

**DEPARTMENT OF THE TREASURY
FEDERAL INSURANCE OFFICE (FIO)
FEDERAL ADVISORY COMMITTEE ON INSURANCE (FACI)**

MINUTES – 10 MAY 2018

The Federal Advisory Committee on Insurance (FACI) convened at 1:00pm on 10 May 2018 in the Cash Room at the US Department of the Treasury, 1500 Pennsylvania Ave. NW, Washington, DC, with Daniel Glaser, Chair, presiding.

In accordance with the provision of the Federal Advisory Committee Act, the meeting was open to the public.

COMMITTEE MEMBERS PRESENT:

DANIEL GLASER, President and Chief Executive Officer, Marsh & McLennan Companies, Inc., Chair

STEVEN SEITZ, Deputy Director, Federal Insurance Office

AMY BACH, Executive Director, United Policyholders

DAVID (BIRNY) BIRNBAUM, Executive Director, Center for Economic Justice

LAURA BISHOP, Executive Vice President and Chief Financial Officer, USAA (by proxy, ERIN MARTINKO)

KURT BOCK, Chief Executive Officer, COUNTRY Financial

MARK GRIER, Vice Chairman, Prudential Financial, Inc. (by proxy, DAVID GOLDBERG)

JAMES KELLEHER, Executive Vice President & Chief Legal Officer, Liberty Mutual Insurance

THEODORE MATHAS, Chairman, President and Chief Executive Officer, New York Life Insurance Company (by proxy, JULIE HERWIG)

SEAN MCGOVERN, Chief Compliance Officer, XL Catlin (by proxy, ELIZABETH DITOMASSI)

CHRISTOPHER SMITH, Chairman and CEO, The Hartford (by proxy, KATHLEEN MELLODY)

KATIE WADE, Commissioner, Connecticut Insurance Department (by proxy, TIM CURRY)

MARIA VULLO, Superintendent, New York Department of Financial Services (by proxy, SCOTT FISCHER)

ALSO PRESENT:

DANIEL MCCARTY, Federal Insurance Office (Designated Federal Officer)

WELCOME AND INTRODUCTION:

FIO Deputy Director Steven Seitz welcomed the committee members who were able to attend the second FACI meeting of 2018. He gave a brief history of the role of the FACI and its mandate to present advice and recommendations to the Federal Insurance Office. Mr. Seitz also reiterated the continued importance of the FACI, especially in its ability to facilitate discussions that increase the Federal Insurance Office's understanding of certain issues. Mr. Seitz then turned the meeting over to Chairman Glaser.

Chairman Glaser welcomed all of the committee members in attendance and encouraged all members to share their thoughts and perspectives on the topics of discussion.

Chairman Glaser stated that the focus of the meeting would be on innovation and insurance noting the impact that insurance technology (or “InsurTech”) has already begun to have on the business of insurance and its regulation.

Chairman Glaser outlined the speakers who would be presenting at the meeting. First, Matt Leonard, a partner at Oliver Wyman in Chicago, would provide the Committee with an overview of the InsurTech marketplace, recent developments, and a future outlook. Next, the Committee would hear from several stakeholders involved in the City of Hartford, Connecticut’s InsurTech hub, which involves a partnership between state officials, insurance regulators, startup insurers, and incumbents, and aims to spur growth and create economic opportunities. The third presenter would be Susan Joseph, North American representative of the newly-established B3i blockchain initiative, who would explain blockchain and its use by the insurance industry. The final speaker would be Mike Nelson, a partner with Eversheds Sutherland in New York, who would discuss the impact of autonomous vehicles on auto insurance.

Presentation by Matt Leonard, Oliver Wyman on InsurTech

Chairman Glaser introduced Matt Leonard, a partner and Chicago office leader at Oliver Wyman. Mr. Leonard is a member of Oliver Wyman’s insurance and corporate finance and advisory practices, co-leading the firm’s InsurTech platform.

Mr. Leonard opened by acknowledging InsurTech as a topic of high and growing interest in the insurance sector, both within the United States and globally. He provided a brief overview of his experience in the insurance industry, which has involved working both as a practitioner in the industry as well as an advisor to the industry. He stated that his client base includes large insurance businesses, investors in the insurance sector, and regulators and supervisors.

Mr. Leonard stated that that last five years in the insurance industry have been a “Cambrian explosion” involving extensive change. The insurance industry will need to embrace and navigate these fundamental changes to continue to play a vital role in society.

Mr. Leonard noted that in addition to insurance’s core function of reimbursement for losses, the availability of insurance enables individuals and entrepreneurs to undertake higher risk, higher return activities. In turn, this promotes productivity and growth, and helps deliver peace of mind.

Mr. Leonard stated that the subsectors of the insurance industry (life and annuities, property and casualty, and personal accident and health) are larger than many industries that have seen radical change through innovation, and this has driven interest in InsurTech. He added that InsurTech innovation is necessary because, within these broad product categories, an individual insurance company may maintain hundreds of product variants, creating a complex operational and regulatory compliance requirements.

Mr. Leonard stated that North America is the largest single geographic region in the industry, with approximately \$2 trillion in annual premiums. Within this, the United States is the largest single market in the industry with \$1.89 trillion in written premiums. The size of the U.S. market is driving interest from both startups and mature businesses, from an offensive and defensive perspective.

Mr. Leonard reviewed the distribution of premium dollars within the property and casualty and life sectors.¹

Mr. Leonard then stated that customer expectations in the insurance sector are changing – throughout the activity chain – due to technological and socioeconomic trends. However, tools and capabilities are also expanding in individual parts of the “body” of insurance (eyes via computer vision, ears and mouth via conversational artificial intelligence, nose and skin via smart sensors, and arms and legs in the form of drones and robotics). These disparate parts need to be made into a cohesive whole body.

Mr. Leonard highlighted several examples of changes in customer expectations. Increased automation may cause upwards of 47 percent of U.S. jobs to become automated within two decades. By 2020, as much as 40 percent of the workforce will be employed as independent contractors in the gig economy. He noted that at the World Economic Forum, experts from the technology sector, the public sector, academia, and industry mostly agreed that the existing insurance “playbook” would be insufficient to meet these demands. He added that regulatory and legal standards will also need to evolve.

