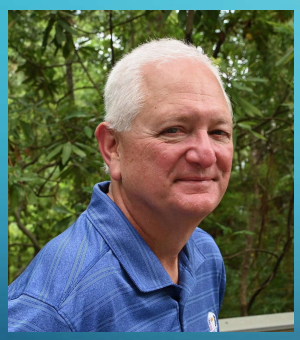
FROM SKYNET TO SKYLINES: NAVIGATING THE INSURANCE IMPACTS OF AI AND DRONES

AN INSURANCE SEMINAR

RICHARD S. PITTS

1

RICHARD S. PITTS



Vice-President and General Counsel, Arlington/Roe & Co., Inc.

General Counsel, Independent Insurance Agents of Indiana and Kentucky

Executive Vice-President, Mutual Insurance Companies Association of Indiana

2

OUR AGENDA – PART ONE ON DRONES

1. Aviation Insurance in General
2. What is a Drone?
3. Drones and the Legal Issues
4. Underwriting Drones
5. The Existing Policy Forms
6. What the Future May Hold

3

SOME INTRODUCTORY THOUGHTS

4

WHAT...WHAT…WHAT…COULD POSSIBLY GO WRONG?

5

SO WHAT'S THE BIG DEAL? IT'S THE CLOSE CALLS

"Between February and September 2016, the FAA said reports of unmanned aerial system (UAS) sightings from pilots, citizens and law enforcement near airports reached 1,274. That compares to 874 such sightings during the same period in 2015."

ABC News 7, Los Angeles

"Close Calls with unmanned aircraft increase," FCW (fcw.com 02/24/17)

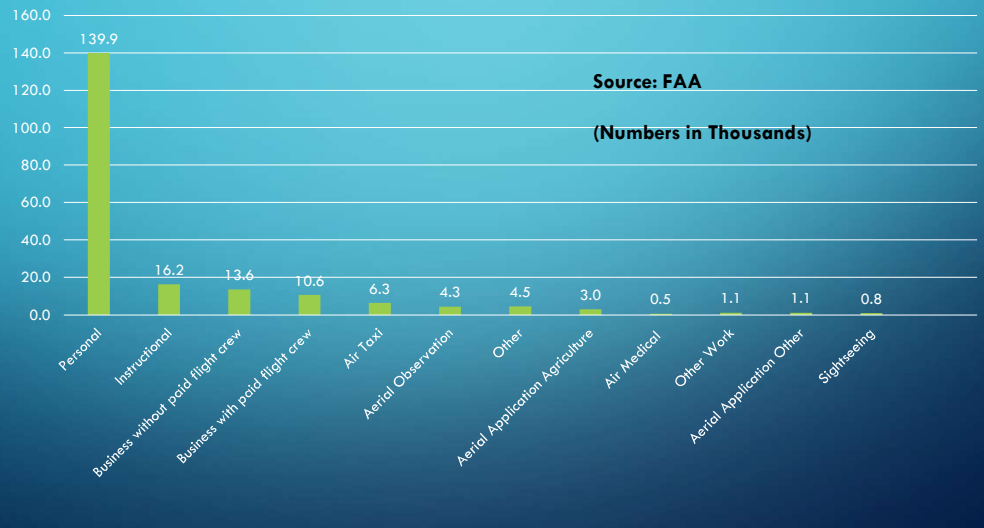
6

IT'S THE CLOSE CALLS…

University of Dayton
Research Institute 2018

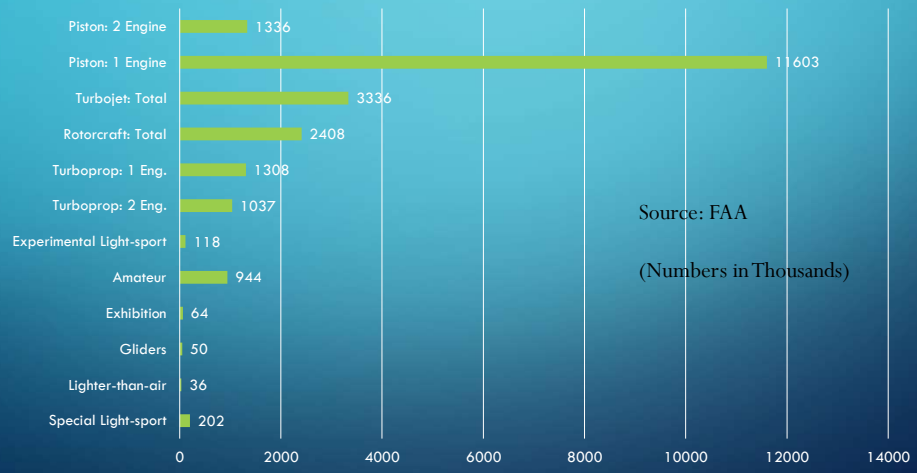
7

ACTIVE USE OF AIRCRAFT – 2020



8

TOTAL HOURS FLOWN – 2020



Source: FAA

(Numbers in Thousands)

9

SOME TERMINOLOGY

- Rotary wing aircraft:
  - Helicopters,
  - Gyrocopters, autogiros
  - V-STOL (vertical or short takeoff and landing)
- Fixed wing aircraft:
  - Airplanes (jets and props)
- Turbos and Pistons:
  - (Not the Detroit pro basketball team)
  - The type of engine powering the aircraft

10

SOME TERMINOLOGY

"Ultralight" aircraft (according to FAA regulations):

1. Has only one seat
2. Is used only for recreational or sport flying
3. Does not have a U.S. or foreign airworthiness certificate
4. Weighs less than 155 pounds (if unpowered; 254 lbs. if powered)
5. Does not carry more than 5 gal. of fuel
6. Has a top speed of 55 knots (63 mph)

11

SOME TERMINOLOGY

Private versus "Commercial Operator"

"Commercial operator means a person who, for compensation or hire, engages in the carriage by aircraft in air commerce of persons or property, other than as an air carrier or foreign air carrier or under the authority of Part 375 of this title. Where it is doubtful that an operation is for "compensation or hire", the test applied is whether the carriage by air is merely incidental to the person's other business or is, in itself, a major enterprise for profit."

12

SOME TERMINOLOGY

- The "Commercial Operator" is important not only from a regulatory standpoint.
- It is exceptionally important from an underwriting standpoint as well.
- Unfortunately, the "Commercial Operator" regulations generate more questions than they do answers.

13

SOME TERMINOLOGY

According to Phillip Kolczynski, these rules create traps regarding things such as

- What is incidental and what is primary to the business operation?
  - Does it involve flying?
  - Does the pilot know?
- What expenses can be "covered" for the pilot or owner without running afoul of the rules?

MANY INSURERS HAVE EXCLUSIONARY CLAUSES FOR VIOLATING FAA RULES.

14

NOW, SOME UNDERWRITING

- "The premiums charged depend largely upon the experience and ability of the pilot. Insureds may improve their rates based on experience by verifying the total hours flown as a pilot-in-command and time in make and model..."

Wells and Chadbourne, Aviation and Risk Management (2nd Ed.)

15

NOW, SOME UNDERWRITING

"Some aircraft requiring a copilot will also include an open pilot warranty setting forth the minimum certificate and flying hours required for this individual."

Wells and Chadbourne, Aviation and Risk Management (2nd Ed.)

16

MORE UNDERWRITING

According to Blais Aviation:

- "[R]ates are higher for pilots with fewer than 1000 total logged hours or those with fewer than 50 hours logged in the model of aircraft they will be insuring.
- "An IFR rating is highly recommended and often required for aircraft that have a 'glass cockpit' avionics, retractable landing gear or more than four seats."
- "[A]n aggressive training and time-building program" can drop renewal rates "substantially."

17

OTHER MAJOR UNDERWRITING CONSIDERATIONS

1. At what airport is the craft hangared? Where does it "hangar" out? (Sorry….)

   Runway length; visibility; severity of weather all count…
2. FAA Registration Number
3. Retractable landing gear?
4. Number of Passengers (capacity)
5. Purchase Price; lienholder(s)

18

STILL MORE UNDERWRITING…

6. How old is the plane?
7. When was the aircraft purchased?
8. When is its next servicing due?
9. Will there be any flights outside the continental United States?
10. What is the expected use?

19

UNDERWRITING CONSIDERATIONS: USE

- Business and Pleasure: private ownership; no charge; no profit.
- Industrial Aid: company-owned craft, usually with professional pilots
- Limited Commercial: possible instruction or rental use, but otherwise not for hire
- Commercial: all profit-making activities
- Special use: crop dusting, spraying hunting, fire fighting, etc.

20

AVIATION POLICIES

21

THE BASIC AVIATION POLICY

FOR THE MOST PART:

- Aviation insurance is written on an "admitted" basis, not on a surplus lines basis.
- There is no "standard" industry form. (ISO and AAIS don't play in this field…)
- There are some standardized terms
- There are some familiar concepts, but…

22

THE BASIC AVIATION POLICY

"[Aviation insurance] has become a blend of fire, auto, personal-accident, and marine insurance, having characteristics very different from its antecedents. Reliance on other types of insurance can easily lead to false assumptions…"

-- Wells and Chadbourne, Introduction to Aviation Insurance and Risk Management (2d Ed.)

23

THE BASIC AVIATION POLICY

"…the least penalty of which is paying for unnecessary coverages but by far the worst is being without protection when it is needed."

-- Wells and Chadbourne, Introduction to Aviation Insurance and Risk Management (2d Ed.)

24

THE BASIC AVIATION POLICY

AT THE SAME TIME,

- if a producer can write a private passenger automobile policy, a general aviation aircraft policy can be written, too.
- Similarly, a garage keeper's policy does not conceptually differ from a hangar keeper's.

25

THE BASIC AVIATION POLICY

With all of the emphasis on the pilot in underwriting, it's not surprising that the aviation policy has some specific rules about who can be in command of the ship:

- These are covered by either a "Named Pilot Warranty" or an "Open Pilot Warranty."
- The "Named Pilot Warranty" is, as its name suggests, a listing or schedule of permitted pilots.
- "The Open Pilot Warranty" describes, but does not name, who can captain the plane, such as…

26

THE BASIC AVIATION POLICY – THE OPW

"[There is no insurance unless] the pilot in command has:

1. a valid and current…transport certificate
2. With appropriate ratings for the flight involved
3. A valid medical certificate
4. At least 500 hours as pilot-in-command
5. Of which 50 were in an aircraft with retractable landing gear and
6. 10 hours in the model aircraft being flown."

