

MARIM CONFERENCE 2017

Risk & Resilience in a VUCA World

26 - 27 July 2017 Le Meridien Putrajaya

Embedding Big Data in Risk Management

David Socha

Practice Partner, Industrial IoT Group,
Teradata International





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Big Data & Analytics in Risk Management

David Socha, Practice Partner, Industrial IoT Group

July 2017



“If you woke up as an industrial company today, you will wake up as a **software and analytics company tomorrow**”

Jeff Immelt, CEO GE

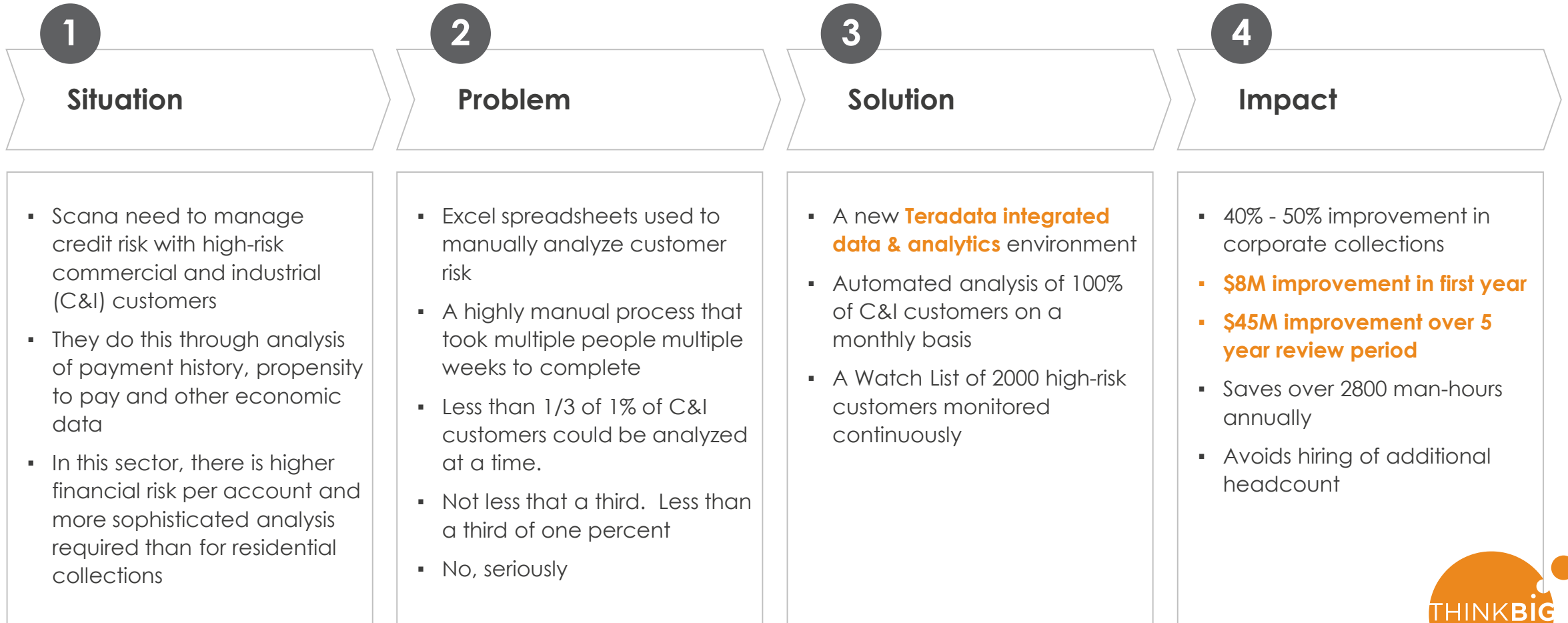




“**Teradata** was Big Data
before there was Big Data”

