



RUNWAY SAFETY MATURITY CHECKLIST

Enhancing runway safety is a top priority for the International Civil Aviation Organization (ICAO) and the aviation industry as a whole. With this in mind, the Civil Air Navigation Services Organisation (CANSO) has developed an array of materials designed to aid runway safety improvement. One of these materials is the **Runway Safety Maturity Checklist**. The checklist is designed for use across the industry, including:

- Air Navigation Service Providers (ANSPs)
- Airlines
- Airport Operators
- Regulators
- Aeronautical Telecommunication and Radio Navigation (ATEL/ANAV) Providers

The checklist is a tool to benchmark these entities' respective maturity levels with regard to **managing runway safety risks**. It identifies key risk elements and uses a series of questions calling for evidence on each element. For example:

- Is there a process in place? Is the process documented?
- Are employees trained, checked and assessed?
- Is the process working? How do you know?
- How could you improve on this element?

Designed to assist organisations in identifying and prioritising areas for **runway safety improvement** from all angles, the checklist uses the Analytical Hierarchy Process, taking into consideration the numerous focus areas required for success, including safety benefit, financial and stakeholder impact, complexity and dependencies. Industry-wide accessibility has also been prioritised, and the checklist is currently being migrated to a web-based application.

Implementation of the techniques contained in the CANSO materials will be disseminated and driven through respective peer organisations and their associated industry bodies:



The checklist can be accessed and downloaded via the **CANSO Safety web page**.

Runway Safety Maturity Checklist

ATC	Element What are you looking for? For example, "Do you have....."	Objective Why are you looking for it?	Does the element exist? Is it written down (e.g. procedure)? Does it exist (e.g. equipment, signs, markings etc)? Details	Training Are people trained in the use of the element ? Remedial and/or Refresher training? Details	Is it working? How do you know? (e.g. incident reports, analysis, corrective action, feedback) Details	Improvement What could you do to improve this element ?	Index
ATC	ATC procedures to ensure that ATIS is updated in a timely manner and the action is recorded and/or directly broadcasted e.g. including a) SPECIs b) Wind shear reports (pilot and/or system derived) c) PIREP d) Soliciting Pilots for updates e) Runway Surface Conditions f) Approach aid status (unavailability) e) Other	Meteorological information is provided, timely and accurate					
ATC	Agreement between ATC and Meteorological office to notify ATC of changing weather conditions	ATC receives accurate and timely weather information where PIREPs are not provided or meteorological conditions are different from the ATIS.					
ATC	ATC procedures for provision of timely, accurate and clear instructions to Flight Crew including position, track and distance information based on aircraft type and performance to convey traffic management intentions e.g. following a) any updates b) change to sequence c) turning a/c in close d) vectoring e) before approach gate (e.g. 5nm from airport or 1nm from final approach fix which ever is farther) provide position and distance information. f) vector aircraft to intercept the glidepath from below g) aircraft off published approach due wx, wake turbulence separation etc. h) other	ATC providing instructions to establish / maintain / re-establish a stabilised approach					

ATC	Element What are you looking for? For example, "Do you have....."	Objective Why are you looking for it?	Does the element exist? Is it written down (e.g. procedure)? Does it exist (e.g. equipment, signs, markings etc)? Details	Training Are people trained in the use of the element ? Remedial and/or Refresher training? Details	Is it working? How do you know? (e.g. incident reports, analysis, corrective action, feedback) Details	Improvement What could you do to improve this element ?	Index
ATC	ATC flow control procedures manage ATC capacity to ensure provision of track and distance information allowing for prevailing meteorological conditions	ATC workload is managed to ensure timely, accurate and clear instructions are provided to Flight Crew including required position, track and distance information					
ATC	ATC supervisor and controller roles and responsibilities require monitoring of controller environment, workload, distractions, and internal or external pressures are not influential.						
ATC	ATC procedures for late notice runway changes that reduce track miles require planning and assessment of a) aircraft type and performance capability b) vectoring and resequencing to re-establish aircraft profile c) tail wind affect on profile speed d) approach type (i.e. precision/non-precision/visual) e) ICAO noise / capacity criteria for approach requirements dictate acceptability of runway selection f) other	ATC providing instructions to establish / maintain / re-establish a stabilised approach					
ATC	ATC procedures to review aircraft performance guidance material in consultation with Airlines.	Alignment between ATC instruction and airline SOPs for aircraft type, performance and stable approach criteria.					