Wells and Chadbourne, Aviation and Risk Management (2nd Ed.)

27

THE BASIC AVIATION POLICY

- The world divides into two parts
  - Liability and
  - "Hull" Coverage
- "Hull" is a marine term and means "physical damage to the aircraft itself."

28

THE BASIC AVIATION POLICY – HULL COVERAGE

- Originally, hull coverage was written on a named perils basis, such as fire, explosion, lightning, etc.
- Now, hull coverage is written on an all-risks basis, but with important limitations or conditions.
- *Is it moving? Is it flying?*

29

SO, WHAT'S THE DIFFERENCE?

IRMI.com

- **All risks, not in motion**, "provides all risk hull coverage for the described aircraft while not in motion, i.e., on the ground and not in motion under its own power. Coverage applies for a loss occurring while the aircraft is being pushed or towed. A taxiing aircraft is considered to be in motion."
- **All risks, ground and flight**, "provides all risk hull coverage for the described aircraft whether or not the aircraft is in flight at the time of loss."

30

BASIC AVIATION POLICY – HULL COVERAGE

- Insured Value:
  - usually stated as a form of "actual cash value,"
  - ACV as "replacement cost less depreciation"
  - and typically without a coinsurance clause,
  - But with a deductible, and occasionally a deductible based on type of loss (ingestion deductible in jets; moored deductible for seaplanes).
- Salvage and Appraisal:
  - There can be significant salvage values; most policies call for an appraisal process in the event of disagreement

31

BASIC AVIATION POLICY – HULL COVERAGE

Familiar Concepts and Clauses:

- Loss Payee / Lienholder clause
- Insured's duties in event of loss
- Assistance of Insured
- Automatic hull coverage for newly acquired aircraft (usually 30 days)
- Automatic value increases

32

BASIC AVIATION POLICY – LIABILITY COVER

Four Types or Options:

1. Bodily Injury Excluding Passengers
2. Passenger Bodily Injury
3. Property Damage Liability
4. Single Limit Bodily Injury and Property Damage (the "smooth" limit)

…plus a med pay coverage

33

BASIC AVIATION POLICY – LIABILITY COVER

A word about limits: Alimonte writes:

"Aviation policies often contain limits per occurrence with a separate 'sublimit' per passenger or per seat in an aircraft. The clear intention of these sublimits is to limit the liability for all damages attributable and related to a single passenger's death or injury to a sum certain regardless of how many individuals may have a right of recovery at law for this death or injury."

Does your client need excess coverage?

34

BASIC AVIATION POLICY – LIABILITY COVER

Some aviation-specific exclusions to watch out for:

1. Flights needing a waiver from the FAA
2. Flights when the "Certificate of Airworthiness" is not in effect
3. Flights for an unlawful purpose
4. Passenger overload

35

BASIC AVIATION POLICY – LIABILITY COVER

And some of the "usual suspects" for exclusions (but with an air twist):

1. Liability assumed under contract (except maybe incidental airport use agreements…)
2. Property damage while in the care, custody or control of the insured (except maybe damage to hangars or luggage loss)
3. Intentional acts (except maybe to prevent acts of terrorism or hijacking)

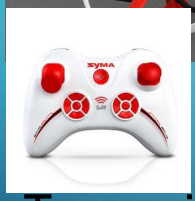
36

WHAT ARE WE TALKING ABOUT HERE AND WHAT IS A DRONE?

SLIDES COURTESY OF PROF. MICHAEL LEASURE OF PURDUE UNIVERSITY

37

TOYS.....



Under a pound
Under $100
< 300 foot range
Fly about 10 minutes
Lithium Polymer Battery
Basic flight training

Toys with cameras

38

Larger Recreational, or Commercial

Heavier, faster

~2-15 pounds

Fully Autonomous

Video transmits to ground
First Person View (FPV)

39

Largest Commercial or Recreational

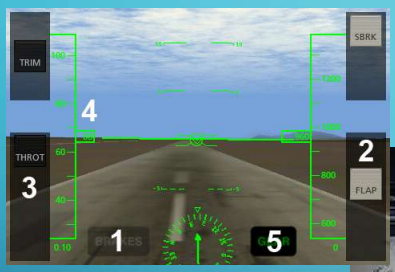
(What were you thinking? size)

15—55 POUNDS
UNDER 100 MPH

40

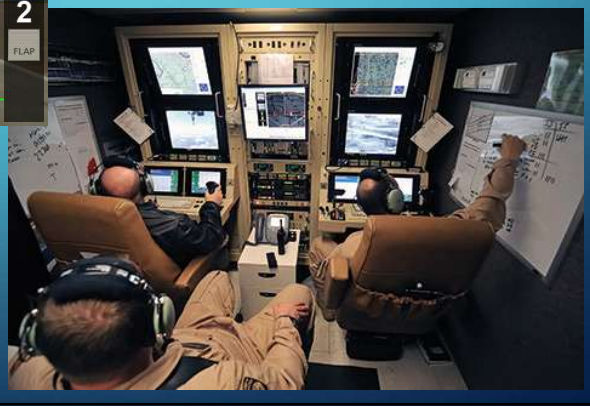
Flight Simulators

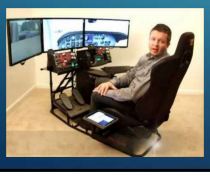
NO DIFFERENCE IN PERSPECTIVE FROM SIM GENERATED SCREEN OR VIEW FROM UAV CAMERA



Xplane sim screen

Predator drone operator station





41

Common Technology

Fully Autonomous – no pilot skill required, limited by battery capacity or fuel tank
- RTL – return to launch
- STL – stability
- Geo-fencing
- Etc.

Ground Stations – Video feed, telemetry link, heads up display (HUD)

Gimbal Cameras – Self leveling, tracking, zoom, etc.....

Hyperspectral Imaging – captures many bands of light, agricultural research

Thermal – heat sensitive including decomposing bodies underground

42

AND THE TECHNOLOGY MATTERS TO US…

According to FC&S (7/18/16):

- "Munich Re used drones in the aftermath of the earthquake in Ecuador in April. The ability to use drones sped up the ability to survey and adjust losses. IAG used drones to inspect brushfires in Australia in order to fast-track assessments for claims."
- "Loss control can also make use of drones to inspect properties with several locations or outside operations. They can quickly survey multiple sites where digging, trenching, construction, or other operations are being conducted. Safety measures can be verified as well as condition, type, and quantity of equipment or stock for sale."

43

AND TODAY…

$2,2024 on Amazon.com

DJI Mavic 3, Drone with 4/3 CMOS Hasselblad Camera, 5.1K Video, Omnidirectional Obstacle Sensing, 46 Mins Flight, Advanced Auto Return, 15km Video Transmission, with DJI RC-N1 Remote Controller, Gray

- With a 4/3 CMOS Hasselblad Camera, the sensor provides a 12.8-stop dynamic range that retains more details in highlights and shadows, upgrading your work to a professional level.
- Up to 46 minutes flight time
- Functions include ActiveTrack 5. 0, Omnidirectional Obstacle Sensing, Hyperlapse, Low-Noise Design, Adjustable Aperture, HDR Photos

44

THE AGEAGLE RX60

Composite Aircraft Grade
Carbon Fiber Infusion |

Wingspan: 54" (137 cm)
Weight: 7.06 lb (3.20 kg)
Fuel: 2 Li-Po Batteries

|

Take-Off Method: Catapult Launcher
Landing Method: Auto-Landing | Power Off Glide
Flight Performance Operating Airspeed: 31-49 mph (13.8-29.9 m/s)
Endurance: Up to 60 Minutes
Redundant Fail-Safes: Dual Batteries | Compasses | Satellite Antennas | Satellite Receivers

45

AGEAGLE SAYS

Our user-friendly FarmsLens solution can easily and quickly stitch virtually thousands of high resolution, multi-spectral images together to produce detailed prescription maps for everything from disease and pest infestations to weather impact and improper irrigation – all before these issues can be detected by the naked eye and at materially lower costs than satellite or manned aircraft flyovers.

46

AGEAGLE SAYS

FarmLens allows the user to:

- Directly input data for sustainability scores – in fact, users can access their sustainability scorecard in real-time enabling them to visualize the impact of individual field decisions on their overall sustainability objectives;
- Upload chemical application receipts to enable efficient tracking of products when digital application data layers are not available;
- Upload field scouting images to the FarmLens platform;
- Access real-time weather conditions and satellite imagery; [and]
- Export auto-created zone maps;

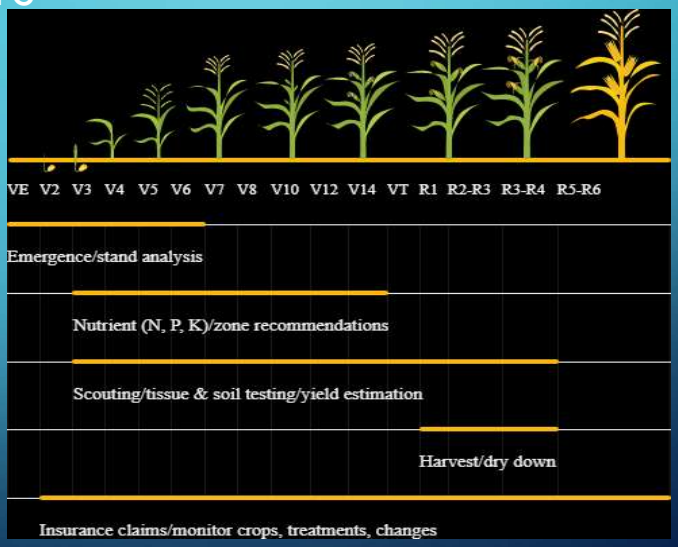
47

THE SENSEFLY EBEE X

48

SENSEFLY SAYS

Example drone use per growth stage (corn)
Durable senseFly drone technology adds value throughout the growing season, from emergency and early growth assessments through to pre-harvest yield prediction.



