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**Global Emerging actuarial issues & the role of emerging
markets in meeting actuarial needs.**

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Agenda

- Professional background and current role
- MetLife background
- MetLife actuarial population
- Actuarial organizational transformation
- Emerging Actuarial issues
- Role of emerging markets

- Joined MetLife's Actuarial Development Program 1984 after graduating MIT with BAs in Physics and Mathematics.
- Rotated through Pricing, Valuation, ALM, attained FSA in 1992.
- MetLife Alexander Bailie Award 1993.
- Extensive experience with capital markets, financial reporting including US GAAP and Stat, product development
- Participated in MetLife's conversion to US GAAP, demutualization and funding of Closed Block, development of Economic Capital for enterprise, actuarial due diligence and PGAAP for New England, Travelers, ALICO and other acquisitions.



Current Role



- Executive Vice President and Global Chief Actuary reporting to CFO
- Head of new Actuarial Resources organization
- Co-Chairperson of ALM Steering Committee, Chairman of all life insurance captives, member of Investment Advisory Committee



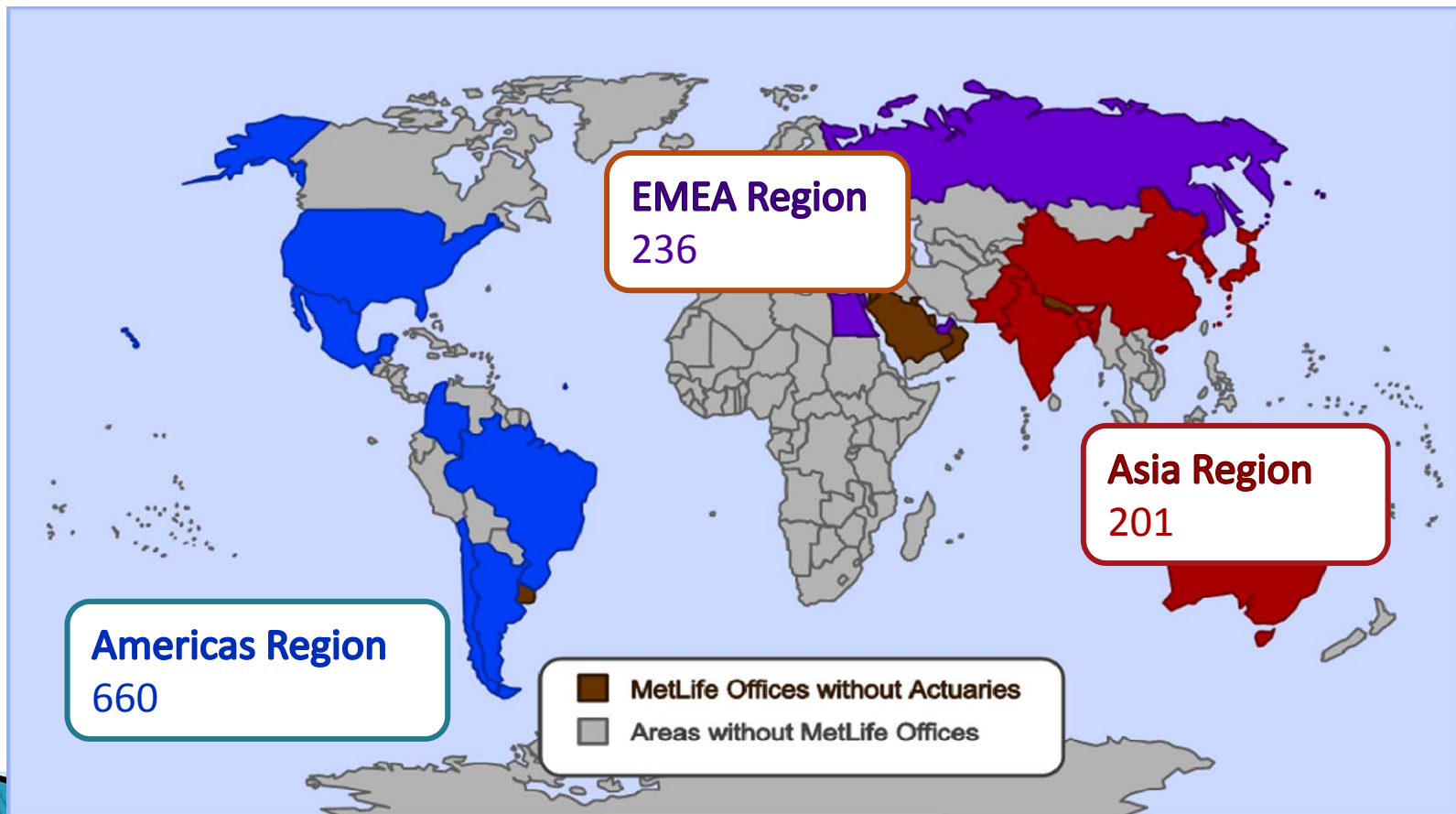