Mr. Leonard offered three methods by which the insurance sector can create value in the future. First, the sector can shift its focus towards meeting customer needs. Second, it can increase its use of capital as a commodity, and partner with others to assemble the necessary services, capabilities, and capital required to support products. Third, the sector should understand its own data better and be willing to incorporate new sources of data. Mr. Leonard provided sensors as an example, citing an estimate that 20 billion objects will be connected by 2020, more than a two-fold increase from 2017.

Mr. Leonard stated that the challenge is that the pace and scale of change is significant, and most incumbent companies are not accustomed to moving at this rate. Furthermore, the skills and talents needed to adapt are scarce within the sector.

Mr. Leonard shifted his focus to InsurTech, which he says has grown due to interest from outside the insurance industry. He noted that “InsurTech” is not well defined, but it represents the many facets of technology application within the insurance industry. He cited research stating that over 16 billion FinTech funding deals occurred in 2017. He added the caveat that these deals were not all related to insurance, and many initial advances were made in lending and payments. However, S&P estimates that in Q1 2018, 50 percent of FinTech investments were focused on

¹ See Oliver Wyman presentation at page 7, https://www.treasury.gov/initiatives/fio/Documents/May2018FACI_OliverWyman.pdf

InsurTech business models. Moreover, companies are not “standing still” and may start focusing in one area but change their focus through testing and learning.

Mr. Leonard said that InsurTech is happening on a global level, particularly when InsurTech is providing a point solution such as telematics or aerial imagery.

Mr. Leonard described Oliver Wyman’s efforts to track over InsurTechs by dividing them into one of three broad categories: proposition, distribution, and operation. Proposition refers to the creation and delivering of products, distribution refers to delivering products manufactured by others, and operations focuses on making products more efficient.

Distribution has been the largest area of investment to date, and Mr. Leonard stated that it arguably has the lowest barriers to entry for InsurTechs. As an example, he highlighted the transformation of the UK insurance industry due to innovations such as price comparison websites. In the United States, he noted that the industry change has been less pronounced due to high customer acquisition costs for mobile and online platforms.

Mr. Leonard stated that operations has been an area of high InsurTech activities in the Americas and EMEA (Europe, the Middle East, and Africa), and he expects to see more entrants because these entities are considered natural partners for incumbents (by increasing efficiency in existing processes), rather than as disrupters or competitors.

Mr. Leonard stated that proposition has seen the least amount of investment to date, but noted that it is arguably best aligned with customer-centricity, because it involves changing the way that insurance is consumed or embedded in other experiences.

Mr. Leonard discussed the use of tech hubs, incubators, and accelerators to increase InsurTech activity. This has occurred in tech centers (San Francisco Bay Area), financial centers (New York), and historic insurance centers (Hartford and Chicago). Outside of the United States, London and Munich are also vying to position themselves as InsurTech centers. Mr. Leonard stated that Oliver Wyman does not expect to see truly global InsurTech operating models in the near term, because of differences in legal and regulatory frameworks as well as customer behaviors.

Mr. Leonard asked whether the industry is doing enough to attract talent into these centers. He stated that Oliver Wyman has determined the success of a tech center results from a basic set of factors: location, access to talent pools, and basic infrastructure. He added that InsurTech CEOs and founders have highlighted access to software development talent (as opposed to insurance expertise) as a limiting factor in the ability to rapidly scale business.

Mr. Leonard stated that navigating the state-by-state regulatory framework is another factor which limits growth, adding that public authorities are critical to creating the right incentives for innovation through methods such as supporting/endorsing incubators or building public infrastructure.

Mr. Leonard also highlighted the importance of access to thought leaders with general experience in building innovation businesses, and emphasized the importance of a culture that accepts a “trial and error” approach and is willing to experiment. He specifically highlighted regulatory sandboxes as a type of enabler that gives companies the ability to experiment and learn from experience (including failures).

Mr. Leonard closed by emphasizing the insurance sector’s vital role in society, and noting that the integration of technology to create better products, value, and services for customers will allow it to continue in this role.

Mr. Leonard yielded the floor to Chairman Glaser.

Presentation on the City of Hartford’s InsurTech Hub

Chairman Glaser introduced four speakers who would be discussing the development of the City of Hartford’s InsurTech Hub.

- Michelle Cote, Connecticut Center for Entrepreneurship and Innovation at the University of Connecticut. Ms. Cote is the Center’s Managing Director.
- Beth Maerz, Travelers Insurance. Ms. Maerz is the Vice President for Customer Experience and Innovation.
- Jill Frankle, The Hartford. Ms. Frankle is the Assistant Vice President of Strategic Ventures.
- Tim Curry, Connecticut Department of Insurance. Mr. Curry is the Deputy Commissioner.

Ms. Cote provided background and context for the development of the InsurTech public-partnership in the City of Hartford. In 2016, Connecticut’s state legislature bonded public funds to help Hartford and Connecticut to increase innovation and entrepreneurship activity. Hartford was one of four innovation places designated by the legislature, and Ms. Cote was selected to lead development of the city’s strategy. Ms. Cote stated that the city received \$2 million in public funding, and obtained \$3.7 million in cash and in-kind contributions from the insurance industry and other community partners.

Ms. Cote stated that insurance is a key industry in Hartford, and the city assembled a working group of industry experts to determine how to leverage this strength to become an InsurTech leader. The working group determined that an ecosystem approach would create conditions to attract InsurTech companies. Ms. Cote identified the city’s assets as a large concentration of insurance carriers, higher-education institutions developing key skills (e.g. data analytics), and the presence of strong trade industry associations. Ms. Cote also acknowledged the emergence of a grassroots effort called “InsurTech Hartford,” which has held a series of events over the past year and a half to catalyze public involvement.

Ms. Cote said that the working group identified a need for a dedicated accelerator, where startups could learn how their technology is applicable to the insurance industry, and interact with insurers to identify business models that would support entrance into the industry. The city

chose Startupbootcamp as a partner and selected 10 program participants (from a pool of 300 applicants) to the Hartford program. These startups were required to: (1) have functioning technology relevant to the value chain, (2) have already raised some working capital, and (3) have an operational governance structure.

