Regarding (i), a series of human-in-the-loop validation exercises with airspace users on the SFP and FDA mechanisms has allowed us to mature the concept with regard to its feasibility and benefits, and further validation involving the ATM and airport actors is planned in SESAR2020 to complete such integration. In addition, performance modelling will be carried out, where challenges remain regarding the integration of uncertainty into both the modelling and application of ATFM in general, and prioritisation mechanisms in particular. Further research, planned by the authors of this paper, includes the incorporation of uncertainty (e.g., due to unpredictable events and changes in decision-making) into future models and an examination of how this impacts the robustness of solutions. This will also include the use of larger traffic data samples (particularly those with sufficient inclusion of common LVUC traffic mixes) and simulations to allow both the performance assessment of UDPP and the further exploration of assumptions made regarding on-going ESFP development and the extent to which it may be effectively generalised to all airspace users and across different hotspots. This generates further intriguing challenges that we have not had space to explore in this initial paper, particularly with regard to the usage, applicability, transferability and expiry of 'leftover' operating credits. Such future research will also need to establish metrics and indicators that can measure the impact of ESFP on established key performance areas (KPAs) – these impacts are currently relatively poorly understood, with hardly any insights available into the trade-offs between them.

Integrating prioritisation solutions with irregular operations recovery software (such as passenger reaccommodation and crew rostering tools), as flagged in (ii), remains a highly promising target for future development. Only with truly joined-up solutions will the effort invested in flight prioritisations return the highest benefits. This should include solutions minimising the cost of delay for airlines, which is well-established as a non-linear function of delay duration, and thus introduces interesting new relationships into the parameterisation and optimisation of prioritisation sequencing.

The ultimate goal of fully integrated planning and collaborative decision making across stakeholders and time, as per (iii), remains some way off, although this will inevitably be underpinned by system-wide information management (SWIM), at the core of SESAR, and will probably require further enhanced tools for the exchange of information relating to the margins of airspace user adaptability, which may be based on airline cost and passenger data. Nevertheless, clear progress is being made, some of which we have sought to share in this paper, such that improving airspace user flexibility, across all airspace user types, shows much promise for UDPP developments in SESAR 2020.

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