Donald Feinberg, Gartner

Data-driven credit risk management

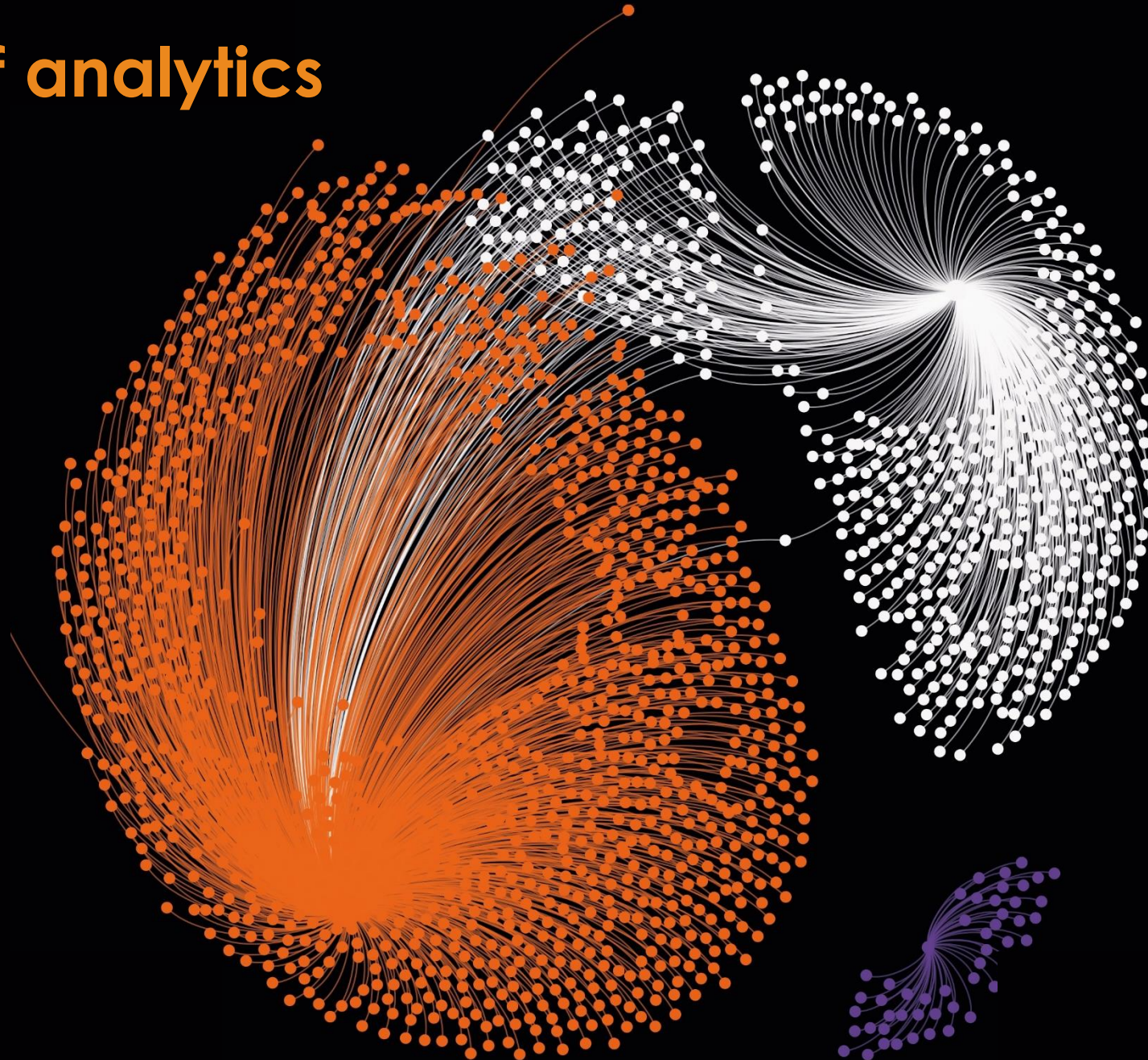


The art of analytics