Startupbootcamp conducted a 14-week program to help these startups identify an appropriate business model and minimum viable product, then worked with them on contracting, pilots, proofs of concept, and raising additional investment funds. At the completion of the Program, Hartford held a public demo day on April 18, 2018 where the startups pitched their progress to 650 community members.

Ms. Maerz and Ms. Frankle stated building talent and bringing new ideas into the industry is a shared goal of insurers, which is why competitors were willing to work together in this area. Ms. Maerz also stressed the importance of building partnerships with universities and other (non-insurance) companies.

Ms. Maerz identified several current forces of change, including a change in consumer expectations about engagement (the “Amazon effect”), the rapid development of technology in general, and a change in the underlying assets being insured by the industry (e.g., sharing economy, models of mobility, connected homes, cyber risks).

Ms. Frankle added that these changes bring opportunity, which is the reason why over \$9 billion has been invested in InsurTech since 2012, and there have been a dramatic number of new market entrants/startups. She stated that accelerators can be an important mechanism for incumbent carriers to engage with, vet, and pilot new startups.

Ms. Frankle stated that in 2017, investment started to shift from front-facing products and distribution to back-end enabling technology. This type of technology helps insurers optimize business by providing additional data and enhancing the claims process. She also discussed business process enhancements, which are enabling technologies that may help outsource digital marketing, underwriting, policy administration, billing, and claims management. Within claims management, technology can create a more efficient process, automate workflow, and enhance customer communication using visual intelligence. She also noted the popularity of predictive analytics based on third-party data, as well as the use of artificial intelligence (AI)/machine learning and the Internet of Things (IoT) to provide data insight.

Ms. Frankle described the difference between the two main types of innovation: tactical and strategic. She defined tactical innovation as incremental short-term change used to enhance a business’s model or fix broken processes, affecting day-to-day operations and possibly using existing technology in the market. In comparison, strategic innovation has a long-term focus on new business models and products that lead to new revenue streams, and is not constrained by day-to-day operations. She added that companies typically have a multi-pronged approach to innovation that utilizes multiple timelines, such as leveraging existing internal people and departments, using innovation labs to collaborate with startups or corporate venture arms that invest in startups, or collaborating with traditional venture capitalists. Accelerators can be used across the board to augment these various approaches.

Ms. Maerz said that Travelers has changed the way it thinks about putting new products into the market, and thinks first about the needs of the customer (rather than loss experience data). The company is also applying the notion that everything should be capable with digital tools, rather than manual tools.

Ms. Maerz stated that the entire technology infrastructure needs to be modernized, and interaction with other companies needs to be re-evaluated. She that startups are important because they help insurers bring ideas to market quickly, particularly when located in the city. Having an accelerator in Hartford allows Travelers' staff to work with startups on a daily basis to get an in-depth look at what the startups are doing. This helps insurers think about how they can also re-skill internal employees to develop new types of skills, such as human-centered design and agile-focused product builds that enhance speed to market.

Ms. Maerz reiterated that the purposes of bringing startups into Hartford was to give them exposure to over 25 insurance industry executives and companies, but because Hartford is part of the Boston/New York corridor, startups can also gain access to insurers in the broader area. She added that Hartford contains individuals with deep expertise in nearly every area of insurance, and startups have the opportunity to interact with these individuals day-to-day. Hartford's startups are hosted in Upward Hartford, a co-working space, which also allows them to interact with each other. Ms. Maerz stated that Hartford's hope is to find a way to bring new talent into the Hartford area and get them to stay – to make insurance appealing to college students – and Hartford believes this is more feasible using startups. Hartford is able to gain access to talent from schools in New York and Boston, in addition to the schools in the Hartford area (UConn, Yale, Trinity), and students have engaged in hackathons and other events involving startups. She added that outside of InsurTech, other factors have added to the city's vibrancy and energized existing talent, such as UConn's relocation into the city and Stanley Black and Decker's technical startup programs.

Ms. Maerz presented numbers on the first generation of the program, noting that four of the ten program participants are establishing offices in Hartford.² She added that over 300 hours were spent between startups, local mentors, and insurance companies and executives.

Ms. Cote identified early successes of the program in its first six months, including energizing the city and its surrounding area, robust industry partner engagement, creating a culture of student engagement (including development of an InsurTech internship program to spark interest in insurance as a career), and community partnership development.

Ms. Cote said that over the next six months to a year, they intend to leverage the program's early success and maintain it on a year-round basis, engage more community members (particularly higher education institutions), and increase workforce involvement in activities. She said that the program also wants to increase pilot activity, as this is the top way to attract startups.

² See City of Hartford's InsurTech Hub presentation at https://www.treasury.gov/initiatives/fio/Documents/May2018FACI_Hartford.pdf

Ms. Cote stated that because InsurTech is a very broad category of innovation, they want to focus on specificity in different segments (P&C, health and life, annuity, retirement companies) to meet core needs and desires for innovation. She also emphasized that the program wants to develop follow-on support for companies that are “graduating” from the accelerator program.

Deputy Commissioner Curry shared his thoughts on how regulators in Connecticut view InsurTech and are interacting with the InsurTech hub, noting that regulators view their core mission as consumer protection, and this includes ensuring that Connecticut has a healthy, competitive, robust insurance marketplace with many participants. This provides consumers with a choice of products. He added that if InsurTech is going to fundamentally alter the insurance marketplace, insurance regulators need to be active participants to maintain the marketplace that consumers need.

Deputy Commissioner Curry stated that new platforms are bringing insurance products to segments of the marketplace that traditionally have not been fully insured or uninsured (younger purchasers/millennials). These consumers are more likely to fulfill insurance needs if they can use a smartphone app in lieu of going to an agent’s office. InsurTech developments also tend to involve mitigating the possibility of an insured loss or damage, rather than just providing coverage for a loss.

Deputy Commissioner Curry added that creating a situation where consumers are better able to avoid risk and be better customers of insurance companies is a social good that is important to promote. This raises the long-term question of how an industry that earns revenue for transferring and assuming risk can adapt to a world with less risk due to technology. He said that while this is something to consider, helping consumers to reduce risk is nonetheless a good thing.