MetLife Background

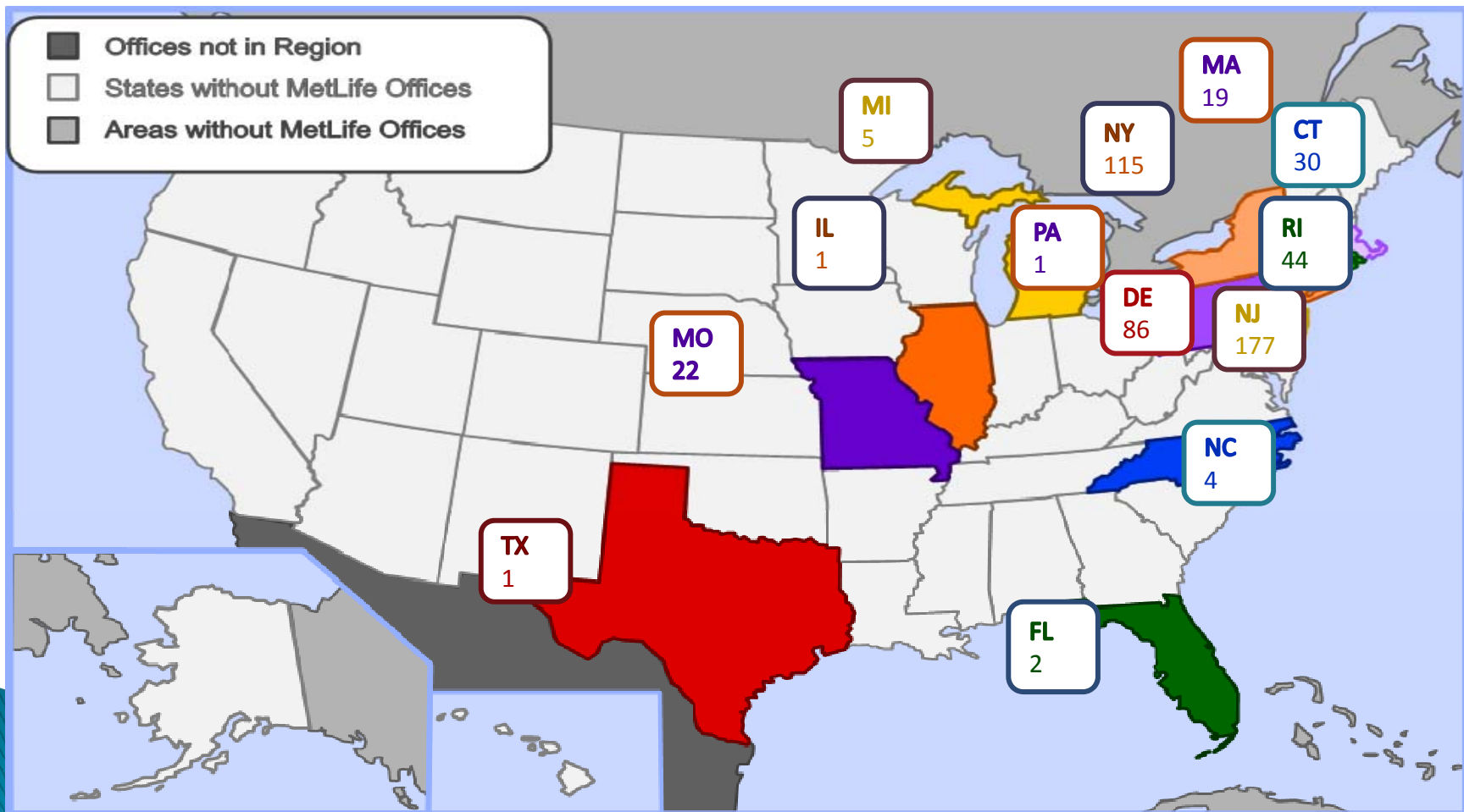


- MetLife, Inc. is a leading global provider of insurance, annuities and employee benefit programs, serving 90 million customers
- MetLife holds leading market positions in the United States, Japan, Latin America, Asia, Europe and the Middle East.
- Largest life insurer in the U.S. and Mexico.
- 90 of the top one hundred FORTUNE 500® companies are corporate clients.
- Long history of providing insurance and annuity products.
- Trusted, well-recognized brand name and strong financial performance.
- Founded in 1868.
- Stock company – demutualized in 2000.
- Domiciled in NY with operations in 47 countries.
- 23 Life or Health legal entities in US.

- 1,100 actuaries in 36 countries
 - US 507
 - LatAm 153
 - EMEA 236
 - Asia 201
- Long history of developing actuarial talent
 - Currently 89 actuarial students in US
 - Typically hire 30-40 summer students

Actuarial Population





One MetLife: Global, World Class, Scale **MetLife**

The Critical Role Actuarial Resources Plays in supporting MetLife's strategic objectives



- Producing accurate valuations of the company's liabilities
- Increasing its pricing discipline
- Reducing the capital intensity of its products
- Maintaining its targeted risk profile, and achieving its targeted returns

Our Transformation Journey

What Remains the Same?

- Our organization's purpose:
 - Financial reporting and analysis
 - Pricing and product development
 - Business planning advisory
 - Actuarial services
 - Risk management advisory
- The importance of deep, technical expertise

How Did We Change?

- Strategically realign Actuarial Resources to achieve the broader goals of the company
- Drive greater efficiency and ease into our processes and interactions
- Elevate and expand our focus on emerging actuarial issues and special events with significant actuarial implications
- Increase our commitment to our talent at all levels
- Extend best practices globally

The Role We Now Play

Actuarial Resources' Role

- Actuaries as the financial engineers of the Company
- Producing accurate valuations of the Company's liabilities
- Increasing its pricing discipline
- Reducing the capital intensity of its products
- Maintaining its targeted risk profile, and achieving its targeted returns

How We Will Execute

- Elevate our role to be **trusted advisors** to our partners
- Enable a **clear line of sight** into actuarial practices across the company
- Increase **global scale**, consistency and **flexibility**

What is a Trusted Advisor?

