

4th Data Science & Analytics Seminar

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Changing Landscape of Actuarial Profession - *Worldwide*

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Who is an actuary?



IAA Says:

Actuaries apply unique skills and professional approach to solving complex problems, advising on future risks, opportunities and options, across diverse fields and industries

In Layman terms

An actuary is a professional who applies mathematical skills to financial, business and social problems, especially those which involve uncertain future events...

Actuarial Judgement paradigms



Who needs actuarial advice?

- Government
- Regulators and Policy Makers
- Financial Institutions
- General Public
- Environment Agencies
- Scientists



IRDA

Insurance Regulatory and Development Authority



WORLD BANK



Industries where Actuaries work



- Insurance
- Investments
- Banking
- Asset Management
- Pensions
- Employee Benefits
- Health Care
- Infrastructure
- Environment
- Government
- Data Science
- Utilities
- Airlines
- Game Design
- Software Development
- Academics
- Rating Agencies
- NGOs
- Retail
- *And ??*

Source: Jules Gribbles, IAA Regional Seminar, 2018

Number of Actuarial Students



Statistics from some of the International Bodies

Actuarial Bodies	Fellow	Students	Total
SoA	17853	13470	31323
IFoA	13047	15876	28923
IAI	445	8731	9176
AIA. Aust	2293	2660	4953
CAS	5143	2868	8011

Comparison of other professionals in India

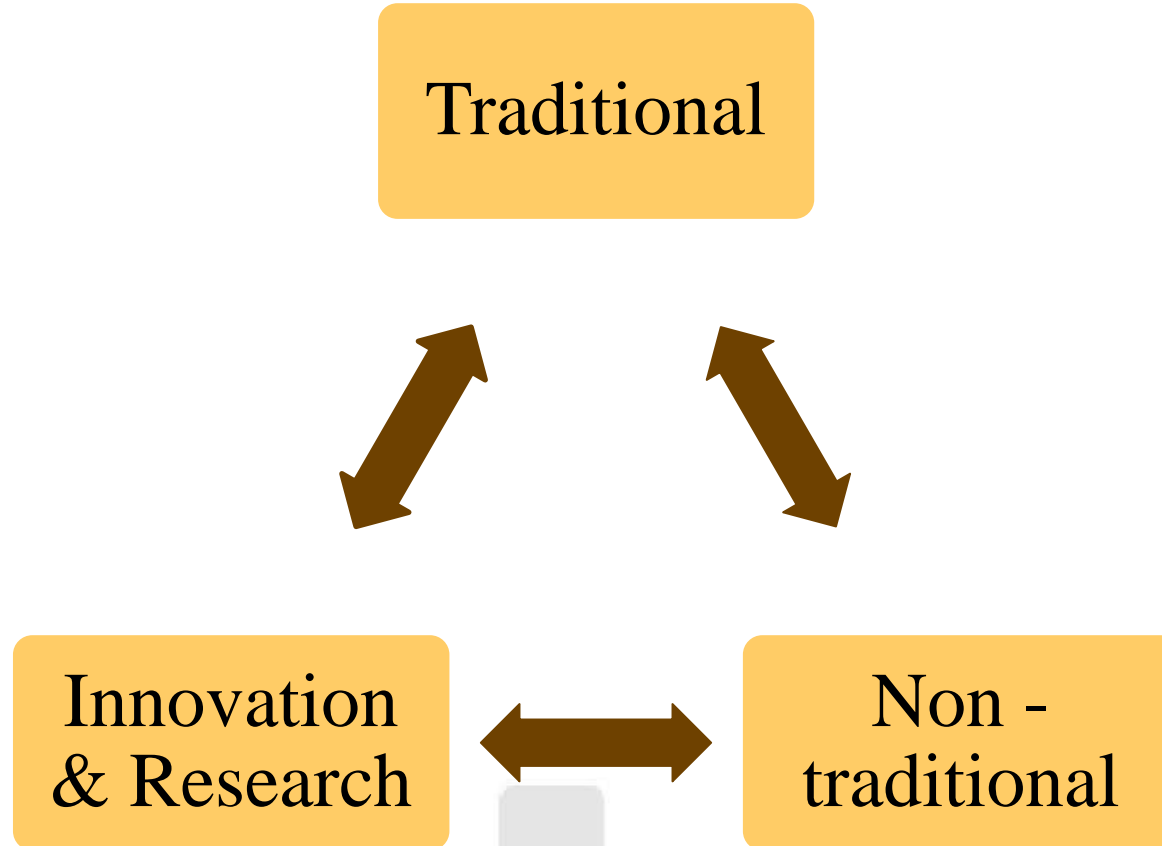
- No of Engineers - 15,00,000 per year
- No of MBAs - 5,20,000 per year
- No of Doctors - 50,000 per year
- No of CAs - 2,39,400
- **No of Actuaries - 445 in India**