49

AIRBOARD DRONE FOR PRECISION CROP SPRAYING

50

BRYAN CAVE LEIGHTON PAISNER LLP, JANUARY, 2019:

"The Act requires the FAA update many of its existing programs and establish new ones, including (1) a process for accepting risk-based, consensus **safety standards** related to design, production, and modification of small drones; (2) authorizations for government agencies seeking to operate drones for **police and firefighting** purposes; (3) special permits for drones to operate beyond the **visual line of sight**; and (4) parameters for allowing **commercial drone delivery packages**."

51

REUTERS, 2/12/19:

- "The FAA said in a notice published on Tuesday in the Federal Register it is requiring the 'registration number to be marked on the exterior of the aircraft.'
- "The agency said the move is at the request of law enforcement and the FAA's interagency security partners 'regarding the risk a concealed explosive device poses to first responders who must open a compartment to find the small unmanned aircraft's registration number.'
- "The new rules take effect on Feb. 23."

52

THE REGULATORY ENVIRONMENT NOW:

- In 2018, Congress also passed an FAA Reauthorization Act.
- It continues, "the FAA's mission to comprehensively integrate drones into the national airspace…"
- Also, "the FAA initiated a prototype Low Altitude Authorization and Notification Capability program ("LAANC") that provides real-time airspace authorizations for drones near airports
- "and the FAA launched the UAS Integration Pilot Program to allow states to test drone flights in various ways otherwise prohibited by the FAA's Part 107 rules—or the rules governing the operation of drones weighing less than 55 pounds."

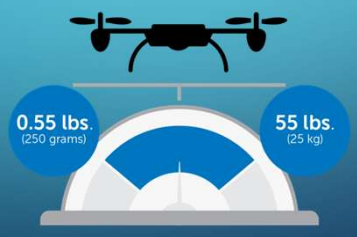
Bryan Cave Leighton Paisner LLP, January, 2019

53

THE REGULATORY ENVIRONMENT NOW

Where do I register my Unmanned Aircraft?

Register your aircraft using this website if it weighs more than **0.55 lbs.** (250 grams) and less than **55 lbs.** (25 kg).



The FAA's Drone Zone Website

54

THE DRONE WORLD IN TWO PARTS

Recreational Use

- Fly for enjoyment only
- Visual Line of Sight on unit
- Fly below 400 feet
- Have registered your drone and
- Passed the Recreational UAS Safety Test

Commercial Use

- Get a Part 107 license
- Know when you need a waiver from certain restrictions
- Register your drone with the FAA

Agricultural use is commercial use

55

THE REGULATORY ENVIRONMENT NOW

Drone Operations that Require Waivers

You do NOT need a waiver to fly a drone following part 107 rules. You DO need a waiver when you want to operate a drone contrary to the rules in part 107 under the waivable operations listed below:

You Want to…	Part 107 regulation you need a waiver from…
Fly a UAS from a moving aircraft or a vehicle in populated areas	§ 107.25 – Operation from a Moving Vehicle or Aircraft
Fly a UAS at night	§ 107.29 – Daylight Operations
Fly a UAS beyond your ability to clearly determine its orientation with unaided vision	§ 107.31 – Visual Line of Sight Aircraft Operation
User a visual observer without following all visual observer requirements	§ 107.33 – Visual Observer

56

THE REGULATORY ENVIRONMENT NOW

You Want to…	Part 107 regulation you need a waiver from…
Fly multiple UAS with only 1 remote pilot	§ 107.35 – Operation of Multiple Small UAS
Fly a UAS without having to give way to other aircraft	§ 107.37(a) – Yielding Right of Way
Fly a UAS over a person/people	§ 107.39 – Operation Over People
Fly a UAS: •Over 100 miles per hour groundspeed •Over 400 feet above ground level (AGL) •With less than 3 statute miles of visibility •Within 500 feet vertically or 2000 feet horizontally from clouds	§ 107.51 – Operating limitations for Small Unmanned Aircraft

57

THE REGULATORY ENVIRONMENT NOW

FAA's Remote Identification and Operations Over People rules took effect April 21, 2021

- Applies to pilots who fly under Part 107 FAA regulations
- The ability to fly over people and moving vehicles depends on the risk level
  - Lowest-risk category – drones weighing less than 0.55 lbs – would not require any further FAA documentation, provided you're operating with propeller guards
  - Anything larger will require some kind of FAA-accepted means of compliance and an FAA-accepted declaration of compliance

58

THE REGULATORY ENVIRONMENT NOW

- Night Operations rule
  - Pilot must receive additional training or pass an updated initial knowledge test
  - Drone must be equipped with exterior lighting
  - This will help save lives, as many rescue operations are at night
- Only way to flight over people or at night before was to request a waiver from FAA

59

THE REGULATORY ENVIRONMENT NOW

Remote ID rule will help identify drones in flight and the location of their control stations

- Reduces risk of them interfering with other aircraft or posing a risk to people and property on the ground
- Will be helpful to national security, law enforcement, or other public safety agencies
- Rules applies to all drones that require FAA registration

Drones will have to:

- Broadcast their ID, location, altitude, velocity, and location of their ground control station
- Drone flight paths will be available to all within broadcast range
- Correlation between ID and registration only available to FAA and law enforcement

60

THE EXISTING FORMS

COMMERCIAL AND PERSONAL LINES AND THE TREATMENT OF DRONES

61

STRUCTURE OF THE FARM LIABILITY POLICY

The Basic Farm Liability Policy (FL 00 20 04 16) and the Farm Umbrella (FB 00 01 04 16) EXCLUDE from coverage:

"**'Bodily injury' or 'property damage'** arising out of the ownership, maintenance, use or entrustment to others of any ***aircraft…*** owned or operated by or rented or loaned to any insured. Use includes operation and 'loading or unloading'…"

62

SWISS RE: INSURANCE AND THE RISE OF THE DRONES (2014)

"There's no definition of aircraft in ISO's CG 00 01 04 13. It would be up to a judicial interpretation to determine if, for insurance purposes, a drone qualifies as an aircraft under ISO CG 00 01 04 13. We think most courts would rule that they do in fact qualify."

63

SWISS RE: INSURANCE AND THE RISE OF THE DRONES (2014)

"*We'd assume that there's no coverage* under ISO CG 00 01 04 13 for bodily injury liability or property damage liability claims that arise out of a drone accident unless such liability is assumed under a contract."

64

PERSONAL LINES / HOMEOWNER'S

- The main form here is ISO's HO 00 03 05 11.
- It says: "This policy doesn't cover **'aircraft liability'**…"
- "Aircraft liability" includes ownership, maintenance, use, entrustment, or supervision of anyone with an "aircraft."
- "Aircraft" means "any contrivance used or designed for flight except model or hobby aircraft not used or designed to carry people or cargo…"

65

PERSONAL LINES / HOMEOWNER'S

Swiss Re:

- Model or hobby aircraft not used for commercial purposes probably will be covered.
- Surprisingly, "There are no size restrictions on model aircraft (but there are weight restrictions), so "Big Bird" (80+ inch wingspan) model aircraft liability exposures would be covered."

66

INSURANCE INDUSTRY RESPONSE

- Drone exposure was not contemplated in the HO program
- Two new endorsements
  - Aircraft Liability Definition Revised To Remove Exception For Model Or Hobby Aircraft (HO 34 02 02 17)
  - Personal Injury For Aircraft Liability Excluded (HO 34 03 02 17)

OPTIONAL

67

ISO'S HO 34 02 02 17

Aircraft means any contrivance used or designed for flight **including but not limited to unmanned aircraft, whether or not model or hobby**

68

COVERAGE AVAILABILITY

- Drone Liability Insurance Apps
- Membership Academy of Model Aeronautics
- Specific Drone Policies Through Aviation Specialty Markets

69

WHAT DOES THE FUTURE HOLD?

AND IS THE FUTURE NOW?

70

A BRAVE NEW WORLD?

- "As far as insuring these aircraft, carriers will want to know such things as its function or intent, its takeoff and landing location, whether it will be operating over a populated area, and its flying altitude."

- "As carriers become increasingly more comfortable with this unfamiliar territory…the capacity to underwrite such policies will also increase."

71

A BRAVE NEW WORLD?

- "[However] Given the inherently conservative nature of the insurance industry, carriers might require even stricter guidelines than what the FAA may mandate."

- "[I]f carriers get one or two deaths or serious injury claims, they will inevitably start to pull back, which results in less available coverage and higher prices."

Vikki Stone, Poms & Associates, March, 2014

72

THE PREDICTIONS WERE ACCURATE

- "The increasing number of drone accidents is expected to drive the growth of the drone insurance market over the coming years. Drones are currently engaged in a variety of sectors that rely on aerial imagery, such as agriculture, insurance, manufacturing, electricity and others.
- "As drones becoming more and more prominent, the risks of a catastrophic crash happening are increasing. According to the dataset of the military drone crashes, 254 drone crashes were recorded in 2019, with an average of two military drones crashing per month."

Drone Insurance Global Market Report 2021: COVID-19 Growth And Change, 3/08/21

73

A BRAVE NEW WORLD?

- The marketplace started with premiums around approximately 10% of the vehicle's value for physical damage…
- But the marketplace's competition has driven that down to around 7 to 8%...
- If the drone has a value between $2,500 and $10,000.

74

A BRAVE NEW WORLD?

- "The cost of drone insurance relies on the price of each piece of drone equipment. For example, in 2020 commercial insurance plans vary from $500 to $750 for DJI Phantom drones.

- "[I]n June 2020, India-based insurer HDFC ERGO has collaborated with TropoGo, a broad tech start-up, to introduce **Pay as you fly insurance** for drone operators in India."

Drone Insurance Global Market Report 2021: COVID-19 Growth And Change, 3/08/21

75

ISO'S NEW ENDORSEMENTS

- In December 2014, ISO came out with a new set of endorsements.
- They are designed to *"…help insurers limit or add limited liability coverage with respect to drones."*
- Mainly, the endorsements modify the CGL (discussed earlier).