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ATC	ATC procedures require: a) speed control is only applied outside final approach fix b) ATC monitoring of separation c) query any pilot deviation with speed, or other instruction d) effective communication and coordination between Tower and Approach e) other	Prescribed wake turbulence separation standards are maintained					
ATC	ATC procedures to monitor air speed through Mode S down link of actual aircraft parameters to controller	Controller situation awareness					
ATC	NOTAM system requires publication of approach aid status, runway surface condition (SNOWTAM)	Accurate information to pilots					
ATC	ATC procedures specify the criteria for offering visual approaches recognising the priority of precision/non-precision approaches over visual approaches	Fly precision approaches when available - reduce risk of visual approach					
ATC	ATC procedures require ATC to visually scan aircraft on approach and alert Flight Crew of significant flight path/profile deviation, and respond to pilot requests.	Independent prompt to pilot to consider go-around					
ATC	ATC procedures provide criteria to aid decision making in go around situations (e.g. piggy back issue)	Correct ATC actions to manage separation assurance in go around situations					
ATC	ATC procedures require notification and update to Flight Crew of runway surface condition, including request for runway surface / state inspection	Clear expectation to pilots with regard to required braking system settings					

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ATC	ATC procedures for selection of active runway include consideration of runway surface conditions.	To have runway in use suitable for prevailing conditions					
ATC	ATC procedures detail requirements for protection of critical and sensitive areas of approach aids and runway strip including notifications of obstructions to flight crew.	Prevent deviations in guidance information					
ATC	ATC procedures require monitoring of approach aid status.	Detect failure in approach aid to inform pilot					
ATC	ATC training, checking and assessment regimes verify use of ICAO compliant phraseology including readback/hearback techniques	Standard phraseology applied by all parties					
ATC	ATC procedures require taxiway exit requests only to be provided to landing aircraft after completion of the landing phase.	To enable pilot to maintain directional control of the aircraft					
ATC	ATC provide a mechanism to gain feedback from Airlines regarding ongoing suitability of approach procedures.	Continual improvement					
ATC	Just culture policy and procedures	Robust and complete reporting, trusting non-punitive environment					
ATC	Fatigue risk management system	Controllers fit for duty					
ATC	Drug and alcohol management program	Controllers fit for duty					

ATC	Element	Objective	Does the element exist?	Training	Is it working?	Improvement	Index
	What are you looking for? For example, "Do you have....."	Why are you looking for it?	Is it written down (e.g. procedure)? Does it exist (e.g. equipment, signs, markings etc)? Details	Are people trained in the use of the element? Remedial and/or Refresher training? Details	How do you know? (e.g. incident reports, analysis, corrective action, feedback) Details	What could you do to improve this element?	
	ATC	Fitness for Duty policy and procedures	Controllers fit for duty				
	ATC	CRM/TEM/MCRM procedures	Teamwork, improved risk management, appropriate decision making				
	ATC	Human Factors training	Understanding human performance and limitations				
	ATC	OHS policy and procedures (conducive workplace environment e.g. lighting, temperature, humidity, air quality, ergonomics, noise, distraction etc)	Environment to support optimal performance				

