

# Predicting Runway Incursions

## Draft for Dialog

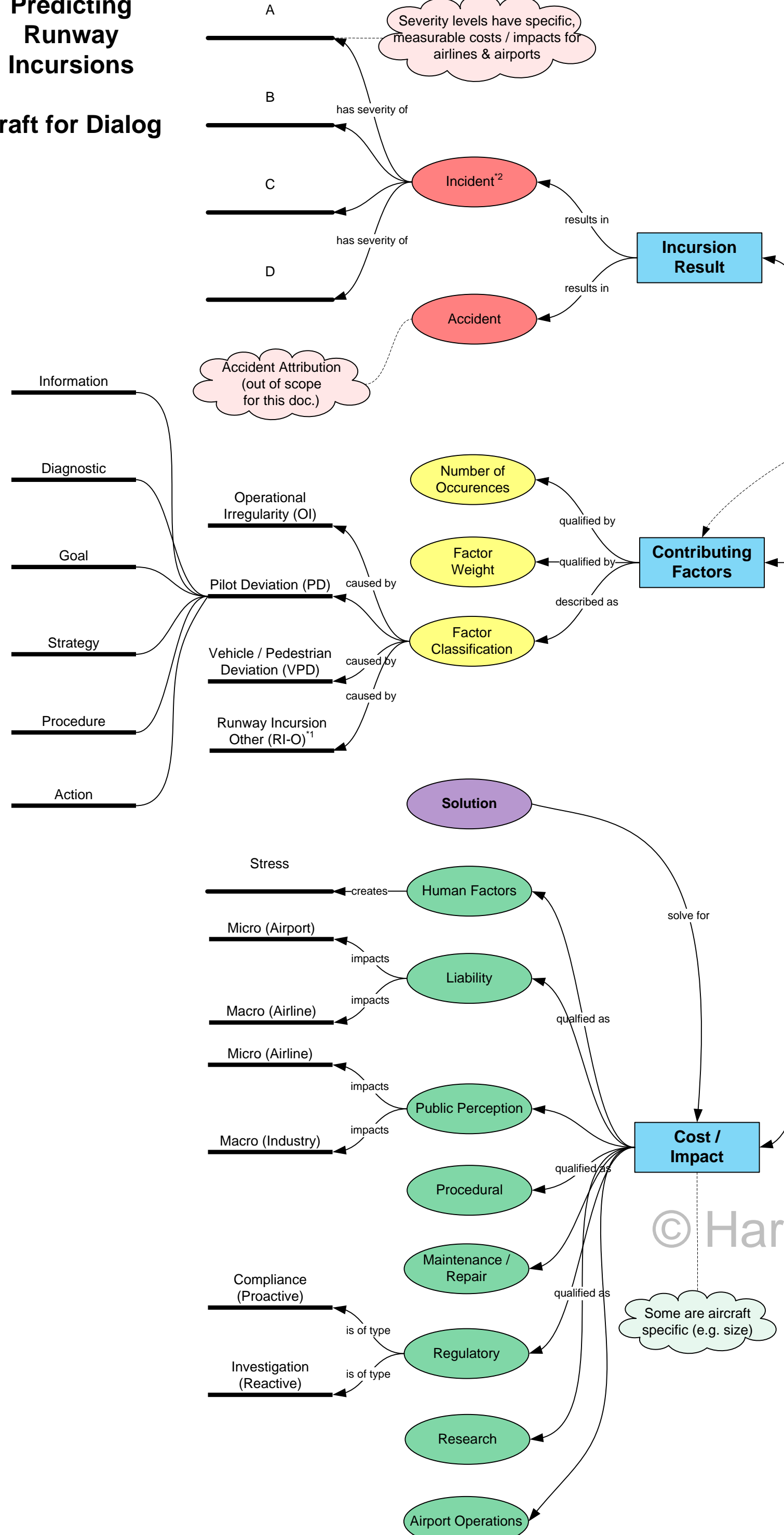


Table 1: Runway Incursion Potential, Single-Runway Operation	
Number of Aircraft	Number of Incursion Scenarios
1	0
2	1
3	4
4	10
5	24

Source: Transport Canada

### Runway Incursion

#### Proactive Technology (Predictive Technology)

##### High Level Problem Definition

1. Define goals, aims and objectives
2. Define key issues
3. Actions required to achieve key issues
4. Potential options to select actions from