Deputy Commissioner Curry raised the question of how to balance innovation against traditional regulatory standards, and said that there are situations where regulators can be flexible, and others where they need to hold firm. He views the potential for flexibility in terms of whether the regulation involved for a particular InsurTech application is central and essential to the transaction, or if it is more marginal. He provided the example of a regulation that requires companies to provide a notice (generally 30 to 45 days) when a policy that is in effect will be cancelled/not renewed. He said that while this makes sense for year-long policies, consumers are now selecting shorter policy periods (to cover specific pieces of equipment, making homes available in a shared economy situation such as Airbnb, etc.), so it doesn’t make sense to have a 30-day notice of cancellation and regulators have needed to be flexible because the old rule doesn’t suit the new reality. He also noted paper delivery of documents as an example, where Connecticut regulators are working hard to allow companies to communicate with customers using email or other digital means. He stated that this is another area that is not quintessential to the insurance transaction, and therefore regulators can afford to be flexible.

Deputy Commissioner Curry compared this to situations where rules that are essential to the insurance transaction, such as those relating to financial strength and capitalization requirements. In areas where an insurer is offering products to the public, the company needs to be able to meet claims and obligations under the contract. He added that market conduct practices are also a challenge for regulators, due to the use of big data and other technologies used to underwrite

policies. He said that regulators will need to understand how these technologies are working, and ensure that they are operating in a non-discriminatory way.

Deputy Commissioner Curry then discussed how Connecticut regulators are working with the InsurTech hub, and stated that the only way for Hartford to be America's insurance capital is through active involvement of insurers. He said the Department is demonstrating its support for the initiative through attendance at demo days and other events. He added that Commissioner Wade is exploring the creation of office hours, where one or more members of the Department's staff would be available on-site to serve as a resource to InsurTech staff. This will provide an informal place for participants to share ideas and obtain feedback about potential regulatory implications of an innovation, before they go too far down a path that might be problematic.

Chairman Glaser opened the floor for questions.

Ms. Bach stated that her organization (United Policyholders) is a national 501(c)(3) located in the San Francisco Bay area, but they have heard very little from startups in the area, even though United Policyholders is very visible in providing information about policyholder experiences when a claim arises, and how technology is affecting options on the buying side. She stated it was interesting that the smallest area of innovation in the grid presented (divided into startups, product and distribution, business product enhancement, data and analytics, and claims management) fell into the area of claims management. She said while they can see the benefit of InsurTech in helping consumers obtain additional information and access the benefit of competition to buy cheaper, better policies, consumers are most concerned with coverage and protection. This is why people buy insurance, so it is important for technology to develop on the industry side. She asked the panelists whether they thought there would be an increase in products with fixed payouts that would minimize the need for human beings in the claims adjustment side, because this is not a trend that she has seen. After a loss, she said people still scramble to get a copy of their policy, and have to work with multiple adjustors and all of the traditional problems to have a claim paid. She posed the question of when the industry will start to see innovation in delivery on the protection side.

Ms. Maerz responded that she didn't believe the grid effectively underscored the amount of effort going into innovation on the claims side, and said that single greatest area of innovation focus at the moment relates to the topic highlighted by Ms. Bach. As examples, she cited a claimant's ability to send a picture of damage without having to wait for an adjustor, and the ability to pay claims directly into bank accounts rather than by issuing checks. She estimated that 80 percent of current innovation efforts are about how to make claims adjustment as easy and seamless as possible. She added that whether the nature of claims payment will change will depend on customer demand, but is still work to be done in determining how to quickly give customers what they expect.

Mr. Bock commented on a report by Mr. Leonard, *Hype or the Next Frontier* relating to InsurTech. One of Mr. Leonard's observations was that insurance regulation and law lags innovation, and regulation requires a balance between innovation and taking care of the consumer. Mr. Bock's asked how will regulation be modernized, and whether it would occur just for InsurTechs or for the industry overall.

Deputy Commissioner Curry responded that he did not believe it is possible to regulate InsurTech, because it is an amorphous term that covers many different things. Regulators can enable consumer choice, whereas many regulations currently take away the consumer's ability to make choices. He again highlighted the inability to use electronic policy delivery in Connecticut.

Mr. Leonard commented that states are very different in their payment regulations. Many insurers do not yet accept credit cards, and those that do experience significant overhead. Although this is not a matter related to consumer protection or benefit, regulations could be streamlined across state lines to remove friction from the system.

Mr. Birnbaum noted that predictive models and machine learning techniques must demonstrate fair underwriting and pricing methods, and big data must bear a rational correlation to the intended subject matter and not embed biased assumptions. He asked Deputy Commissioner Curry what does fair underwriting and pricing means, other than the insurer show some kind of correlation to the cost of the transfer of risk. He also asked what the authority is to require rational correlation or prohibit biased assumptions (aside from preventing explicit use of prohibited factors like race).

Deputy Commissioner Curry responded that he could not cite a regulation, however the fundamental principles that govern regulatory decision-making around rate making and underwriting are that the policy be written in a way that's not excessive or discriminatory. He said that regulators cannot simply be presented with a black box or inscrutable algorithm with a new way to underwrite or a new way to price. The product creator needs to be able to explain how the process works, and we should that ultimately the consumer will also demand to understand the factors that are being taken into consideration, and can be assured that the models have been vetted.

Mr. Birnbaum noted that it is difficult for a consumer to ask a question if they do not know what information is being used, and transparency is key for consumers as well as regulators. He referred to Deputy Commissioner Curry's presentation, and the idea that healthy competitive markets are essential for consumer protection, but added that there are many aspect of big data which are not transparent and which do not promote competition. He then asked what types of activities should regulators be engaging in to prevent anti-competitive behavior and antitrust violations. He also asked who reviewed applications to the Hartford InsurTech program, what the evaluation criteria were, and how the program ensured there were not anti-trust problems in the process.

Ms. Frankle responded that the first cut of applicants involved high-level review of their business descriptions, thematic areas, founders' backgrounds, and success stories; but did not include an evaluation of personally identifiable information (PII) protection. The program examined business models and data sources on selection day, which involved approximately 30 companies. The 10 companies ultimately accepted for the accelerator program were then subjected to a full security and procurement review, the standard process for any vendor.