Runway Safety Maturity Checklist

AIRLINE	Element What are you looking for? For example, "Do you have....."	Objective Why are you looking for it?	Does the element exist? Is it written down (e.g. procedure)? Does it exist (e.g. equipment, signs, markings etc)? Details	Training Are people trained in the use of the element ? Remedial and/or Refresher training? Details	Is it working? How do you know? (e.g. incident reports, analysis, corrective action, feedback) Details	Improvement What could you do to improve this element ?	Index
Airline	Pilot SOPs indicate the stage of approach (e.g. TOD, pre flight briefing) ATIS should be monitored and require a PIREP is to broadcast if the meteorological conditions are different to the ATIS. Eg a) Wind shear reports b) Wake turbulence c) Request ATC updates d) TAF and METAR d) Other						
Airline	Airline SOPs require pilot monitoring of track miles, height or speed on approach including a) confirmation with ATC of new track distance, height or speed information and ATC plans b) rejection of instructions that are outside the SOPs including interception above glidepath	Sufficient / accurate track and distance information is provided by ATC (including sequence change, deviation from track)					
Airline	Airline SOPs require the use of local knowledge in assisting with determining required track miles.						
Airline	Airline SOPs to advise ATC of changes to aircraft type, performance and stable approach criteria.						

AIRLINE	Element What are you looking for? For example, "Do you have....."	Objective Why are you looking for it?	Does the element exist? Is it written down (e.g. procedure)? Does it exist (e.g. equipment, signs, markings etc)? Details	Training Are people trained in the use of the element ? Remedial and/or Refresher training? Details	Is it working? How do you know? (e.g. incident reports, analysis, corrective action, feedback) Details	Improvement What could you do to improve this element ?	Index
	Airline Airline SOPs require Flight Crew to: a) Utilise precision approaches where available b) Brief appropriately for non-precision / visual approach when precision approaches are not available. c) Bpplly Airline SOPs criteria for use of non-precision and visual approaches d) Request appropriate published instrument approach procedure to a runway with visual vertical guidance (e.g. PAPI, VASIS etc) e) Other						
	Airline Airline SOPs to ensure cross cockpit communication minimises internal/external pressures and power gradient so that decision to continue can be instantly challenged without recourse.						
	Airline Airline procedures support a Just Culture where a go-around or refected take-off is required. (e.g. management support for PF decision to initiate a go-around)	Initiate a go-around when aircraft becomes unstable as specified in Airline SOPs					
	Airline Airline SOPs detail energy management on approach and landing phase: a) for airspeed, thrust, drag, flight path, braking application etc b) standard calls by PNF to alert PF including current automation mode c) to ensure correct profile or initiate go-around.						

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Airline	Conducting effective pre-flight planning and pre-departure briefing including flight planning packages / NOTAM summaries						
Airline	Airline SOPs detail pre-flight review, walkarounds, acceptance of Minimum Equipment List (MEL), system checks						
Airline	Just culture policy and procedures						
Airline	Fatigue risk management system						
Airline	Drug and alcohol management program						
Airline	CRM/TEM/MCRM procedures						
Airline	Fitness for Duty policy and procedures						
Airline	Human Factors training						
Airline	OHS policy and procedures (conductive workplace environment e.g. lighting, temperature, humidity, air quality, ergonomics, noise, distraction etc)						
Airline	Airline enables improvement by providing evidence of reports, analysis, recommendations and implementation of change to procedures/practices/facilities to improve runway safety performance	Application of the SMS for continual improvement to procedures and practices to maximise runway safety performance					

