

Peran Aktuaris dalam Era Industri 4.0: Apa selanjutnya untuk Aktuaria di Indonesia?

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Topik:

1. Status terkini “dunia aktuarial” di Indonesia
2. Siapa melakukan apa dalam pengembangan aktuarial di Indonesia
3. Industri 4.0: Apa artinya? Apa yang berbeda?
4. Tema & Trend Industri 4.0 yang sedang mempengaruhi aktuarial di Indonesia
5. Tema & Trend lain yang penting
6. Beberapa peluang untuk aktuarial di Indonesia

Status terkini aktuaria di Indonesia

Anggota PAI:

	FSAI	ASAI	Jumlah	% perempuan	% pertumbuhan/ tahun
2016	235	251	486	N/A	FSAI = 4.9% ASAI = 9.1%
2017	255	259	514	N/A	FSAI = 8.5% ASAI = 3.2%
2018	281	290	571	40%	FSAI = 10.2% ASAI = 12.0%
Juli 2019	314	296	610	40%	FSAI = 11.7% ASAI = 2.1%

Status terkini aktuaria di Indonesia

Jumlah Program Studi & Peminatan Aktuaria (S1):

	Prodi	Peminatan	Lokasi Prodi
Januari 2016	0	minimal 9	Jawa
Oktober 2019	12*	minimal 10	Jawa, Sulawesi, Sumatra

*PAI mempunyai kesepakatan untuk penyetaraan kredit PAI dengan 8 universitas

- Jumlah mahasiswa Aktuaria Okt 2016 = 78
- Jumlah mahasiswa Aktuaria Okt 2019 = 725
- % mahasiswa Aktuaria perempuan = 59%

Status terkini aktuarial di Indonesia

Penelitian Terapan (Applied Actuarial Research):

- Jumlahnya masih sedikit
- Kualitasnya biasanya di bawah “world class”
- Ada dukungan dan *coaching* dari READI
- Ada sedikit kolaborasi dengan industri (mis: MAIPARK) dan PAI (konferensi)

Siapa melakukan apa dalam pengembangan aktuaria?

OJK: *Program 1,000 Aktuaris,*

P2PK: supervisi Aktuaris Publik

AAUI: *AAUI Goes to Campus*

AAJI: Beasiswa Aktuaria (S1)

Universitas-Universitas: seminar, konferensi

IFoA/SOA: seminar & konferensi berkala

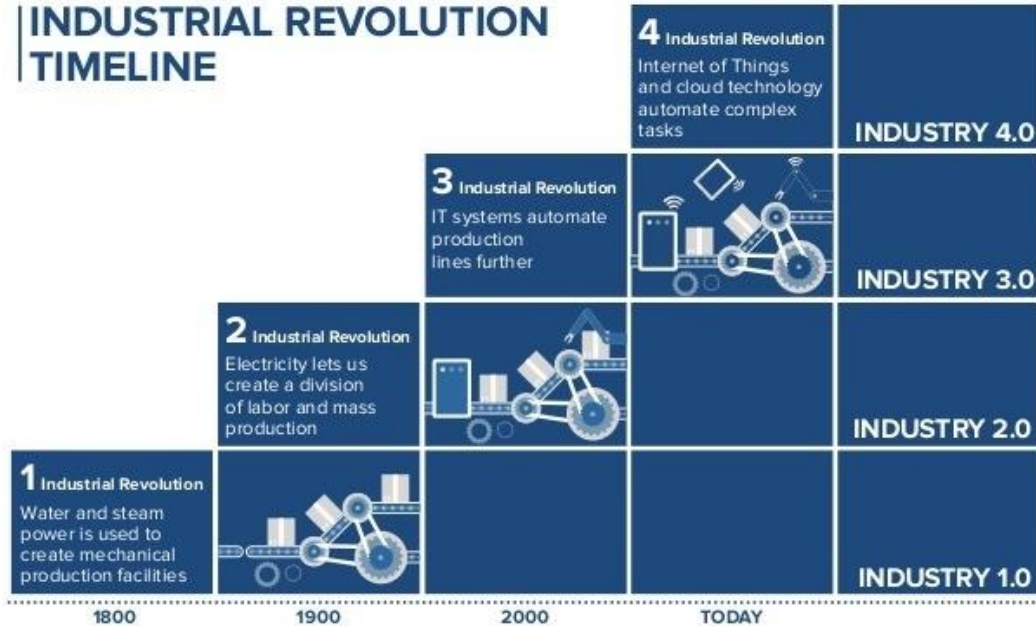
READI:

- Mahasiswa: beasiswa S1, magang profesional (co-op), *"outreach"*
- Dosen: beasiswa S2, *short courses, mentorships, seminars,* penelitian terapan
- Industri-Universitas: IUTF, magang profesional, ADP
- AAJI/AAUI/PAI/OJK/P2PK: peningkatan kapasitas

Apa artinya Industri 4.0?