76

ISO'S NEW ENDORSEMENTS

- **This isn't just a "carve out" from coverage.**
- Ron Beiderman, ISO Vice President, said, "Because this is a newly emerging exposure, we introduced various exclusion and coverage options to give insurers maximum flexibility when writing risks that use drones in their operations."
- **Some risks may need an endorsement to a CGL; some may need a stand-alone aviation policy.**

77

ISO'S NEW ENDORSEMENTS

- While ISO believes drones are "aircraft" for purposes of existing forms, no chances are being taken. All the new filings add the following definition:

"Unmanned aircraft" means an aircraft that is not: 1. Designed; 2. Manufactured; or 3. Modified after manufacture; to be controlled directly by a person from <u>within or on</u> the aircraft.

78

ISO'S NEW ENDORSEMENTS – PART 1

Endorsement	What it Excludes
CG 21 09	Unmanned aircraft coverage for Bodily Injury, Property Damage, and Privacy Invasions **(Coverages A and B)**
CG 21 10	Unmanned aircraft coverage for Bodily Injury and Property Damage **(Coverage A)**
CG 21 11	Unmanned aircraft coverage for Privacy Invasions **(Coverage B)**

79

CG 21 09 06 15

Exclusion 2.g. ….is replaced by the following:

- 2. Exclusions
- This insurance does not apply to:
- (1) Unmanned Aircraft
- "Bodily injury" or "property damage" arising out of the ownership, maintenance, use or entrustment to others of any aircraft that is an "unmanned aircraft". Use includes operation and "loading or unloading".

80

CG 21 09 06 15

Exclusion 2.g. ….is replaced by the following:

- 2. Exclusions
- This insurance does not apply to:
- (2) Aircraft (Other Than Unmanned Aircraft), Auto Or Watercraft
- "Bodily injury" or "property damage" arising out of the ownership, maintenance, use or entrustment to others of any aircraft (other than "unmanned aircraft"), "auto" or watercraft owned or operated by or rented or loaned to any insured. Use includes operation and "loading or unloading".

81

CG 21 09 06 15

Both the Unmanned Aircraft and "regular" Aircraft language are subject to the following:

This Paragraph…applies even if the claims against any insured allege negligence or other wrongdoing in the supervision, hiring, employment, training or monitoring of others by that insured, if the "occurrence" which caused the "bodily injury" or "property damage" involved the ownership, maintenance, use or entrustment to others of any aircraft (other than "unmanned aircraft"), "auto" or watercraft that is owned or operated by or rented or loaned to any insured.

82

ISO'S NEW ENDORSEMENTS – PART 2

Endorsement	What it Adds
CG 24 50	Unmanned aircraft coverage for Bodily Injury, Property Damage, and Privacy Invasions **(Coverages A and B) by designated aircraft**
CG 24 51	Unmanned aircraft coverage for Bodily Injury and Property Damage **(Coverage A) by designated aircraft**
CG 24 52	Unmanned aircraft coverage for Privacy Invasions **(Coverage B) by designated aircraft**

83

CG 24 50 06 15

If an Unmanned Aircraft Liability Aggregate Limit is shown in the Schedule…:

1. …the Unmanned Aircraft Liability Aggregate Limit shown in the Schedule is the most we will pay for the sum of:
   - a. Damages under Coverage A;
   - b. Damages under Coverage B; and
   - c. Medical expenses under Coverage C;

because of all "bodily injury", "property damage" and "personal and advertising injury" arising out of the ownership, maintenance, use or entrustment to others of any aircraft that is an "unmanned aircraft".

84

ON THE PROPERTY SIDE…

FC&S Reports:

- "The IH 99 29 form is used in conjunction with the Commercial Inland Marine Conditions Form, CM 00 01 09 04, and the Common Policy Conditions Form, IL 00 17 11 98, to cover unmanned aircraft and cargo against direct physical loss or damage, including that which occurs when the unmanned aircraft are used in commercial or civil operations. It can be endorsed to the Contractors Equipment Coverage Form, Machinery And Equipment Coverage Form, and the Miscellaneous Articles Coverage Form."

85

ON THE PROPERTY SIDE…THE UNDERWRITING QUESTIONS

1) if the craft is manufactured commercially or built from a kit;
2) the year it was built;
3) the maximum speed and flight radius;
4) the altitude and duration of flight;
5) payload capacity;
6) if the aircraft has been modified after manufacture in order to increase speed, range, payload capacity, or other capacities;
7) if the craft can be operated beyond line of sight;

86

ON THE PROPERTY SIDE…THE UNDERWRITING QUESTIONS

8) if the craft can be operated beyond line-of-sight;
9) if geofencing technology is included (aids in avoiding restricted airspace);
10) if collision avoidance and return-to-home technology is included;
11) if the operating software uses encrypted link technology;
12) how complex the aircraft is to operate;
13) if the insured owns, rents, or leases the aircraft; and
14) the number of unmanned aircraft the insured owns, rents, or leases.

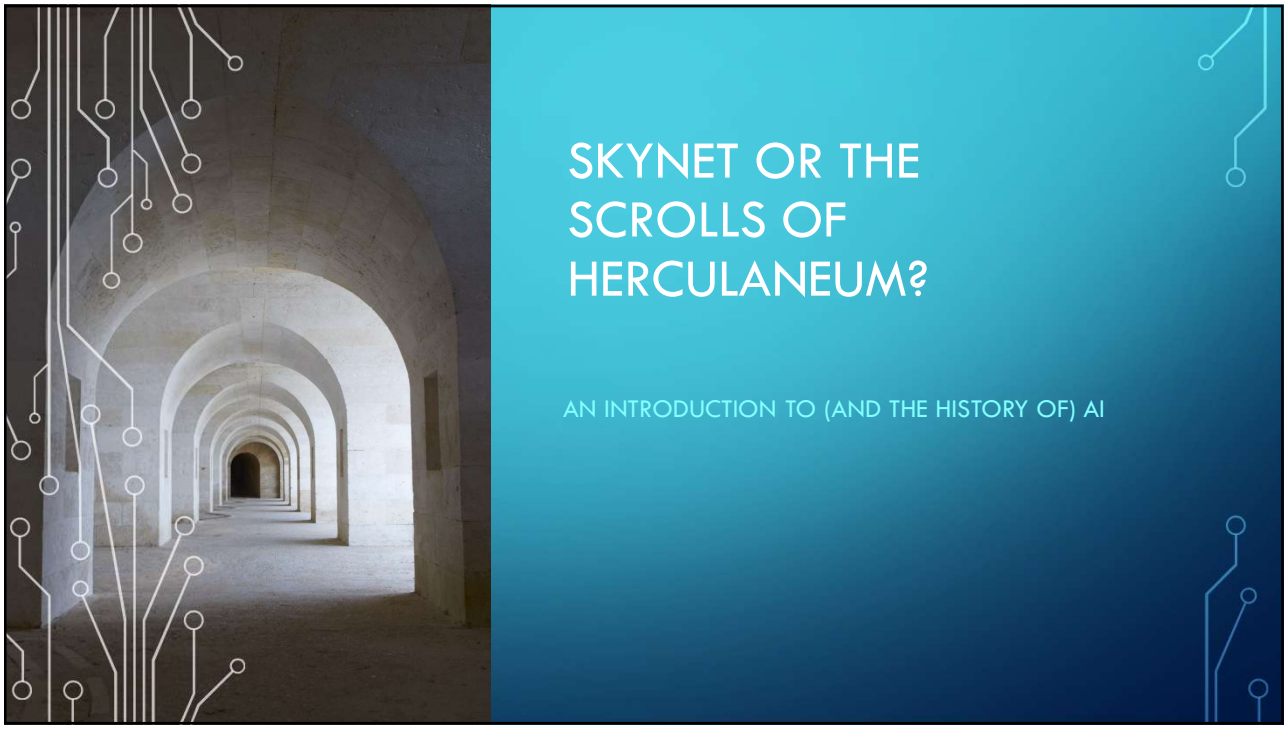
ISO's Inland Marine Handbook

87

OUR AGENDA – PART TWO ON ARTIFICIAL INTELLIGENCE

- Skynet or The Scrolls of Herculaneum?
- AI in Insurance:
  - Ways AI Can Enhance Insurance Operations
  - AI-Enabled Innovations in Insurance Products
- The Legal Landscape…So Far:
  - Class Action Lawsuits
  - The NAIC Model: Use of Artificial Intelligence Systems for Insurers
  - The Coverage Challenge

88



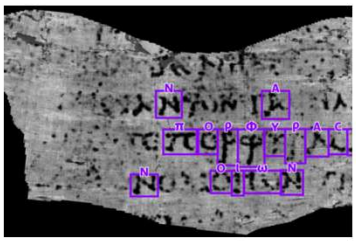
89

SKYNET (FROM TERMINATOR 2: JUDGMENT DAY (1991)

- The Terminator: In three years, Cyberdyne will become the largest supplier of military computer systems. All stealth bombers are upgraded with Cyberdyne computers, becoming fully unmanned. Afterwards, they fly with a perfect operational record. The Skynet Funding Bill is passed. The system goes online August 4th, 1997. Human decisions are removed from strategic defense. Skynet begins to learn at a geometric rate. It becomes self-aware at 2:14 a.m. Eastern time, August 29th. In a panic, they try to pull the plug.
- Sarah Connor : Skynet fights back.

(Script quote from imdb.com)

90



THE SCROLLS OF HERCULANEUM

"Brent Seales, a computer science professor at UK, talked about the AI technology he and his students developed over two decades that was used to digitally unwrap and read words from the 2,000-year-old Herculaneum scrolls. They were burned and carbonized by the catastrophic eruption of Mt. Vesuvius in 79 CE and were deemed 'unreadable.' Alan Lytle reports.

(From WUKY News 10/23/23)

Photos from EduceLab/Univ. of Kentucky

91

SO, WHAT IS "AI," REALLY?

According to the University of Illinois – Chicago:

Artificial intelligence represents a branch of computer science that aims to create machines capable of performing tasks that typically require human intelligence. These tasks include learning from experience (machine learning), understanding natural language, recognizing patterns, solving problems, and making decisions. From self-driving cars to virtual personal assistants, AI is reshaping various aspects of our daily lives, and its significance continues to grow.