Runway Safety Maturity Checklist

AERODROME	Element What are you looking for? For example, "Do you have....."	Objective Why are you looking for it?	Does the element exist? Is it written down (e.g. procedure)? Does it exist (e.g. equipment, signs, markings etc)? Details	Training Are people trained in the use of the element ? Remedial and/or Refresher training? Details	Is it working? How do you know? (e.g. incident reports, analysis, corrective action, feedback) Details	Improvement What could you do to improve this element ?	Index
Aerodrome	Provision of weather information systems (ATIS / AWIS / Windssock / Windshear alerting system/weather radar/runway visibility and range monitoring systems) to provide real-time meteorological information.						
Aerodrome	Provision of available, reliable and accurate precision approach aids a) Redundancy / diversity in system architecture						
Aerodrome	Aerodrome procedures for a) conduct of runway inspections including surface conditions and state b) reporting and repair (e.g. contamination, FOD, damage) c) periodic inspection, reporting and maintenance of lighting, signage, markings and taxiway condition						
Aerodrome	Aerodrome procedures for provision of runway visibility information to ATC.						
Aerodrome	Runway and taxiway layout is designed to optimise runway safety performance by a) being consistent with ICAO requirements b) include RESA and/or other arrestor systems c) appropriate position, length, width, gradient and surface characteristics, friction coatings, grooving, surface texturing and drainage optimised for prevailing conditions, including alternatively aligned runway d) provision of adequate runway (edge & centreline) / taxiway lighting						

AERODROME	Element What are you looking for? For example, "Do you have....."	Objective Why are you looking for it?	Does the element exist? Is it written down (e.g. procedure)? Does it exist (e.g. equipment, signs, markings etc)? Details	Training Are people trained in the use of the element ? Remedial and/or Refresher training? Details	Is it working? How do you know? (e.g. incident reports, analysis, corrective action, feedback) Details	Improvement What could you do to improve this element ?	Index
Aerodrome	Availability of ICAO compliant aviation rescue and fire fighting service						
Aerodrome	Emergency planning arrangements which include Airlines, ATC, Aerodrome and emergency services						
Aerodrome	Training, checking and assessment to verify use of ICAO compliant phraseology including readback/hearback procedures (airside vehicle operators)						
Aerodrome	Transponder equipage of vehicles required to operate airside where ground surveillance is available						
Aerodrome	Provision of adequate taxiway and holding point lighting in accordance with ICAO standards						
Aerodrome	Development and implementation of a Snow and Ice Control Plan						
Aerodrome	Partial and full closure of taxiway and runways in accordance with ICAO defined criteria including use of displaced thresholds.						
Aerodrome	Established means to address aerodrome runway safety issues between airlines, ATC and aerodrome operators through a) Established Runway Safety Teams b) Airport safety committees where runway safety is a standing agenda item c) other						
Aerodrome	Just culture policy and procedures						

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Aerodrome	Fatigue risk management system						
Aerodrome	Drug and alcohol management program						
Aerodrome	CRM/TEM/MCRM procedures						
Aerodrome	Fitness for Duty policy and procedures						
Aerodrome	Human Factors training						
Aerodrome	OHS policy and procedures (conducive workplace environment e.g. lighting, temperature, humidity, air quality, ergonomics, noise, distraction etc)						
Aerodrome	Aerodrome enables improvement by providing evidence of reports, analysis, recommendations and implementation of change to procedures/practices/facilities to improve runway safety performance	Application of the SMS for continual improvement to procedures and practices to maximise runway safety performance					

Runway Safety Maturity Checklist

ATEL/ANAV	Element What are you looking for? For example, "Do you have....."	Objective Why are you looking for it?	Does the element exist? Is it written down (e.g. procedure)? Does it exist (e.g. equipment, signs, markings etc)? Details	Training Are people trained in the use of the element ? Remedial and/or Refresher training? Details	Is it working? How do you know? (e.g. incident reports, analysis, corrective action, feedback) Details	Improvement What could you do to improve this element ?	Index
ATEL/ANAV	System maintenance regime to ensure sufficient availability and reliability of ATIS/AWIS etc. When system is not in service, an appropriate alternative method of providing meteorological information should be available.						
ATEL/ANAV	System design requirements specify requirement to flag out of date information presented at the ATC console	Correct meteorological information displayed at ATC console					
ATEL/ANAV	Integrated air traffic management system includes meteorological information integrated into Flow control	Planning of runway changes to minimise negative impact on Airlines					
ATEL/ANAV	Just culture policy and procedures						
ATEL/ANAV	Fatigue risk management system						
ATEL/ANAV	Drug and alcohol management program						
ATEL/ANAV	CRM/TEM/MCRM procedures						
ATEL/ANAV	Fitness for Duty policy and procedures						
ATEL/ANAV	Human Factors training						