TO ACCESS MORE INFORMATION ON INDUSTRY 4.0 IN CHINA, PLEASE CONTACT DX@DAXUECONSULTING.COM

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Industry 4.0 Era – What makes it different?

- Big Data
- Cloud Technology
- Artificial Intelligence
- Internet of Things
- Robotics & Automation



Tema & Trend Industri 4.0:

1. Role of Big Data and Data Analytics:

- Demographic data → designing and targeting products
- Life insurance: personalized health risk profiles based on “deep” biological data (DNA profile, microbiome)
- Risk assessment and claim management based on big data (e.g. weather indices, satellite images)
- Use of “on-board” personalized data collection (automobiles, fitbits)
- eCommerce and other industries (Tokopedia, Bukalapak, Gojek ...)
- Risks related to cyber data: protection of valuable data; protection of block-chain based assets (Bitcoin, etc.)

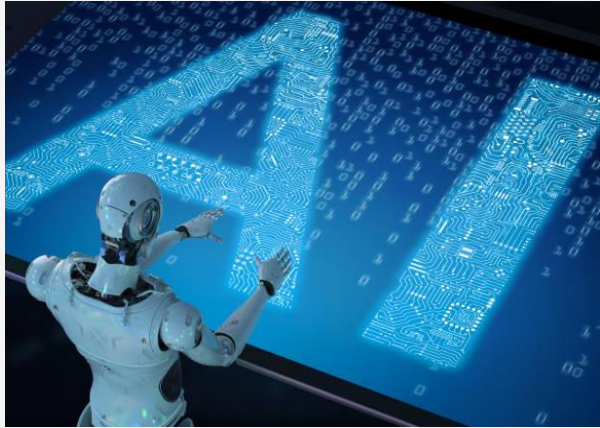
Tema & Trend Industri 4.0:

INTACT (general) Insurance in Canada has 300 actuaries:

- 50 actuaries work on big data issues & opportunities



Tema & Trend Industri 4.0:



Artificial Intelligence & Machine Learning:

- actuaries will increasingly work with AI data
- use machine learning to calculate risks and opportunities
- new tools → increased efficiency & accuracy

Tema & Trend Industri 4.0:

Data science and data analytics has become critical for all spheres of business in the Industry 4.0 Era.

... actuaries need to continually enhance data analysis, modelling and data-based research skills



Tema & Trend Industri 4.0:

Fintech & Insurtech:

- very rapid development of products:
→ PasarPolis offers over 100 insurance products available online
- lots of new opportunities ... and rapidly evolving financial risks
→ e.g. micro-insurance products, peer-to-peer lending



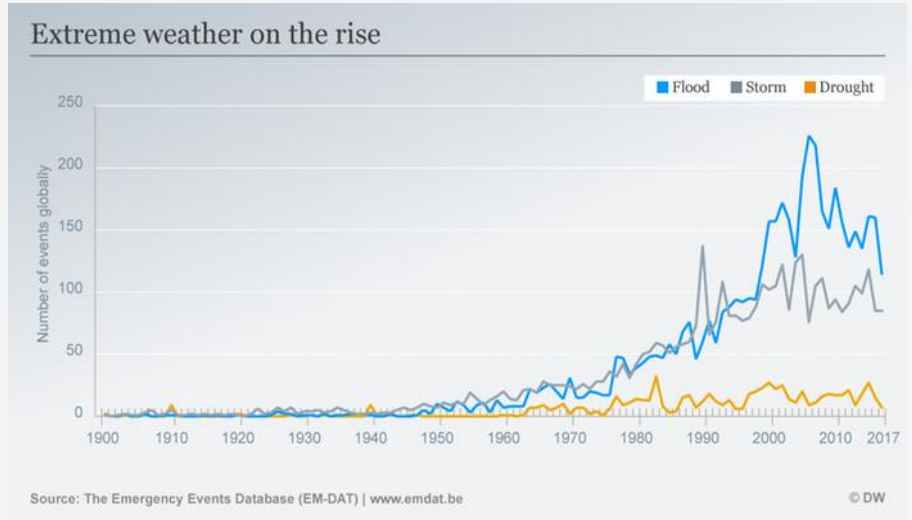
Other important trends:



Other important trends:

Risks due to Climate Change:

- Risks are getting bigger fast!
- Harder to calculate risks!