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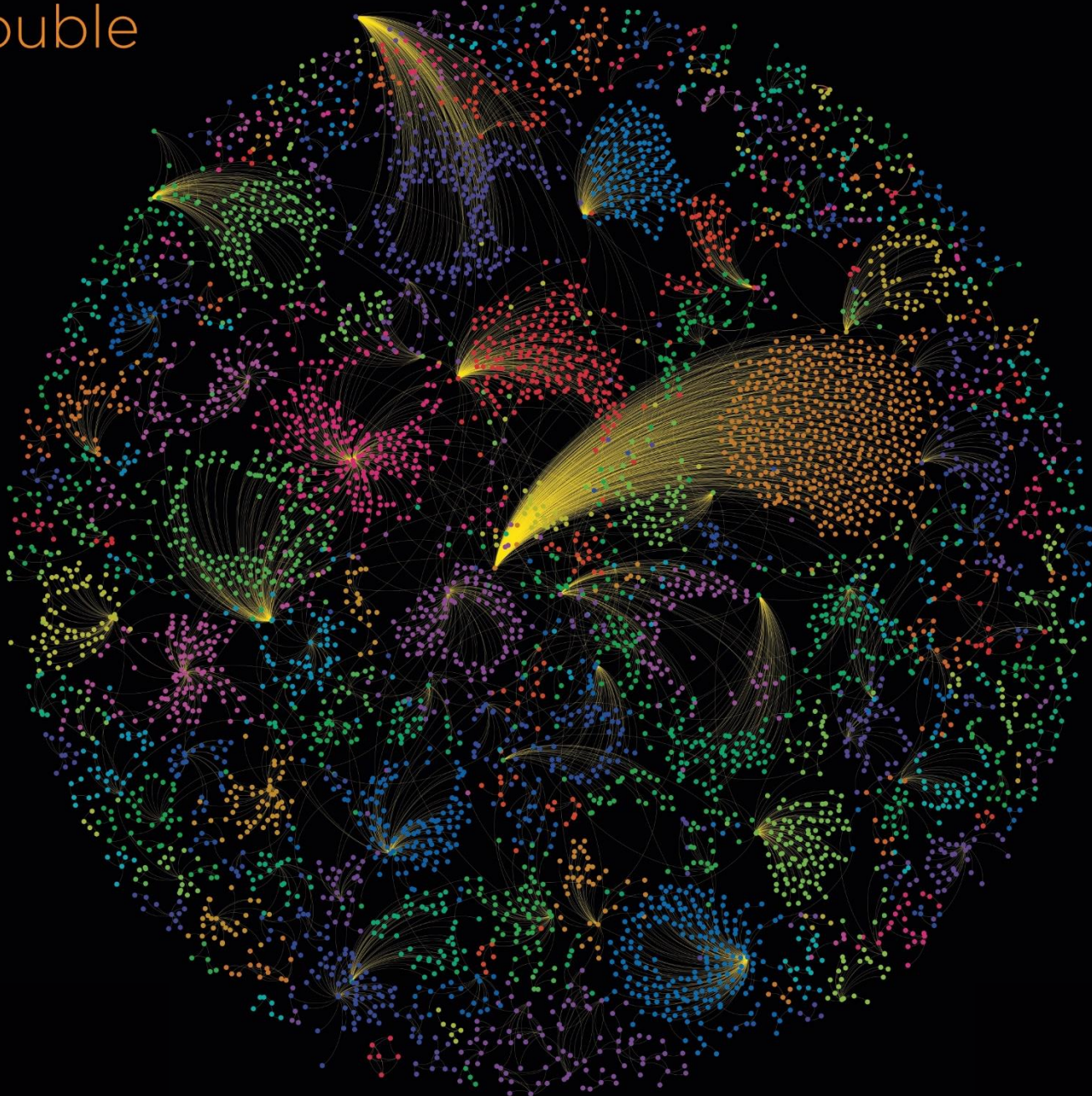
The art of analytics