ATEL/ANAV	Element What are you looking for? For example, "Do you have....."	Objective Why are you looking for it?	Does the element exist? Is it written down (e.g. procedure)? Does it exist (e.g. equipment, signs, markings etc)? Details	Training Are people trained in the use of the element ? Remedial and/or Refresher training? Details	Is it working? How do you know? (e.g. incident reports, analysis, corrective action, feedback) Details	Improvement What could you do to improve this element ?	Index
ATEL/ANAV	OHS policy and procedures (conducive workplace environment e.g. lighting, temperature, humidity, air quality, ergonomics, noise, distraction etc)						
ATEL/ANAV	ATEL/ANAV provider enables improvement by providing evidence of reports, analysis, recommendations and implementation of change to procedures/practices/facilities to improve runway safety performance	Application of the SMS for continual improvement to procedures and practices to maximise runway safety performance					

Runway Safety Maturity Checklist							
Regulator / Government	Element What are you looking for? For example, "Do you have....."	Objective Why are you looking for it?	Does the element exist? Is it written down (e.g. procedure)? Does it exist (e.g. equipment, signs, markings etc)? Details	Training Are people trained in the use of the element ? Remedial and/or Refresher training? Details	Is it working? How do you know? (e.g. incident reports, analysis, corrective action, feedback) Details	Improvement What could you do to improve this element ?	Index
Regulator / Government	AIP requirement for pilots to notify ATC of receipt of current ATIS						
Regulator / Government	Approach design criteria are applied and checked to ensure optimal published approach	ATC and Pilots utilise published approach procedures utilising precision approaches where available.					
Regulator / Government	Regulator / Government specifies the requirement to protect sensitive and critical areas approach aids						
Regulator / Government	Regulations are appropriate, reviewed and optimised for runway safety performance with regard to a) airport siting b) design c) ongoing master planning including upgrade to taxiways / markings and signage lighting to meet future aircraft design changes, capacity requirements and to address incursion/confusion hotspots d) restricting on building development within aerodrome PANS-OPS and Obstacle Limitation Surface (OLS) and minimising mechanical turbulence						
Regulator / Government	Review and update of certification requirements and aligned to ICAO standards, recommendations and international best practice						

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Regulator / Government	Effective liaison between civil and military organisations to achieve a) optimal approaches b) alignment with ICAO compliant phraseology c) coordination including restricted area activation / deactivation and airspace release d) alignment with civil and military procedures e) other						
Regulator / Government	Curfew dispensation when a go-around is required						
Regulator / Government	Approach procedures are periodically validated to ensure ongoing suitability for expected aircraft type, equipage and performance						
Regulator / Government	Alignment of policy across applicable government agencies						
Regulator / Government	Airlines, aerodromes, manufacturers and ANSPs collaborating with Regulator / Government during development of technological change and certification						
Regulator / Government	Regular and formalised communication between Regulator / Government, government and ANSPs						
Regulator / Government	Regulator provides a mechanism to gain feedback from pilots and ATC regarding ongoing suitability of approach procedure						
Regulator / Government	Just culture policy and procedures						

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Regulator / Government	Fatigue risk management system						
Regulator / Government	Drug and alcohol management program						
Regulator / Government	CRM/TEM/MCRM procedures						
Regulator / Government	Fitness for Duty policy and procedures						
Regulator / Government	Human Factors training						
Regulator / Government	OHS policy and procedures (conducive workplace environment e.g. lighting, temperature, humidity, air quality, ergonomics, noise, distraction etc)						
Regulator / Government	Regulator / Government enables improvement by providing evidence of reports, analysis, recommendations and implementation of change to procedures/practices/facilities to improve runway safety performance	Application of the Regulator SMS for continual improvement to procedures and practices to maximise runway safety performance					