



Increased use of logistics technologies at the North Pole

Briefing note | December 2024



Increasing difficulties with time-critical non-terrestrial communications, submarine connectivity damage, just-in-time manufacturing dependencies and delivery logistics have all been issues of concern over the last year. International political and geographic events have required companies and individuals the world over to adjust processes and expectations on the speed and quality of manufacturing and information flows.

A Plum investigation has revealed troubling information regarding one well-established MNO (Merry Noël Operator) for which time-critical logistics is particularly important at this time of year.

Challenges to be overcome

There are a number of factors which we understand have led to these difficulties. In many cases, these issues are unique to this operator, underlining the importance of not assuming a standard rectification plan.

- Initial attempts to run a postal-only order flow created a backlog. Plum understands that the Electronic Logistical Fulfilment (ELF) staff have complained about the clumsy and heavy handed treatment of sometimes delicate items. "Well, what do you expect from polar bears!" responded a grumpy union representative.
- Following concerns that the toy production lines were ancient and slow, a new system had been implemented. Although initially successful, some important dependencies slowing production have recently been identified, including aurora borealis lithography for electronic toys, which has been impaired by solar activity pushing the northern lights further south, leading to reduced throughput.
- The situation is no better on the delivery side of the business. Secure end-point authentication (of who has been naughty and nice) has hitherto relied entirely on the proprietor, Mr S. Claus, who despite assurances that he is "good for a couple more centuries yet", is showing signs of fatigue and must represent a significant single point of failure.
- Delivery logistics and navigation have been run extremely successfully by R. Reindeer, although low-altitude operations have recently been hampered by radio altimeter interference from 5G masts and the need for drone-avoidance manoeuvres. Although high altitudes are used for trans-oceanic routes the situation there too has been made more challenging with LEO satellites hampering navigation. R. Reindeer has made significant increases to the luminosity of the team's nose mounted anti-collision beacon; indeed if you ever saw it you would even say it glows.

Plum recommends

This issue cuts across communications technology and regulation together with some difficult interference modelling and economic projections. Our team recommends the following.

1. Inbound communications: In an ideal world the challenges presented by the physical delivery of 500 million letters would be replaced by instant messaging. Recent technical advances by Rudolf, Dasher and Dancer (R&D&D) such as handwriting recognition based on new Arctic Intuition (AI) technology should help to further lighten the load.
2. Ensuring correct first-time delivery is crucial to optimise routing of sleigh rides. Reducing time spent at each delivery location is vitally important, and so ahead-of-time stocking-filling algorithms and use of delivery drones might make significant reductions. There can also be a place for intelligent and dynamic routing optimisation, which requires quantum computing given the scale of the mathematical modelling. Plum recommends checking the list twice.
3. Great care should be taken to manage sherry and mince pie consumption during delivery shifts to reduce the likelihood of droning of a quite different kind.
4. The increasing number of satellites in orbit is inevitable, and increases the hazard of sleigh collisions and visual interference. Celestial navigation is still available as a fallback – as a noted expert once stated *"stars are beautiful, but they may not take an active part in anything, they must just look on for ever."*¹

The MNO is fortunate that they are not experiencing a sustained drop in demand, but unless some of the logistical and supply issues can be resolved there is a real threat of market entry from adjacent competitors, such as Easter Bunny Limited.

¹ J M Barrie, not associated with Plum Consulting.