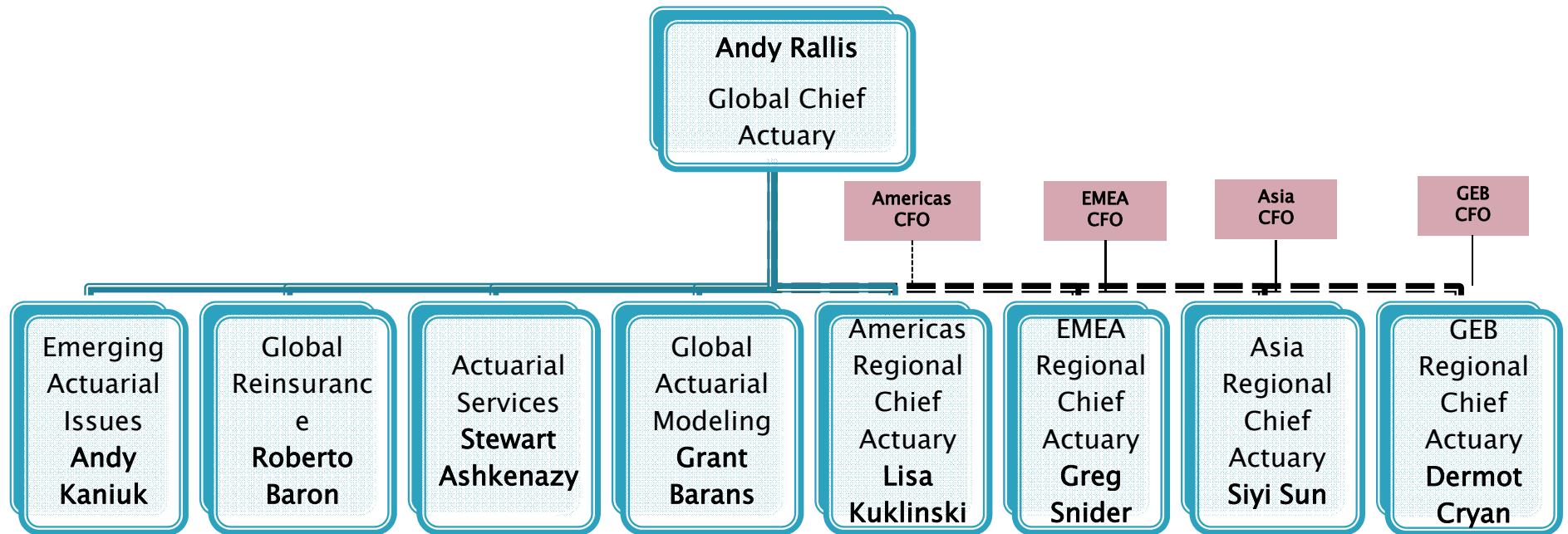
Trusted

- Acts with integrity
- Adheres to actuarial standards
- Always takes a customer-centric approach
- Develops a customer's confidence through partnership



Advisor

- Demonstrates technical expertise
- Simplifies complexity
- Looks for creative solutions
- Understands the objectives, not just the rules



Emerging Actuarial Issues

Actuarial Resources
Andrew Rallis
Global Chief Actuary

Emerging Actuarial Issues

Consulting Actuarial

Actuarial Technical Advisor

Program Management

How we contribute:

- By creating the Emerging Actuarial Issues group, we will **elevate and expand our focus on emerging actuarial issues** and special events/projects with significant actuarial implications
 - Enhances ability to foresee, plan and manage external factors
 - Minimizes disruption/strain to address special events/projects

Systemic Importance of Insurers Globally **MetLife**

Financial Stability Board (FSB) and International Association of Insurance Supervisors (IAIS)

Nov 2010 : G20 Leaders endorse FSB report on G-SIFIs

May 2012 : IAIS develops assessment methodology for G-SIIs

July 2013 : First Designations of G-SIIs

2014 : Backstop Capital Requirement to be developed by IAIS

Assessment based on :

Size

Global Activity

Interconnectedness

Non-Traditional insurance and non-insurance activities

Substitutability

Implications :

Enhanced Supervision

Effective Resolution

Loss Absorption

Higher Loss Absorption Capacity

- Regulatory framework that uses a risk-based market consistent approach to determine solvency of insurers
 - Originally approved in 2009 for implementation in 2013 but currently expected to be effective in 2016
 - Capital requirements include Minimum Capital Requirement (MCR), Solvency Capital Requirement (SCR) and an Adjusted SCR
- Framework grouped into three pillars
 - Pillar 1 covers the quantitative requirements and includes valuations of liabilities on a market consistent basis
 - Allows use of a standard formula or an internal model
 - Pillar 2 imposes standards for risk management and governance within an organization
 - Includes Own Risk and Solvency Assessment (ORSA)
 - Pillar 3 imposes greater disclosure requirements
 - Private annual report to supervisors
 - Public solvency and financial condition report with increased disclosure requirements

Low Interest rate environment

- U.S., Japan and German interest rates are at historic lows and continue marching lower
 - Some tenors of government bond rates are negative
- Decrease in yields is exerting pressure on earnings
 - Some products have minimum crediting rate guarantees so decrease in reinvestment rates eventually compresses investment margin
 - Impact is currently manageable
- Managing impact on business
 - Incorporate lower guarantee rates in new issues where possible
 - Modify mix of business towards shorter duration products and products with participating features
 - Where appropriate invest in alternative asset classes or further out on the curve to gain yield