Applications were initially reviewed by one to three individuals from Startupbootcamp to identify those which fit the stated innovation objectives. Selected companies were then invited to Hartford to meet individually with sponsoring companies.

With respect to anti-trust behavior, Ms. Maerz noted that the companies currently in the accelerator are focused on customer experience and claims handling, rather than ratings or underwriting.

Mr. Bock observed that data does serve the customers, citing the fact that customers want insurers to answer fewer questions and provide faster service. He stated that these startups are helping insurers to better understand customers and deliver claims faster. However, he asked whether these developments involved anything truly disruptive to insurance as a risk transfer mechanism.

Mr. Leonard responded that he has seen some innovation in the grey area between insurance and warranties. He noted the example of Zhong An in China, which offers travel delay insurance at a low cost. When a flight is delayed, it reads the airline data and automatically reimburses the customer. He also mentioned innovation around securitization of insurance risk using alternative forms of capital, where insurance company equity is being replaced by capital from institutional investors.

Mr. Fischer noted that some insurers that are portrayed as disruptors are in actually fraternal benefit societies or reciprocal models, and said he believes the fear of disruption has subsided as the hype around InsurTech has decreased. He asked what it means for a consumer to be protected rather than insured, and whether this indicates a company is moving away from insurance and towards providing a service, such as the case of Hartford Steam Boiler.

Mr. Leonard responded that many ideas about insurance are quite traditional, but supercharged with technology. The legal concepts have not changed; what has changed is the speed and seamlessness of the experience for the customer.

Presentation by Susan Joseph, North American Representative for B3i, on Blockchain Technology in the Insurance Industry

Chairman Glaser introduced Susan Joseph and B3i, an insurance industry initiative formed by 15 global insurers and reinsurers in late 2016 to explore and test blockchain's potential for use in the industry. The initiative has grown to 35 members, and, in mid-2017, completed its first product, a blockchain prototype for property catastrophic excess of loss reinsurance contracts. The prototype was tested and demonstrated that blockchain can make transactions quicker, more efficient, and more secure than current methods. B3i anticipates the first live trades on the platform will occur by the end of 2018, and is currently developing other products.

Ms. Joseph said that blockchain technology is useful for a variety of enterprises, and companies in most industries are now looking at its potential. While blockchain technology is functional, Ms. Jones noted that it is still in the early days of development. She added that her presentation

would focus on private, member-only blockchains (like B3i), although public-private blockchain partnerships do exist.

Ms. Joseph defined blockchain generally as a type of distributive ledger technology. Insurance, banking, and other industries already use ledgers, and the technological question is how these ledgers will be set up, accessed, and used to meet the goal of service the customer in the best and most transparent way. Distributed ledger technology differs from original digital ledger technology (using a centralized database) in that there is no central administrator and no central data ledger. Instead, the ledger is replicated and shared among many different systems or computers that use cryptography to achieve consistency before storing the data. Blockchain is a type of a distributed ledger where those entries are connected to each other in blocks. The blockchain ledger appends transactions (ordered in blocks) in continuously-growing chains. The system protects against tampering and revision using a cryptographic key.

Ms. Joseph state that the consensus mechanism is central to the functioning of a blockchain or distributive ledger, because it provides stability and security. The mechanism mathematically authenticates and validates transactions without the need to rely on a central authority. Some of the more common mechanisms used are proof of work and proof of stake.

Ms. Joseph explained that smart contracts are another critical piece of blockchain. Smart contracts are a piece of written code or protocol that automatically executes when pre-agreed conditions are met. This feature provides the functionality to facilitate, enforce, and verify protocols in an automated manner.

Ms. Joseph noted that blockchain and distributed ledger are technically not the same thing concept, and blockchain can be defined more broadly. She advised that regulators will need to think about how to standardize definitions and standards going forward.

Ms. Joseph explained that nodes are members of a blockchain network; for example, an insurance company entering the network would be termed a node. Nodes hold the replicated copy of the ledger and can have varying roles, with read and/or write access.

Ms. Joseph stated that her presentation would approach the topic of blockchain from a business, rather than technical, perspective. She emphasized that blockchain enables workflows across multiple stakeholders in a form of “shared truth.” As a practical matter, this means less time negotiating documents, because records are agreed upon at the outset and can be centrally accessed.

Ms. Joseph acknowledged that blockchain requires a set of characteristics to work, namely a network. Before pursuing a blockchain solution, companies must consist whether they have a shared repository, multiple writers, minimal trust, many intermediaries, or a dependency on transactions between entities.

Ms. Joseph explained that B3i is an industry collaboration created to explore blockchain. B3i started its work with a catastrophic excess of loss (Cat XoL) contract, because that was the simplest type of contract with which to experiment.

B3i formed in October 2016 with a few members, and expanded almost immediately to 15 members. About a year later, in September 2017, B3i launched a prototype. By October 2017, B3i had 23 market testers. Following the positive completion of this testing in March 2018, B3i incorporated Switzerland and are looking put a product into production by the end of the year. Ms. Joseph stated that this is a standard timeline for this type of consortium.

Ms. Joseph explained that B3i's goal is to make insurance more relevant, accessible, and affordable. She discussed how blockchain could be applicable to parametric insurance. For example, if a farmer purchases crop insurance, the insurer could use a drought sensor. If the sensor showed a determined parameter for a drought, the farmer would automatically receive a payout.

Ms. Joseph said that blockchain technology has brought a global conversation about the back office to the forefront. She said this is likely because cryptocurrency (which uses blockchain technology) has gained a lot of attention due to its dollar volume and regulatory arbitrage between countries.

Ms. Joseph noted that this emerging technology has raised questions about platform economies. Google and Facebook have demonstrated that creating a platform open to development by others will result in new products and services (an ecosystem). Although the revenue models for such a system are unknown, they do appear to be cost effective and provide better customer service. She added that B3i's ecosystem is a platform, and ultimately will have transactional services that will be delivered by third-party apps.

Ms. Joseph said that B3i has tested the minimum viable product for its Cat XoL contract, and it and is now building out a full product. The platform provides the ability to load, negotiate, and sign contracts through blockchain. In the future, the platform may include automated premium calculations and frictionless claims handling (while maintaining brokers in their traditional roles). An independent study by B3i found that its members anticipated a 30 percent cost reduction resulting from use of the technology.