92

SO, WHAT IS "AI," REALLY?

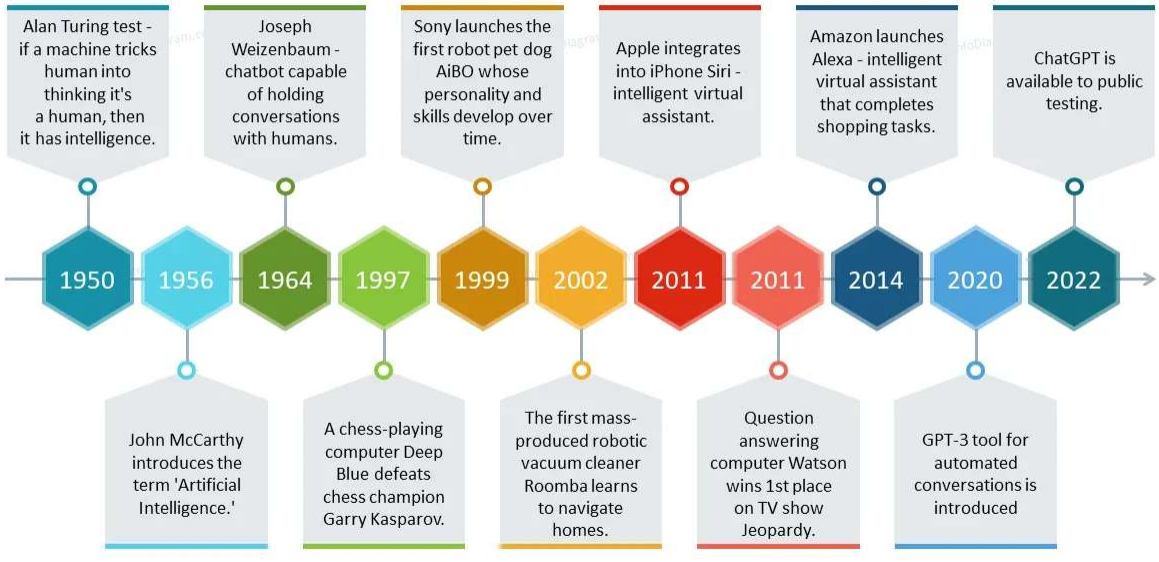
According to the University of Illinois – Chicago:

Unlike traditional computer programs that follow predetermined instructions, AI systems can learn and adapt from data, allowing them to improve their performance over time. This ability to learn and evolve is a key characteristic that sets AI apart from conventional computing.

Artificial Intelligence (AI) works by simulating human intelligence through the use of algorithms, data, and computational power. The goal is to enable machines or software to perform tasks that typically require human intelligence, such as learning, reasoning, problem-solving, perception, and language understanding.

