strict permission system was implemented, and efforts are made to develop a system which is capable of automatically deciding if an application should be declined or not. While we are currently only testing this automatic system on a selected limited set of applications we have already experienced a number of fraud attempts and bribes related to it. For example, applicants tried to bribe members of the Application Exclusion Department to alter the systems configuration and data to automatically accept specific applications. To mitigate this scenario, we have decided that different workers need to handle an application in the Application Centers and the Application Exclusion Department. Hence, for *A* & *E* a SoD constraint exists.

Alternatively, if an application is granted it is first checked if the applicant has chosen to apply for a fast track approach *(F)*. While this typically results in a faster processing it typically also involves higher application fees. Further, we are currently applying an incentive system to motivate applications to professionalize the documentation of their building permit applications (e.g., by providing all plans in specific formats). This was found to dramatically speed up the application processing in the Building Permit Applications Department *(B)* such that we are rewarding such applications with a fast-automatic grading of the fast track application handling. So, if activity *B* finished exceptionally fast then it is expected that *F* is also completed faster than average. It was found that, on average activity *B* takes about 65-85 minutes while activity *F* takes, on average, about 75-110 minutes to complete.

Hence, it applications which are not applying for the fast track approach are typically hold back in the Global Storage Department *(G)* for a random amount of time to ensure, that on average, fast tracked applications are finished faster than general non-fast track applications. Typically, this random time amount is at least partly correlated with the amount of time it takes to decide on the fast track application status in *F*, i.e., if this decision can be made quickly, and the fast track is not applicable than then the application stays longer in the Global Storage Department to increase the overall processing time. Finally, in either case, the outcome (i.e., if the application was granted to not) of the application handling process is communicated to the applicant.