Change in Sectorial Composition



Sector	Current	Next 10 years
Life Insurance	40%	45%
Pensions	30%	9%
General Insurance	20%	25%
Investments	5%	7%
Technology & Data	3%	12%
Others	2%	2%
Total	100%	100%

Drivers of Actuarial Profession



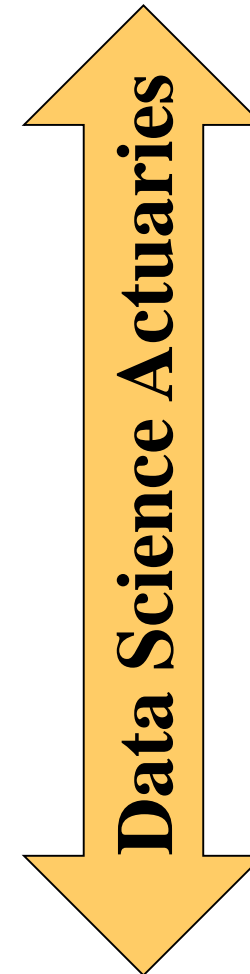
History – Non Traditional Fields



- **Developed Markets**
 - General Insurance
 - Asset Management
 - Health Insurance
- **In India – Past**
 - LIC
 - Early 2000's -Private Life insurance – (Non – traditional)

Opportunities – Today

- Insurance
- Finance & Investment
- Risk Management
- Climate Change
- Government & Policy
- Science & Innovation



Finance & Investment

- Banking
- Investment Banking
- Asset Management
- Alternate Assets



Risk Management

- ISO – 31000
- Chief Risk Officers – MNC
- Risk Analytics
- Governance



Climate Change

- Energy Pricing
- Carbon Pricing
- Catastrophe Bonds
- Climate Change Modeling



Agriculture & Farming

- Weather Derivatives
- Disaster Management
- Data Analytics for Farming
- Crop Insurance



Science & Innovation



- Astronomy and Actuarial Science
- Bio-informatics and Analytics
- Super Computing



Ethics in Data Science



A Guide for Ethical Data Science

FIVE ethical themes of consideration

- *Seek to enhance value of data science for society*
- *Avoid harm by ethical violations on privacy and autonomy*
- *Apply and maintain professional competence*
- *Seek to preserve or increase trustworthiness*
- *Maintain accountability and oversight*

What's happening around the world?

- International Actuarial Association
- Institute and Faculty of Actuaries
- Actuarial Society South Africa
- Institute of Actuaries of Australia
- Society of Actuaries
- Casualty Actuarial Society
- Institute of Actuaries of Japan

IAI Initiatives



- Advisory Groups
 - Finance and Investment
 - Data Science and Analytics
 - Risk Management
 - Educational Initiatives
 - Others
- Rebranding – Risk Managers, Data Scientists, Business Scientists....
- Hackathons
- HR conclaves - Industry Interfaces
- Research

What should students do?



- Focus on Clearing papers
- Young and fresh candidates should explore new domains
- Apply for jobs in non-traditional areas
- Volunteer
- Learn complementary and new skills

Future is bright

- Innovate
- Take Risk
- Never stop learning
 - Fellowship is not end of the Journey, perhaps beginning





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