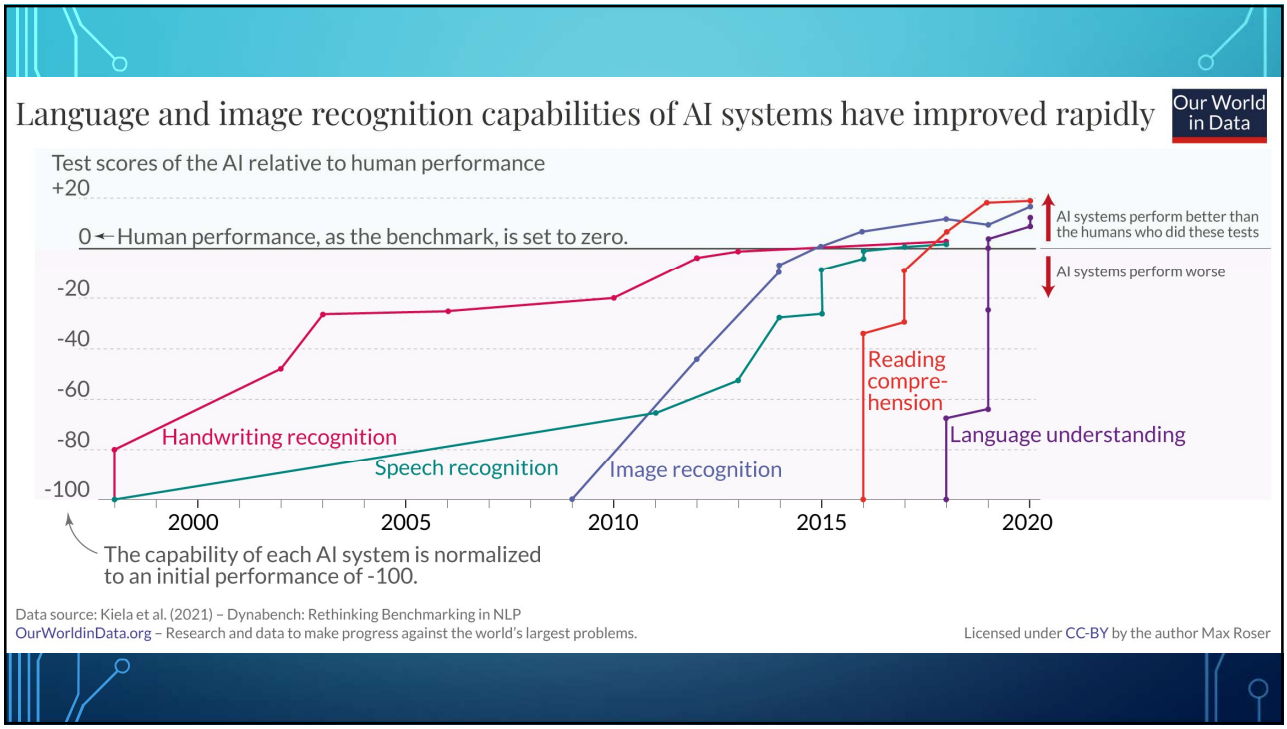
93

Artificial Intelligence Development History Timeline

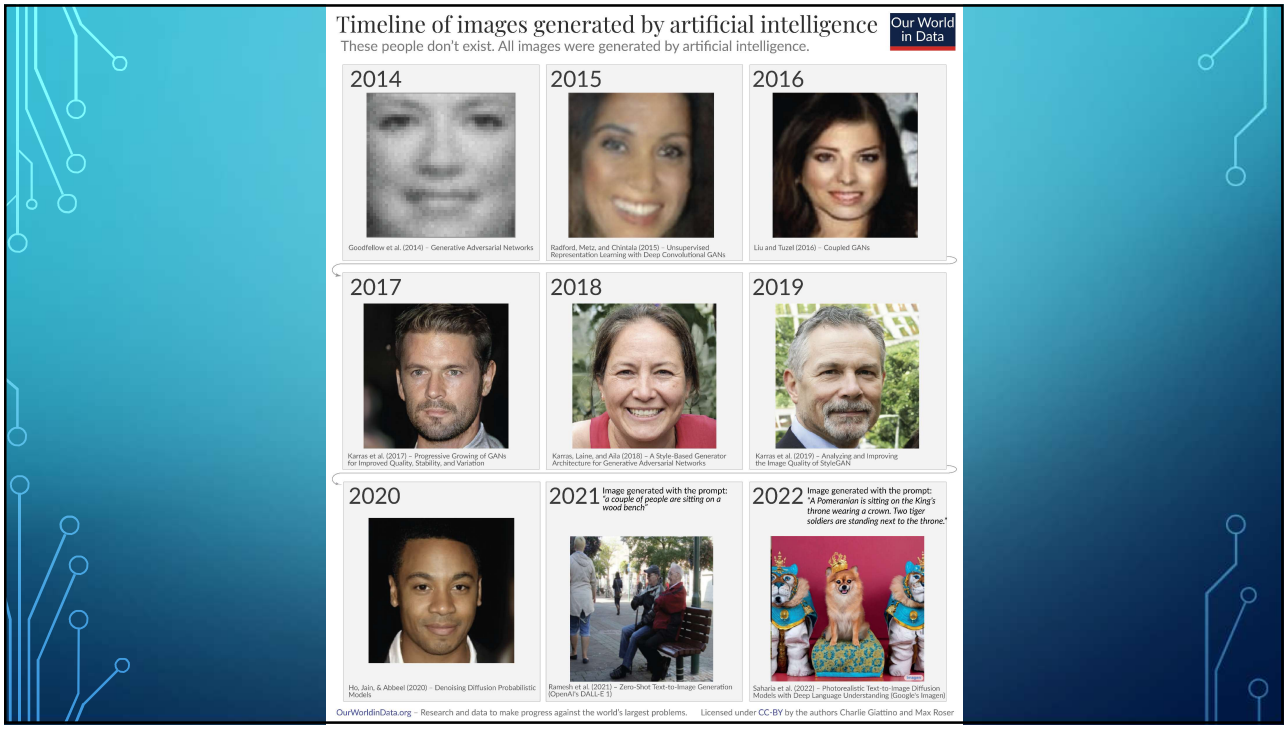


Get these slides & icons at www.infoDiagram.com

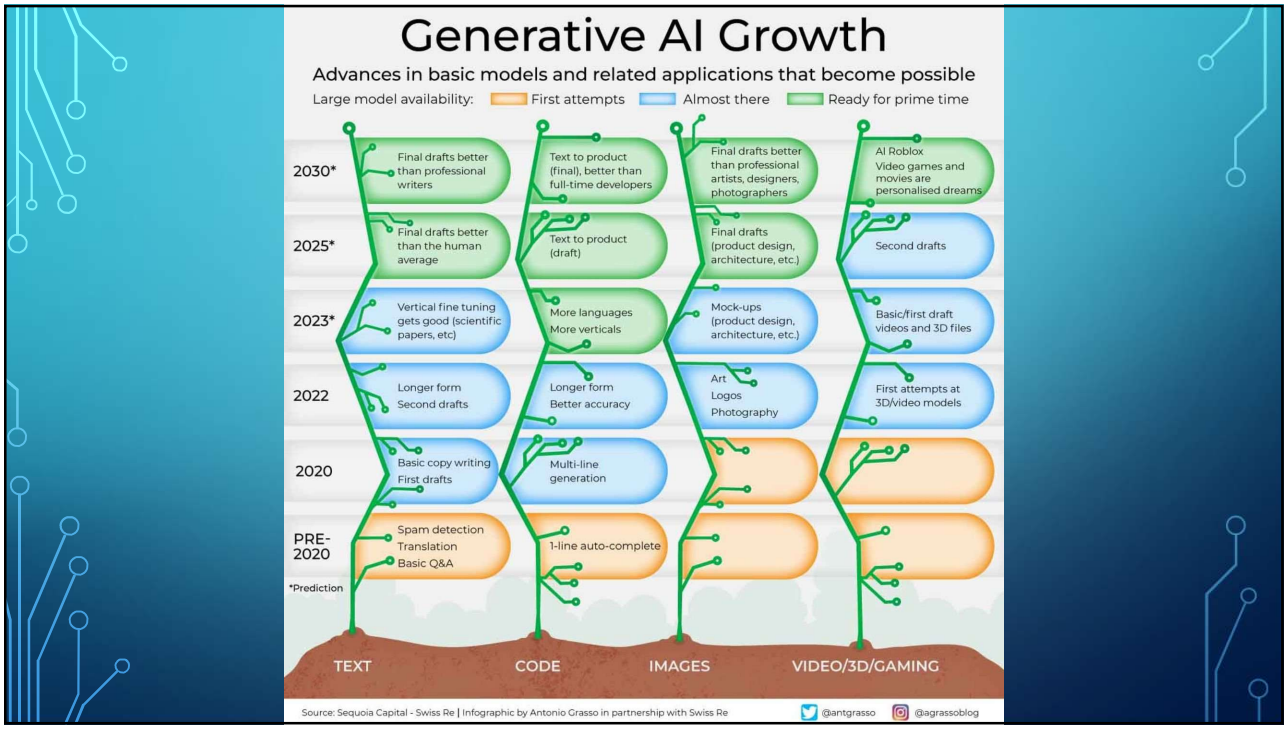
94


Language and image recognition capabilities of AI systems have improved rapidly
Our World in Data
Test scores of the AI relative to human performance
+20
0 ← Human performance, as the benchmark, is set to zero.
-20
-40
-60
-80
-100
AI systems perform better than the humans who did these tests
AI systems perform worse
Handwriting recognition
Speech recognition
Image recognition
Reading compre-hension
Language understanding
2000
2005
2010
2015
2020
The capability of each AI system is normalized to an initial performance of -100.
Data source: Kiela et al. (2021) – Dynabench: Rethinking Benchmarking in NLP
OurWorldinData.org – Research and data to make progress against the world's largest problems.
Licensed under CC-BY by the author Max Roser

95


Timeline of images generated by artificial intelligence
Our World in Data
These people don't exist. All images were generated by artificial intelligence.
2014
Goodfellow et al. (2014) – Generative Adversarial Networks
2015
Radford, Metz, and Chintala (2015) – Unsupervised Representation Learning with Deep Convolutional GANs
2016
Liu and Tuzel (2016) – Coupled GANs
2017
Karras et al. (2017) – Progressive Growing of GANs for Improved Quality, Stability, and Variation
2018
Karras, Laine, and Aila (2018) – A Style-Based Generator Architecture for Generative Adversarial Networks
2019
Karras et al. (2019) – Analyzing and Improving the Image Quality of StyleGAN
2020
Ho, Jain, & Abbeel (2020) – Denoising Diffusion Probabilistic Models
2021 Image generated with the prompt: "a couple of people are sitting on a wood bench"
Ramesh et al. (2021) – Zero-Shot Text-to-Image Generation (OpenAI's DALL·E 1)
2022 Image generated with the prompt: "A Pomeranian is sitting on the King's throne wearing a crown. Two tiger soldiers are standing next to the throne."
Saharia et al. (2022) – Photorealistic Text-to-Image Diffusion Models with Deep Language Understanding (Google's Imagen)
OurWorldinData.org – Research and data to make progress against the world's largest problems.
Licensed under CC-BY by the authors Charlie Giattino and Max Roser

96



97

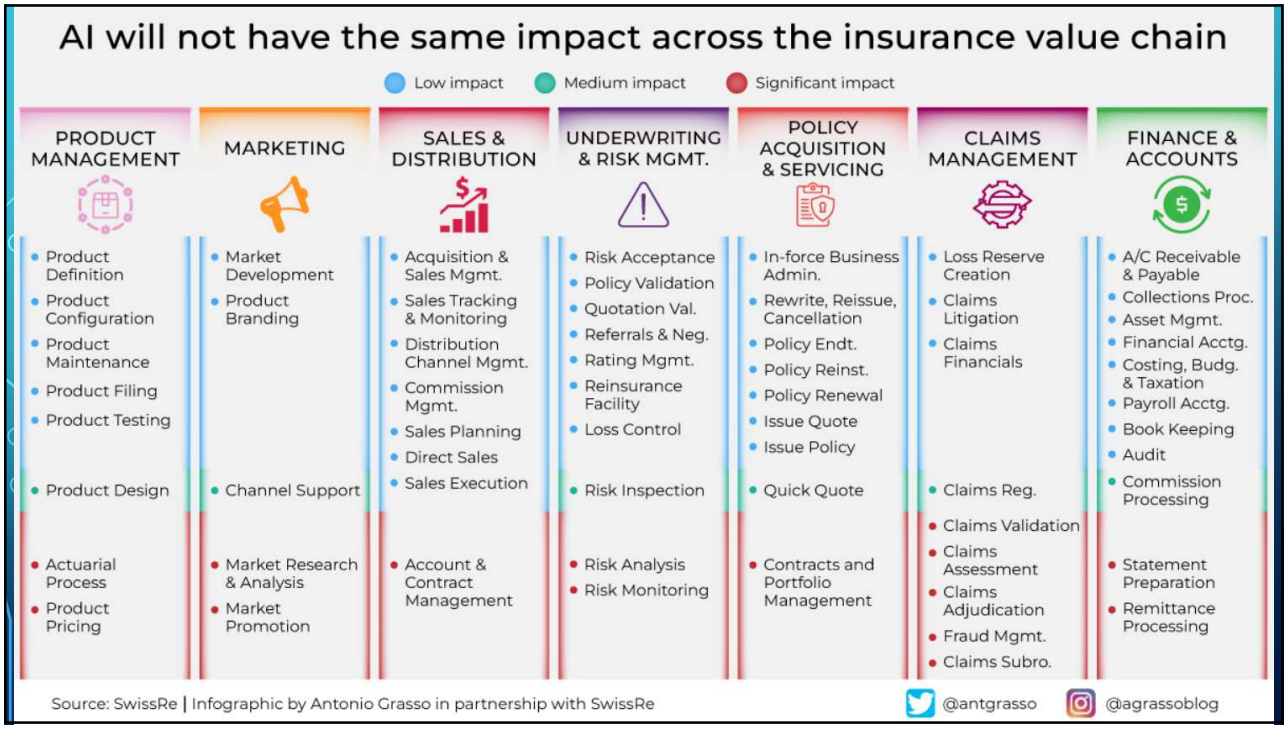
INTRODUCTION: THE FUTURE IS HERE

- What you pay when booking flights
- Bank loan eligibility
- Hiring decisions
- Parole decisions
- Benefits eligibility
- Programming software
- Writing the outline for this class
- Text translation
- Virtual assistants operated by speech recognition
- Personalized media content
- Self-driving cars
- Surveillance
- Autonomous weapons systems

98


AI IN INSURANCE:
WAYS AI CAN ENHANCE INSURANCE OPERATIONS AND PROVIDE INNOVATIONS IN INSURANCE PRODUCTS

99


AI will not have the same impact across the insurance value chain
Low impact
Medium impact
Significant impact
PRODUCT MANAGEMENT
Product Definition
Product Configuration
Product Maintenance
Product Filing
Product Testing
Product Design
Actuarial Process
Product Pricing
MARKETING
Market Development
Product Branding
Channel Support
Market Research & Analysis
Market Promotion
SALES & DISTRIBUTION
Acquisition & Sales Mgmt.
Sales Tracking & Monitoring
Distribution Channel Mgmt.
Commission Mgmt.
Sales Planning
Direct Sales
Sales Execution
Account & Contract Management
UNDERWRITING & RISK MGMT.
Risk Acceptance
Policy Validation
Quotation Val.
Referrals & Neg.
Rating Mgmt.
Reinsurance Facility
Loss Control
Risk Inspection
Risk Analysis
Risk Monitoring
POLICY ACQUISITION & SERVICING
In-force Business Admin.
Rewrite, Reissue, Cancellation
Policy Endt.
Policy Reinst.
Policy Renewal
Issue Quote
Issue Policy
Quick Quote
Contracts and Portfolio Management
CLAIMS MANAGEMENT
Loss Reserve Creation
Claims Litigation
Claims Financials
Claims Reg.
Claims Validation
Claims Assessment
Claims Adjudication
Fraud Mgmt.
Claims Subro.
FINANCE & ACCOUNTS
A/C Receivable & Payable
Collections Proc.
Asset Mgmt.
Financial Acctg.
Costing, Budg. & Taxation
Payroll Acctg.
Book Keeping
Audit
Commission Processing
Statement Preparation
Remittance Processing
Source: SwissRe | Infographic by Antonio Grasso in partnership with SwissRe
@antgrasso
@agrassoblog

100

BENEFITS AND USE CASES OF AI IN INSURANCE, *SWISSRE*, APR 17, 2023

- Narrow-AI – models designed to fulfill specific purpose in a defined context
- General-AI – universal model with human-like intelligence
  - No true general-AI exists yet, but Open AI, ChatGPT, and Google's Bard partly exceed narrow-AI capabilities
- Narrow AI has 3 main functions in insurance. It can:
  - Automate repetitive knowledge tasks (classify submissions and claims)
  - Generate insights from large complex data sets for decision making
  - Enhance parametric products and risk solutions

101

GETTING STARTED WITH GEN AI IN INSURANCE: BENEFITS AND USE CASES, *APPIAN*, DEC 12, 2023

Key Benefits of Generative AI

- Unlocks more value from data. By analyzing vast volumes of unstructured customer data across marketing, underwriting, claims, and control functions, generative AI can surface new insights.
  - New customer segments, product comparisons to develop new hyper-personalized offerings, improve customer engagement
- Speeds up work processes by automating routine tasks
- Identifies hard to detect risks and inefficiencies
- Delivers personalized, timely customer experiences

102

GETTING STARTED WITH GEN AI IN INSURANCE: BENEFITS AND USE CASES, *APPIAN*, DEC 12, 2023

Top use cases for generative AI

- Underwriting. Generative AI can assist underwriters in evaluating potential risks by analyzing vast amounts of data, including historical claims, customer information, and external factors to generate risk profiles and recommend appropriate coverage levels, helping underwriters make more informed decisions quickly.
- Claims processing and fraud detection. Generative AI can streamline the claims process by automating the assessment of claims documents. It can extract relevant information from documents, summarize claims histories, and identify potential inconsistencies or fraudulent claims based on patterns and anomalies in the data.