Genetic Testing / Technology

- Cost for genetic testing has decreased dramatically over the last decade and is becoming available to the average consumer
 - 23andMe offers test for \$99 that scans a subset of genome being studied by researchers
 - Current predictive qualities from genomes limited but could change quickly
 - 23andMe providing genome database access to pharmaceutical companies and universities
 - Availability of larger dataset increases likelihood of breakthroughs
- Wearable's
 - Currently monitor physical activity, sleep patterns and allow tracking of calories
 - Coming enhancements expected to allow measurement of blood pressure, blood-oxygen levels and glucose levels
 - Allow individual additional information to gauge current health and improve overall health
- Predictive Modeling
 - Data aggregators provide unprecedented set of data points to predict consumer behavior
 - Predictive modeling currently used to predict which consumers more likely to accept certain product offerings, better understand consumer perception of price changes, and enhance underwriting process

Why are “Scale” and “Flexibility” Important?

Organize around Customers’ Needs

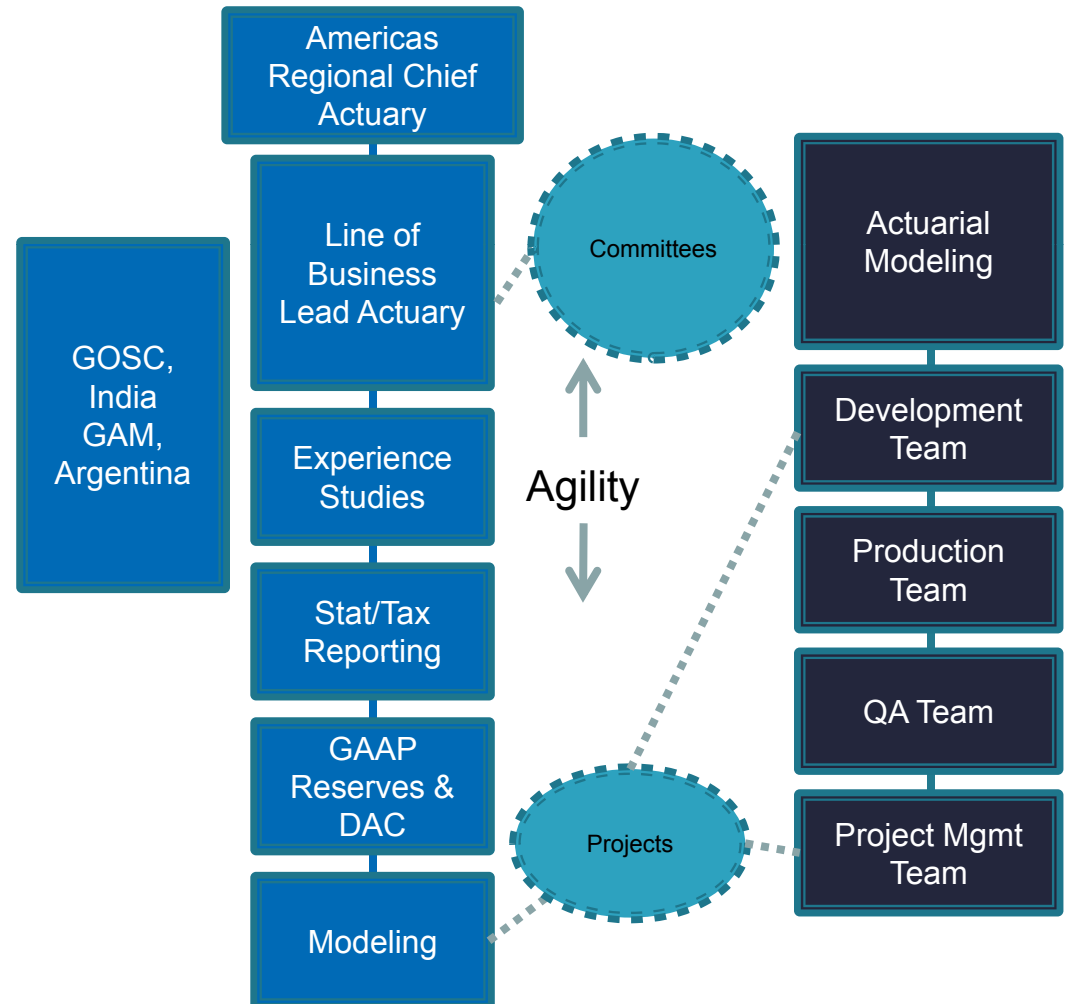
- Providing flexibility based on changes to business volumes
- Enabling deeper expertise