Ms. Joseph said that B3i's market test in October 2017 involved 23 market testers, including several U.S. insurers. The test was a simulation (involving no real data) conducted over the span of a month in order to verify that contracts could be placed in a blockchain format, thereby removing friction from the process. The test involved 38 companies (with three nodes each, for a total network of over 100 nodes), 885 contracts, with a huge amount of premium traded and a large number of losses affecting the United States, Europe, and emerging markets on every continent: 141 quadrillion written, 111 quadrillion signed, 288 loss events, and 138 quadrillion total losses. Ms. Joseph stated that this was the single-largest private enterprise test of blockchain, and it successfully tested at scale. It tested at scale and tested successfully.

Ms. Joseph next discussed the challenges for scaling this technology. Although B3i already has brought companies together, the next step is obtaining buy-in so the technology is actually adopted. She encouraged everyone to attend blockchain conferences in order to learn what is out there, what makes sense, and what doesn't. She highlighted the Consensus Conference as the main conference for this industry. She added that the second year of the conference held a

session on insurance, where only 1 of the 250 people in the room was from the industry (the other 249 being developers). At this session, the moderator advised developers to find insurance subject-matter experts and regulators in order to become educated about the insurance world.

Ms. Joseph discussed some ways in which blockchain technology can already be used. In addition to bitcoin, there are enterprise projects that may go online this year (including DTCC's Fox Warehouse); Maersk's deal to put its global shipping and trade supply on IBM's blockchain system (which will control 18 percent of the world's shipping); the Australian stock exchange; and possibly Hong Kong stock exchange. Ms. Joseph noted that the financial world has embraced blockchain sooner than the insurance world, and every financial institution is examining the issue in some way.

Ms. Joseph then outlined B3i's current priorities. B3i incorporated in March, and is now developing Codex 1, which is the minimum viable product that will be put in the market by the end of the year. B3i is also asking its members to identify two or three contracts that it might be interesting to put on the platform, has circulated a private placement memo to seek funding, and is creating a sales and marketing community. Although B3i's initial focus was on reinsurance, it will expand to property and casualty, life and health, and commercial insurance. The sequence of B3i's roadmap can be adjusted, and B3i has room for experimentation in its network. She emphasized the need to create trust in the technology. She also added the potential for increased regulatory transparency using blockchain (for example, by offering a node for the regulator to view transactions in real time).

Ms. Joseph anticipated that the platform economy will become the standard setup in the future, eliminating silos created by pen and paper pipelines. The technology creates the infrastructure for this economy, and will hopefully reduce costs, reduce friction, and codify contracts (where feasible).

Chairman Glaser opened the floor for questions.

Mr. Kelleher commended the speaker for separating the topic of cryptocurrency from blockchain, and noted that these topics are usually blended together even though they are separate. He asked Ms. Joseph whether Japan has issued life insurance contracts on blockchain.

Ms. Joseph stated that she had not heard of this, but added that the United States is not the first innovator in this space, and a fair amount of developments are coming out of Asia. Within the United States, she has heard about the use of blockchain for subrogation cases, notices of loss, flight parametric insurance, and asset side work. She also mentioned a project on death registries that aims to make death information accessible more quickly so customers can be paid faster.

Ms. Joseph stated that has seen about 15 different proposals related to insurance-linked securities (ILS). These proposals have come from both the tech sector as well as the insurance sector – she said that if the industry wanted to set the standards in this area, then regulators should be working together to move ILS blockchain forward. If not the industry does not take action, the capital markets may step in. Although she suggested that the industry may be able to work with

capital markets, she said her preference would be for the insurance world to set its own standards and protect its industry.

Ms. Bach asked about the participation of the lending sector in blockchain.

Ms. Joseph responded that there are many ideas being proposed, such as such as IoT-drive smart cities and smart products. Different innovation labs are testing different ideas, and although businesses are starting to work on this, they need to embrace it to move it forward. She added that movement has also been hindered by uncertainty about regulation. She said that blockchain is largely about improving conditions and transparency for customers, and if regulators understand this, they can avoid putting up walls on the innovation side.

Mr. Bock said that this system works for settlement, but asked if price discovery would still operate in the traditional manner.

Ms. Joseph responded that blockchain technology could include an auction process that would lead to price discovery. The coding would not be hard to make this possible.

Chairman Glaser than asked how blockchain coexists with the GDPR?

Ms. Joseph responded that this is a popular question and the answer is unknown. Compliance is difficult because the statute was developed without consideration for blockchain, but several solutions have been proposed, including the concept of self-sovereign identity or self-sovereign data, where a user would give informed consent and thus comply with the GDPR. Alternatively, a mask can be used to block access to certain part of the chains, but it is an open question as to whether this solution would comply with GDPR.

Mr. Birnbaum asked about the potential for different companies or consortia to develop incompatible blockchain technology.

Ms. Joseph responded that interoperability is a popular question. Currently, none of the systems is interoperable, but interoperability is the ultimate goal and it will happen eventually. In the interim, certain pieces of the chain can be interoperable. Ms. Joseph mentioned Quilt as a method for currently achieving interoperability.

Presentation by Michael Nelson, Partner at Eversheds Sutherland, on Developments in Auto Insurance and the Effect of Autonomous Vehicles

Chairman Glaser introduced Michael Nelson. Mr. Nelson is a partner in the New York office of Eversheds Sutherland, whose legal practice is at the intersection of commercial litigation and regulation. Mr. Nelson has experience in areas such as connected an automated vehicles, which are a growing concern for original equipment manufacturers (OEMs), Tier I suppliers, distributors, and insurers alike. He helps future-proof his clients' business practices in areas where technology is outpacing the evolution of the law.

Mr. Nelson noted that when we are driving, we do not look at signs: we process them – and now we are asking machines to do the same even though they do not have the same experience we do. He said that he spent part of his professional career as a claims adjuster, listening to 10 to 15 calls a day with people describing accidents, and accidents involving autonomous cars cannot be reviewed in the same way as traditional claims. As an example, Mr. Nelson described a current case involving an accident with a Tesla on autopilot that failed to react to another car merging onto an expressway. In order to process this claim, an adjuster must ask questions about the settings on the Tesla, how far behind the hit vehicle the Tesla was programmed to follow, and why the Tesla did not stop before striking the vehicle in the middle lane. To help answer these questions, the Tesla is loaded with data, including a dash cam.