103

GETTING STARTED WITH GEN AI IN INSURANCE: BENEFITS AND USE CASES, *APPIAN*, DEC 12, 2023

Top use cases for generative AI

- Quote and policy generation. Generative AI can automate the generation of insurance quotes, policies, and associated documentation. It can create quotes, policy documents, invoices, and certificates based on predefined templates and customer information, reducing manual administrative tasks.
- Customer support and engagement. AI-powered chatbots reduce the workload on human agents and provide 24/7 customer support to offer immediate answers to policy, coverage, and claims questions. Generative AI can also automate personalized communication with policyholders by sending reminders for premium payments, providing policy updates, and delivering relevant content to enhance customer engagement and retention.

104

GETTING STARTED WITH GEN AI IN INSURANCE: BENEFITS AND USE CASES, *APPIAN*, DEC 12, 2023

Top use cases for generative AI

- Customer upsell/cross-sell opportunities. Generative AI can analyze customer data and preferences to recommend tailored insurance products. By understanding customer needs and risk profiles, insurers can offer personalized coverage options, increasing the likelihood of upselling or cross-selling additional policies.

105

USING AI TO IMPROVE THE INSURANCE EXPERIENCE FOR GOOD, *INSURTECH*, MAY 11, 2023

- "Artificial intelligence (AI) offers benefits across the entire insurance sector," says Meghana Nile, CTO for Insurance at Fujitsu.
- "Claims settlement is one area where automated technology is increasingly playing a significant role. For example, in auto-insurance, insurers can use AI to assess simple claims in just **six seconds** based on smartphone photos sent by the customer, compared to humans who take an average of six minutes and 48 seconds with the same information.

106

USING AI TO IMPROVE THE INSURANCE EXPERIENCE FOR GOOD, *INSURTECH*, MAY 11, 2023

- "Enhancement of the customer experience in the claims settlements is a big AI bonus too. Technology makes the process of buying a policy much simpler with fewer customers discouraged by the complexity of typical policy forms. And with simple queries fielded by AI, human agents have more resources to focus on more difficult service areas, which results in issues being dealt with much faster, smoothing out the experience." (Nile)

107

USING AI TO IMPROVE THE INSURANCE EXPERIENCE FOR GOOD, *INSURTECH*, MAY 11, 2023

- AI is changing fraud detection by monitoring potentially fraudulent activities through continuous data analysis and by using third-party, unstructured data analysis to allow insurers more context into those patterns of behavior.
- Nigel Lombard, CEO and Founder of Peppercorn AI, summarizes: "To date, insurers have mainly focused on using AI in customer service and claims processing. However, while the use of AI in insurance is still in its early days, adoption will accelerate over the next one or two years. Insurers that aren't adopting the technology will be in trouble as they'll be stuck with high expense ratios."

108

USING AI TO IMPROVE THE INSURANCE EXPERIENCE FOR GOOD, *INSURTECH*, MAY 11, 2023

- Insurers who are not embracing the technology are leaving themselves exposed to risk, inefficiency, or avoidable cost
- "We have only started to scratch the surface of what's possible when it comes to applications of AI in the insurance industry," Nigel Lombard continues. "In addition to customer service and claims processing, AI has the potential to support underwriting and fraud detection, which can drastically improve both loss ratios and expense ratios.

109

USING AI TO IMPROVE THE INSURANCE EXPERIENCE FOR GOOD, *INSURTECH*, MAY 11, 2023

- "AI also has the potential to use predictive analytics to analyze demand, create new products, improve pricing precision, and even determine changes to customer risk, for example. Predictive AI will be the next step once AI becomes more mainstream, but this area is still in its infancy. Once AI becomes more widely adopted and models have captured sufficient levels of data, we will start to see real-world applications of predictive AI." (Lombard)

110

USING AI TO IMPROVE THE INSURANCE EXPERIENCE FOR GOOD, *INSURTECH*, MAY 11, 2023

- AI can be used as the first point of contact for customer inquiries, leaving the human customer service agents to handle more complex queries or work on other tasks.
- Fujitsu's Meghana Nile elaborates: "Customers want an omnichannel experience, which is much more achievable with the help of AI. It makes self-service claims processing much easier, dramatically improving customer experience. But insurance can feel like quite a personal experience to many and there are times where there will be more complex claims and customers expect the 'human touch'.

111

USING AI TO IMPROVE THE INSURANCE EXPERIENCE FOR GOOD, *INSURTECH*, MAY 11, 2023

- Meghana Nile adds: "While AI has its potential ethical risks if not used correctly, if applied right, it can be exceptionally powerful. AI can address potential bias in underwriting by identifying and eliminating any potential decision-making disparities due to race, gender, age, or ethnicity, and that's what can make for fairer pricing.
- "Another positive impact AI will have on premiums is its ability to detect fraud and identify high-risk customers. This ability enhances risk monitoring and, in turn, reduces pricing.

112

IS AI THE FUTURE OF INSURANCE? *DWF GROUP*, FEB 2, 2024

- AI can expedite the development of new insurance products such as usage-based insurance products, including 'pay as you drive products' which may increase/decrease depending on where, when, and how a customer drives a vehicle.
- AI also allows insurers to create personalized insurance products specific to a customer's precise needs and risk profile.

113

AI STARTUPS MOVE FASTER WITH "AI INSURANCE", FIRST-OF-ITS-KIND COVERAGE FOR NEW AI RISKS, *PRNEWSWIRE*, JAN 30, 2024

- Vouch, a leader in business insurance for technology companies, announced "AI Insurance", a new product that helps AI startups survive lawsuits and innovate faster
- "As the AI sector navigates class-action lawsuits, regulatory uncertainty, and heightened scrutiny of risks, AI Insurance is an unprecedented safety net for AI startups. It can pay for defense costs and damages, irrespective of fault, with Vouch expertly handling the claim so startups can conserve capital and maintain momentum."

114

AI STARTUPS MOVE FASTER WITH "AI INSURANCE", FIRST-OF-ITS-KIND COVERAGE FOR NEW AI RISKS, *PRNEWSWIRE*, JAN 30, 2024

Vouch's AI Insurance includes affirmative coverage for:

- AI Errors & Omissions: Covers error and omission claims caused by AI products or services.
- Bias and Discrimination: Addresses claims related to algorithmic bias or discrimination.
- IP Claims: Safeguards against allegations of IP law violations.
- Regulatory Investigations: Provides defense cost coverage for AI-specific regulations.

115

INSURANCE 2030—THE IMPACT OF AI ON THE FUTURE OF INSURANCE, *MCKINSEY*, MAR 12, 2021

What might the insurance world look like in 2030?

- Highly dynamic usage-based insurance (UBI) products flourish and are designed to the behavior of individuals
- Microcoverage products like phone battery insurance, flight delay insurance, individual appliances insurance
- New products to cover the shifting nature of living arrangements and travel
- UBI becomes the norm as people share physical assets, with a pay-by-mile or pay-by-ride model or pay-by-stay for home-sharing services

116

INSURANCE 2030—THE IMPACT OF AI ON THE FUTURE OF INSURANCE, *MCKINSEY*, MAR 12, 2021

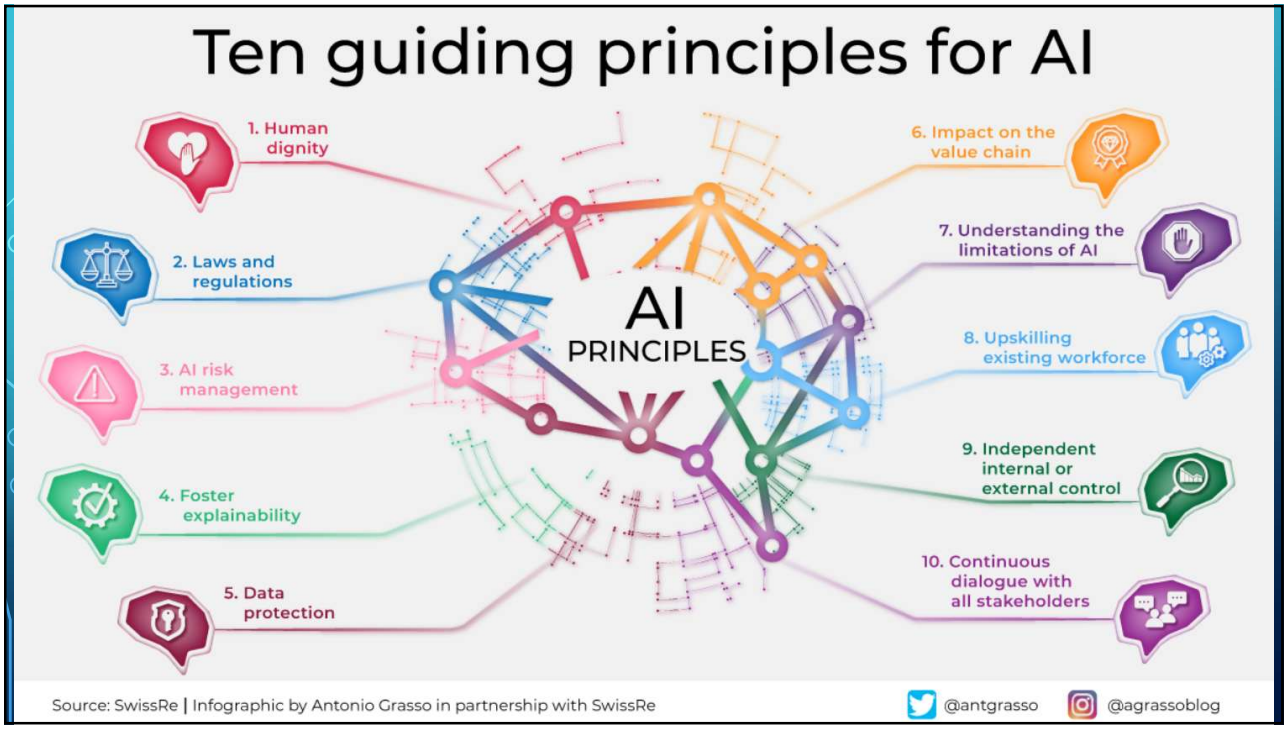
How insurers can prepare for accelerating changes

1. Get smart on AI-related technologies and trends
2. Develop and begin implementation of a coherent strategic plan
3. Create and execute a comprehensive data strategy
4. Create the right talent and technology infrastructure

117

THE LEGAL LANDSCAPE OF AI…SO FAR

118



119

How is AI used in business? Decrypting AI for insurance

SwissRe, March 14, 2023

1. AI applications should protect **human dignity,** rights and fundamental freedoms. Create an AI policy that ensures compliance with requirements including driving fairness and transparency.