Create Shared Capabilities

- Global groups with deep capability
- Expand and flex to meet changing demands

Collaborating Internally

- Scaling to meet changing needs
- Minimizing opportunity for overlapping effort and tasks



Global Shared services: India & Argentina

Talent Landscape: India

- Very high student actuarial population compared to qualified actuaries (~300 qualified, 9000 students/other)
- Actuarial opportunities available in life, non-life and pension areas
- Growing number of captives and consulting companies engaged in KPO activities
- Reasonable geographical distribution of candidates within India; Mumbai, Delhi NCR, Bangalore, Chennai have the highest number of actuarial talent.

Talent Landscape: Argentina

- University based: program includes courses in both life and non-life disciplines. 34 mandatory credits required
- There are no levels of membership; all graduates of the UBA program are fully qualified actuaries.
- 40% increase in student population from 2008 to 2014. 700 actuaries currently (Argentina population 44m)
- Only country in Latin America with formal actuarial education with mostly all actuaries supporting the local market.

Key Service Offerings

Modeling

- Prophet Modeling for Japan & Mexico
- Stochastic Modeling on Aon Path wise and Matlab

Experience Studies

- VM51 and other experience studies support for Americas
- Lapse & Mortality studies for all EMEA sub-regions on Poly systems measure

Pricing

- Commercial Pricing on Business Owners Policy
- Producing bulk annuity pricing quotes

Valuation

- Reserving on USGAAP, US Stat and US Tax basis
- DAC Valuation
- Local stat for Nepal / Bangladesh

Reinsurance Treaty Negotiations

- Support actuarial needs for reinsurance system implementation
- Verify rate tables and review reinsurance treaties

Actuarial Services Support

- Reserve Coordination
- Actuarial Controls
- Manage HR benefits & Finance

Who we Support

- Retail Life & Annuities, Americas
- Group Voluntary Worksite Benefits, Americas
- Asset Liability Management Group, Americas
- GAAP Production support, EMEA
- Valuation Group, Nepal, Bangladesh