Mr. Nelson said that many in the insurance industry have been lulled into a false sense of security, believing that this technology is a long way off. The Society of Automotive Engineers describes Level 2 technology as a vehicle with two or more automated functions. The Tesla is a Level 2 vehicle: it can drive down a highway maintaining speed, maintain its lane, and brake. Level 3 vehicles will start to use GPS to drive themselves without human assistance in certain situations – this is on our doorstep. Level 4 vehicles will have a steering wheel and gas pedals for human operation, but will be operated by a robot. Level 5 vehicles will have no steering wheels or gas pedals, but will rely on cameras and sensors. Mr. Nelson stated that different level vehicles will be on the road at the same time over the next 20 years.

Mr. Nelson noted that it is complicated to figure out what the rules of the road will be with this dynamic technology. Who will be responsible for a fully driverless crash? The public is starting to think about the responsibility of the software designers and manufacturers, not just the drivers.

Mr. Nelson noted that evidence preservation will be another complication, because artificial intelligence and machine learning, for the most part, are not traceable, and it can be nearly impossible to determine why a machine made a certain decision.

Mr. Nelson also noted the relevance of technology that is not specifically car-focused. For example, V2X communication allows a vehicle to communicate with intersectional controls and other vehicles as well as smart phones – although the means of doing this is not yet settled, with dedicated short range communication systems (chips embedded in cars that are transmitting and receiving beacons) competing with 5G mobile. Solid state LIDAR may also come into play, with devices that have a 120 degree view that can help you drive the car. Another important development is electrification of the car fleet, because electric vehicles drive autonomous technologies better than gasoline engines.

Mr. Nelson rejected the notion that autonomous cars are going to be too expensive for the general population (which would slow the adoption curve). He noted that the Nissan Leaf is a Level 2 vehicle, like the Tesla, but costs \$30,000 to \$40,000. Manufacturers are talking about Level 3 and Level 4 technology being in the field circa 2020-2022. He said that what may hold back this technology is the development of insurance law, and how to assign risk.

Mr. Nelson reference polls that show that different parts of the population are more receptive to the new technology than others. For example, males tend to favor it more than females, and younger people are more comfortable with new technology than older people.

Mr. Nelson predicted new partnerships forming around the concept of autonomous vehicles. He noted that GM purchased Cruise Automation a couple of years ago. This acquisition could be used to put Chevy Bolts on the street as Level 5 vehicles.

Mr. Nelson noted that international adoption of this technology will be important, because laws and regulations drafted by foreign countries impact what happens here. For example, China has 26 car manufacturers, all of whom are building on a single technology platform (Baidu). Europe (particularly Germany) and Australia could also lead in this technology. He added that there has been discussion about using an international unified regulatory scheme, similar to the conversations that insurance regulators have been hearing as it relates to financial regulation.

Mr. Nelson returned to the topic of technology partnerships, noting that they will change the dynamic of when and how these vehicles hit the road. Magna announced an association with Lyft to retrofit technology for cars. Mr. Nelson stated that retrofitting will reduce the timeframe needed for fleet turnover.

Mr. Nelson said that consumer adoption and fleet adoption will be impacted by mistakes on the road. For example, here was a fatal accident involving a Level 2 vehicle in Florida and there was an Uber accident in Arizona. These problems have stalled legislation. Nonetheless, Mr. Nelson said that the legal and regulatory frameworks will have to change, and we will need to rewrite federal motor vehicle safety standards. The Department of Transportation and NHTSA are trying to create new bodies of law, but it will take time. Over 30 state-based laws are being created, but none address legal liability issues, and instead focus mostly on vehicle testing. The current state is a patchwork of laws, and the regulatory system has not begun a necessary overhaul of product liability and negligence laws.

Mr. Nelson stated that these developments will result in insurer consolidation and new entrants into the marketplace. He predicted new alliances between OEMs and insurers, technology companies, and insurers, as well as new insurance models like the TNC model that is used to support Uber and Lyft. He noted that Care by Volvo currently includes insurance in the leasing platform.

Mr. Nelson advocated for getting more comfortable with transportation as a service, and recommended a study in RethinkX that discusses this topic. For example, Zoox is a transportation service which summons an autonomous car to your location, then drives itself home after dropping you off. He noted that other developments include fractional ownership and highly automated vehicle (HAV) shuttles. He projected that vehicle and transportation costs will drop dramatically because of electrification and low maintenance. He said that transportation as a service will go a long way towards eliminating OEM vehicles and car ownership – and therefore in some ways insurance is a fossil fuel industry.

Mr. Nelson recommended a paper by KPMG, called The Chaotic Middle. KPMG believes that the core business model for traditional automobile insurers may be under threat of obsolescence. Mr. Nelson said that we are entering a period of radical change, the chaotic middle of a transformation that promises to reshape the insurance landscape.

Mr. Nelson then proposed a model for thinking about insurance for Level 3 and Level 4 vehicles. Manual driving would continue to be insured by a traditional personalized auto carrier. For automated driving, however, the risk would be borne by the OEM company which put the technology in the field. The car will know when it switches from manual to automatic, as will the car and insurance companies. A coordinated effort between government, OEMs, and insurers could create some ways to insure Level 3 and Level 4 vehicles.

Chairman Glaser opened the floor for questions.

Mr. Bock asked for more of Mr. Nelson's thoughts on the treasure trove of data from autonomous vehicles that have been in an accident, the ownership of that data, who will have access to that data, and how it can be used to price insurance.

Mr. Nelson responded that we will need governmental assistance in this area. In the claim he is currently working on involving Tesla, Tesla has the data but will not share it. He sees a need for new rules about who owns the data, who has access to it, and when they can access it.

Chairman Glaser noted that, under our state-based system, we have changing rules on liability and negligence as you drive from state to state. He asked if Mr. Nelson thought there was a need for a federal approach to rules around autonomous vehicles.

Mr. Nelson said that he favors state-based regulation, but believes there is room for some federal oversight of the insurance industry and the transportation world, especially for issues like these.