2. Ensure AI governance that is consistent with **laws and regulations**. Including responsibilities and frameworks to assess and review them throughout the entire life cycle of AI, e.g. with model monitoring.

3. Mitigate the risks of AI applications– by setting up an adequate analytics and **AI risk management** framework and related processes.

120

How is AI used in business? Decrypting AI for insurance
SwissRe, March 14, 2023

4. Internal and external transparency to the extent permissible under applicable laws and regulations. Foster explainability, where applicable to help stakeholders make informed decisions while protecting privacy, confidentiality and security. Provide options for recourse.

5. Solid data protection standards, cyber security, data foundations and standardized systems are paramount. Consent to use the data, data quality and quantity are among the key factors to succeed with AI.

121

How is AI used in business? Decrypting AI for insurance
SwissRe, March 14, 2023

6. Clarity on where and how AI in combination with human processes has a positive impact on the value chain – be it to increase efficiency or enable new solutions and on its costs.

7. Understanding the limitations of AI in the customer journey. Human input might remain invaluable in some critical decisions to ensure digital trust.

8. Foster and commit to upskilling existing workforce on the use of new analytics and AI technologies

122

How is AI used in business? Decrypting AI for insurance
SwissRe, March 14, 2023

9. To ensure that the ongoing validation of the algorithms and adjustments is performed independently, an additional independent internal or external control function is recommended.

10. The use of AI will likely have profound effects on the insurance industry and society. Therefore, it is necessary to ensure a continuous dialogue with all stakeholders to be able to respond to changing needs and views.

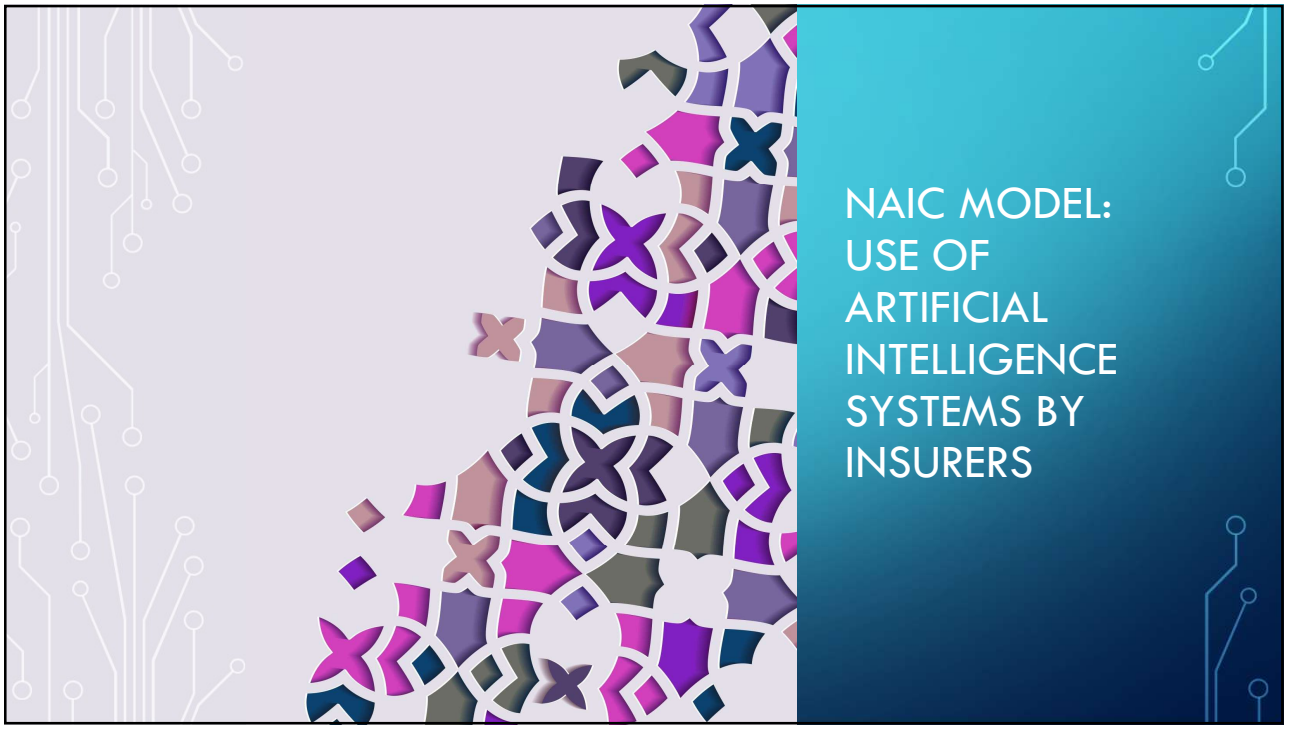
123

AI IN INSURANCE: THE GOOD, THE BAD AND WHAT WORRIES REGULATORS, *LEXISNEXIS*, DEC 11, 2023

Class Action Suits Over Insurers' AI Use

- State Farm was sued in 2022 in the U.S. District Court for the Northern District of Illinois over claims that its AI discriminates against Black customers. The class-action suit claims State Farm's algorithms are biased against African American names.
- Cigna was sued in July 2023 in California over allegations its AI algorithm used to screen claims was faulty and Cigna denied claims without having a human review them

124



125

NAIC MODEL: USE OF ARTIFICIAL INTELLIGENCE SYSTEMS BY INSURERS *(Adopted 12.1.2023)*

Artificial Intelligence Systems (AIS) Program Guidelines

1.0 General Guidelines

- 1.1 The AIS Program should be designed to mitigate the risk that the Insurer's use of an AI System will result in Adverse Consumer Outcomes.
- 1.2 The AIS Program should address governance, risk management controls, and internal audit functions.

126

NAIC MODEL: USE OF ARTIFICIAL INTELLIGENCE SYSTEMS BY INSURERS *(Adopted 12.1.2023)*

- 1.3 The AIS Program should vest responsibility for the development, implementation, monitoring, and oversight of the AIS Program and for setting the Insurer's strategy for AI Systems with senior management accountable to the board or an appropriate committee of the board.
- 1.4 The AIS Program should be tailored to and proportionate with the Insurer's use and reliance on AI and AI Systems. Controls and procedures should be focused on the mitigation of Adverse Consumer Outcomes and the scope of the controls and procedures applicable to a given AI System use case should reflect and align with the Degree of Potential Harm to Consumers with respect to that use case.

127

NAIC MODEL: USE OF ARTIFICIAL INTELLIGENCE SYSTEMS BY INSURERS *(Adopted 12.1.2023)*

- 1.5 The AIS Program may be independent of or part of the Insurer's existing Enterprise Risk Management (ERM) program. The AIS Program may adopt, incorporate, or rely upon, in whole or in part, a framework or standards developed by an official third-party standard organization, such as the National Institute of Standards and Technology (NIST) Artificial Intelligence Risk Management Framework, Version 1.0.
- 1.6 The AIS Program should address the use of AI Systems across the insurance life cycle, including areas such as product development and design, marketing, use, underwriting, rating and pricing, case management, claim administration and payment, and fraud detection.

128

NAIC MODEL: USE OF ARTIFICIAL INTELLIGENCE SYSTEMS BY INSURERS *(Adopted 12.1.2023)*

- 1.7 The AIS Program should address all phases of an AI System's life cycle, including design, development, validation, implementation (both systems and business), use, on-going monitoring, updating and retirement.
- 1.8 The AIS Program should address the AI Systems used with respect to regulated insurance practices whether developed by the Insurer or a third-party vendor.
- 1.9 The AIS Program should include processes and procedures providing notice to impacted consumers that AI Systems are in use and provide access to appropriate levels of information based on the phase of the insurance life cycle in which the AI Systems are being used.

129

FINALLY, A FEW WORDS ABOUT THE COVERAGE CHALLENGE

Randy Maniloff, noted national coverage attorney, reports in his *Coverage Opinions* newsletter (May 26, 2024):

- "[Early in 2023], I asked [ChatGPT] some things about the ins and outs of liability insurance coverage."
- "ChatGPT flunked the test. And not just by a little. A lot. It got 4 out of 5 questions breathtakingly wrong. If the answer should have been X, the AI program answered Y. It made my cousin Vinny look like Cardozo."

130

FINALLY, A FEW WORDS ABOUT THE COVERAGE CHALLENGE

In 2024, Maniloff re-tested ChatGPT using its enhanced (and now pay-based) services:

"Well, ChatGPT has clearly been boning-up on insurance coverage. Instead of the 'F' it got last year – which sent it to AI summer school – the artificial intelligence apparatus earned a 'C.' The improvement was remarkable. With some exceptions, the Chatster provided correct answers. And this time, unlike last year, the technology resorted to citing case law to support its responses. And most of the time it knew the seminal decision on the issue."

131