Qualifications

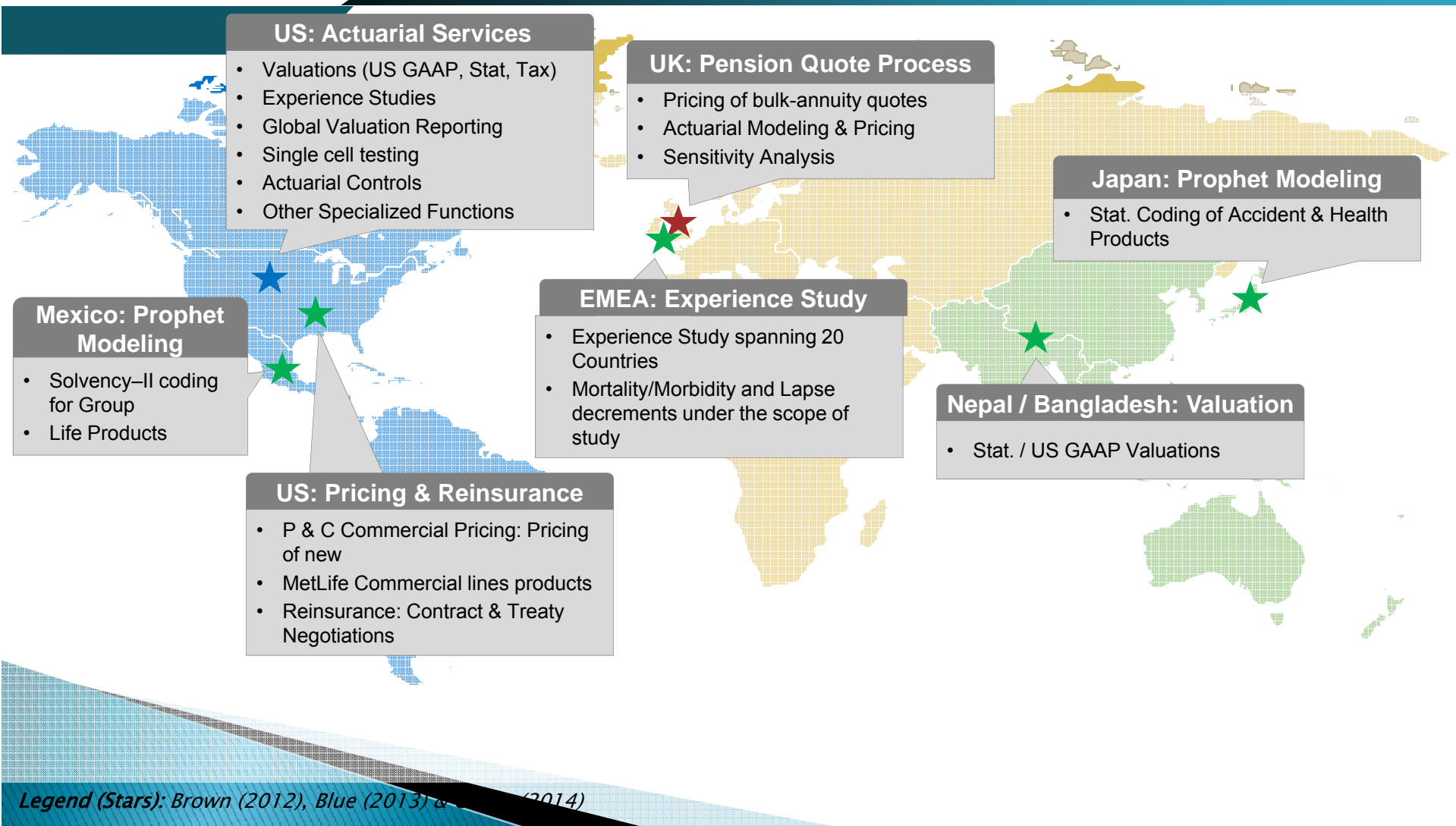
- Fellow & Student Actuaries
- Bachelor of Mathematics
- Bachelor of Statistics / Economics

Performance Metrics

Voice Of Customer (VOC):

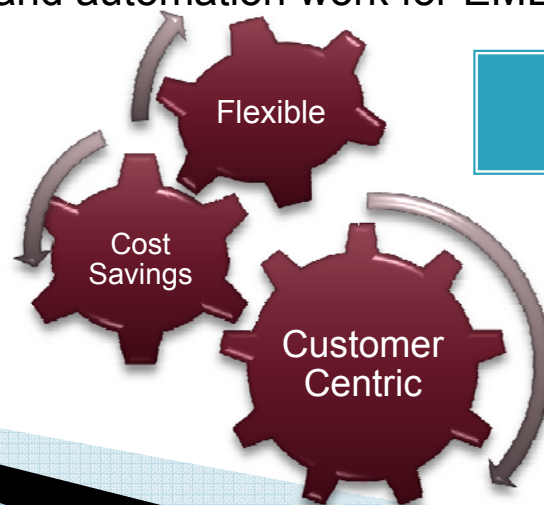
5 point scale - Highly Satisfied, Satisfied, Average, Dissatisfied, Highly Dissatisfied.

Actuarial Journey: GOSC India



- Assist MetLife actuaries to deliver key projects through modeling capability, advice and consultant management.
- Deployed 43 Releases for 16 Countries including over 700 modeling improvements.
- Worked on models with larger portfolios than Argentina GDP.
- Multi-basis resources (Local Stat, US GAAP, Irish Stat, SII, EC)
- Completed enhanced control and automation work for EMEA and Asia

**Cost efficient
resource utilization**



**Able to work in an evolving
environment**

**Meeting the needs of our
global customer**

GAM supporting regions around the world