Mr. Curry asked for more information about Level 3 vehicles, since he read that Waymo had adopted a philosophy that they were going to bypass Level 3 because they didn't believe that a system that required drivers to be engaged a little bit was viable and probably more dangerous than it might otherwise be.

Mr. Nelson responded that Ford is opting to bypass Level 3 for that reason: it believes that hand-off from machine to person would take too long and be dangerous. However, some manufactures plan on introducing Level 3 technology.

Mr. Curry asked for more insight into the Uber accident in Arizona, where a person was hit when a person was in a crossing lane at night. He asked whether the vehicle should have identified this risk.

Mr. Nelson responded that there is no question that the vehicle is supposed to recognize the presence of an individual in the crosswalk. He said that this illustrates the issues with assigning legal liability, when faulty technology may be the cause.

Mr. Birnbaum asked if we get to a situation where the manufacturers are basically providing the insurance for bodily injury claims through liability for the product that they've sold, do you anticipate that will be unlimited? Or that part of the agreement of buying the vehicle would be it will cover damages up to a certain dollar threshold and then consumers would then be forced or asked or have an option to buy excess coverage? And how would that then play in, how would the excess coverage carrier then interplay with whoever's providing the basic liability?

Mr. Nelson responded that is a question that should be routinely visited by policymakers. Limiting liability for people that are putting this technology on the roads may be good or bad for consumers in the long run, but it's going to face political headwinds from suppliers and from politicians that want to be more careful on the consumer side. He compared this to the limitations of liability in place for commercial airlines.

New Business and Closing Remarks

Chairman Glaser turned the floor over to Steven Seitz to provide an update on the activities of the Federal Insurance Office.

Deputy Director Seitz said that, in the last year and a half, FIO has made significant progress on a number of its domestic and international priorities.

Deputy Director Seitz noted that the first meeting of the Joint Committee of the EU-US Covered Agreement was held in Brussels on March 6. The Joint Committee provides a forum for consultation on the proper implementation on the agreement and will meet at least once a year. The initial Joint Committee meeting was attended by FIO, Treasury, and USTR officials, state insurance commissioners, the Federal Reserve, and EIOPA, who confirmed their commitment to the full and timely implementation of the agreement, including the removal of collateral and local presence requirements for reinsurers, and also the provisions on group supervision measures. All also affirmed their commitment to continuing close coordination and a continuous review of the progress on both sides of the agreement. FIO and Treasury's leadership will also continue closely coordinating with the NAIC and the states. The Agreement entered into force as of April 4, 2018.

Deputy Director Seitz also highlighted ongoing work on the insurance capital standard (ICS) at the International Association of Insurance Supervisors (IAIS). The IAIS is seeking to adopt the next version of the ICS by the end of 2019. FIO has been working closely with the NAIC, the states, and the Federal Reserve on this project. The IAIS's ultimate goal is for a single ICS that achieves comparable outcomes across jurisdictions. FIO has continued to advocate that the IAIS adopt an implementable ICS that is more outcome-focused and appropriate for the U.S. insurance sector. To that end, the U.S. members have been developing for IAIS consideration an aggregation method which builds upon the existing RBC framework used by states and the building block approach proposed by the Federal Reserve a few years ago. The IAIS has agreed to assist with the data collection and analysis of the aggregation method, which will launch next month. This is a critical first step for future discussions on the U.S. approach to group capital. In August, the IAIS will issue its third consultation document on the ICS, which will provide stakeholders with an opportunity to share their views on the current structure of the ICS and the

major policy decisions that have yet to be made. FIO will continue to engage with the NAIC, the states, and the Federal Reserve on the ICS.

Deputy Director Seitz then turned to the Terrorism Risk Insurance Program, noting that FIO has been engaged in administering the 2018 terrorism risk insurance data call. The data call, due by May 15, has involved significant coordination with state regulators and the NAIC; for the first time, FIO issued a joint data call with the states which significantly reduced the compliance burden of many companies. FIO has begun to work on a report on the program's effectiveness, which is due to Congress by June 30. The report will be based largely on information collected at FIO in its 2017 and 2018 data calls, as well as on stakeholder comments.

Deputy Director Seitz highlighted the continuing work of the EU-US Insurance Dialogue Project, which is spearheaded by FIO, the NAIC, and EIOPA. The Project has three focus areas for 2018 and 2019: (1) cybersecurity and the cyber insurance market, (2) the use of big data in the insurance sector, and (3) group supervision, particularly intragroup transactions. A description of the Project's current initiatives is available on Treasury's website. The Project is tentatively scheduling its next public event in November, in connection with the IAIS meetings in Luxembourg.

Deputy Director Seitz noted that FIO has begun taking steps to begin implementation of recommendations set forth in last year's asset and management insurance report. For example, FIO, in close coordination with Treasury's Office of Critical Infrastructure and Protection, has established a federal interagency working group to assess cybersecurity challenges for the sector. FIO hopes to work closely with stakeholders and have the group present its findings and recommendations to this Committee next year. On May 23, FIO is hosting its first mitigation discussion stakeholder event in conjunction with FEMA and the National Oceanic and Atmospheric Administration.

Mr. Birnbaum asked if FIO has been or will be involved in the development and implementation of a flood insurance affordability framework.

Deputy Director Seitz responded that FIO has a good working relationship with FEMA, and will ensure Mr. Birnbaum has an invitation to the May 23 event so he can discuss it with FEMA and FIO.

Mr. Birnbaum asked if there are any FIO activities related to its Dodd-Frank mandate regarding monitoring the availability and affordability of insurance in traditionally underserved markets.

Deputy Director Seitz responded that FIO is actively monitoring all aspects of the insurance sector.

Chairman Glaser motioned to approve the minutes from the February 22, 2018 meeting. Mr. Fischer seconded the motion. Chairman Glaser certified the minutes, after assuring Mr. Birnbaum that it would be noted that he called in to the meeting.

Chairman Glaser stated that remaining 2018 FACI tentative meeting dates were August 16 and November 1.

At 4:28 pm, Chairman Glaser concluded the meeting.

A handwritten signature in black ink, appearing to be 'D. Glaser', with a long horizontal line extending to the right.