- Affecting many sectors (infrastructure, agriculture, fisheries, health)
- Some major reinsurers will no longer insure coal generating electricity stations for fear of future legal problems

Other important trends:

IFRS17 (new insurance reporting standards):

- Adoption & application by 01 January 2021
- Will require more input and guidance from actuaries
- Some companies “financial health” may look very different

Other Important Trends:

Integration of ASEAN Country Economies:

- More competition, but more opportunities too!



Opportunities for the Indonesian Actuarial Milieu:

By 2025, Indonesian universities will be graduating 650-700 actuarial science graduates per year.

By 2030, PAI will likely be the biggest actuarial society in Southeast Asia.

Can PAI also become the best actuarial society in Southeast Asia?

Opportunities for the Indonesian Actuarial Milieu:

- Indonesia should soon be able to export actuaries
- But ...

English will be important for mobility!

Opportunities for the Indonesian Actuarial Milieu:

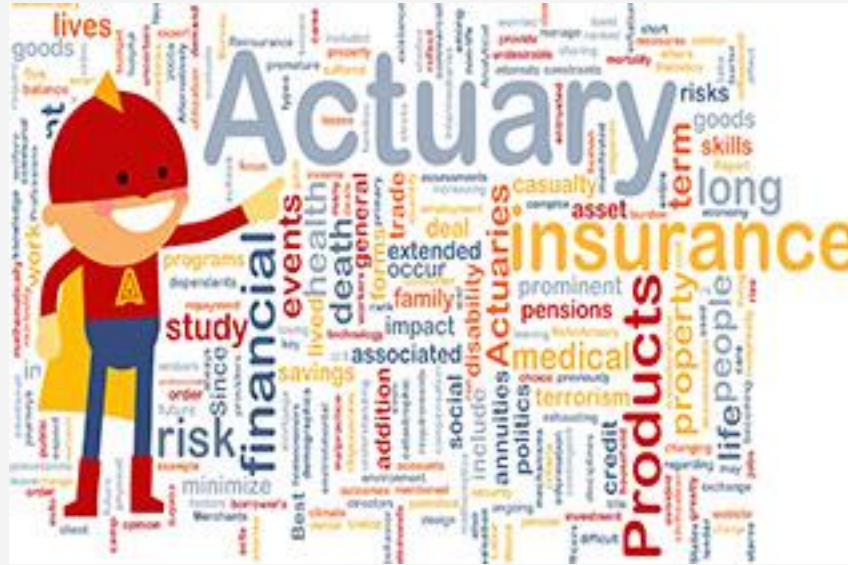
- Penelitian dalam aktuaria dapat mendorong inovasi dan sinergi antara industri dan universitas dan mendorong keunggulan aktuaria.
- Tapi jumlah dan kualitas penelitian masih sangat terbatas karena:
 - kolaborasi antara industri dan peneliti sangat terbatas
 - akses pada data, biar “*masked data*”, sulit (sangat sulit)
 - mekanisme pendanaan terbatas
 - “*learning curve*” untuk peneliti cukup miring
 - Belum ada “*champion*” untuk penelitian aktuaria Indonesia (mungkin di PAI?)

Opportunities for the Indonesian Actuarial Milieu:

Era Industri 4.0 membawa banyak tantangan, tapi banyak peluang juga untuk aktuaria dan industri di Indonesia.

Kalau industry + asosiasi industry + universitas + pemerintah berkolaborasi, tantangannya bisa diatasi dan peluang-peluang dapat dimanfaatkan.

Siapa akan berperan sebagai “*thought leader*” dan “*champion*” untuk perkembangan aktuaria di Indonesia?



Aktuaria Indonesia - makin lama, makin unggul