##### Structuring the Model

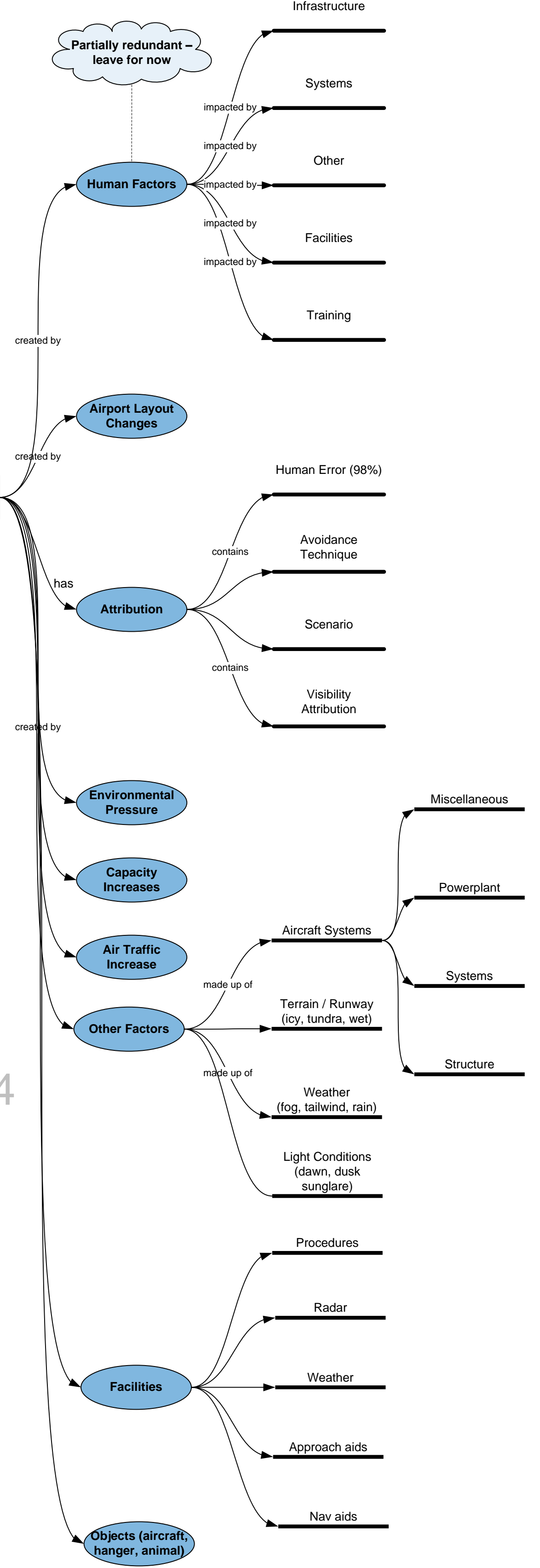
1. What are possible outcomes?
2. What is driving change?
3. What can we change or are we stuck with?
4. What are the triggering events?

##### Exponential impact

1. 1990-1993 – Air traffic fell by 5.4% and runway incursions fell 30+%
2. 1993-1998 – Air traffic rose by 2.41% and runway incursions rose 67%
3. The United States is currently experiencing approximately 1 incursion per day (36 high level incursions occurred in 2006)

#### Stats:

- Weather is not a factor in 89 percent of runway incursions.
- Pilots taxiing onto runways or taxiways without clearance account for 62 percent of cases.
- Pilots landing or departing without clearance account for 23 percent of cases.
- Pilots landing on the wrong runways account for 10 percent of cases.
- Pilot distractions account for 17 percent of cases.
- Pilots are disoriented or lost in 12 percent of cases.
- Pilots' unfamiliarity with ATC procedures or language accounts for 22 percent of cases.
- Pilots' unfamiliarity with the airport accounts for 19 percent of cases.
- General aviation aircraft are involved in 69 percent of all cases.
- Low-time pilots (less than 100 hours) account for 32 percent of all runway incursions.
- High-time pilots (more than 3,000 hours) account for 10 percent of the runway incursions.
- The top five aircraft involved in runway incursions are all single-engine, general aviation airplanes.



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**Footnotes:**

1 – Canada has this fourth category

2 – Canada rates them as negligible, low, medium, high, extreme

– FAA categories – A: extreme action required for avoidance or collision unavoidable, B: Significant potential for collision, C: Ample time for collision avoidance, D: Little or no chance of collision but still qualifies as incursion

– ICAO recommends five classifications – A to E