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Guaranteed Trouble

Yurui Zhang



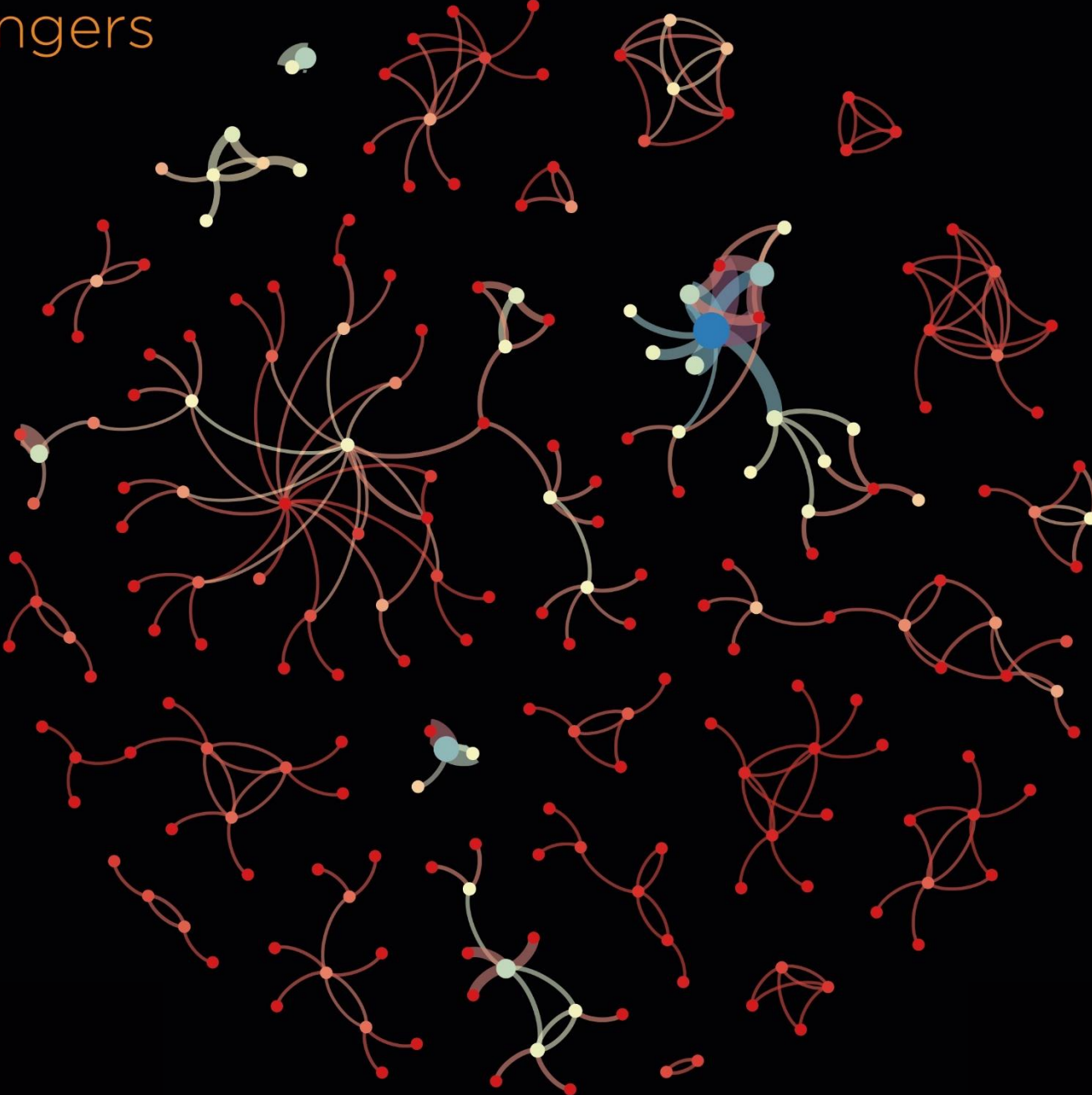
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Guaranteed Stingers

Yurui Zhang

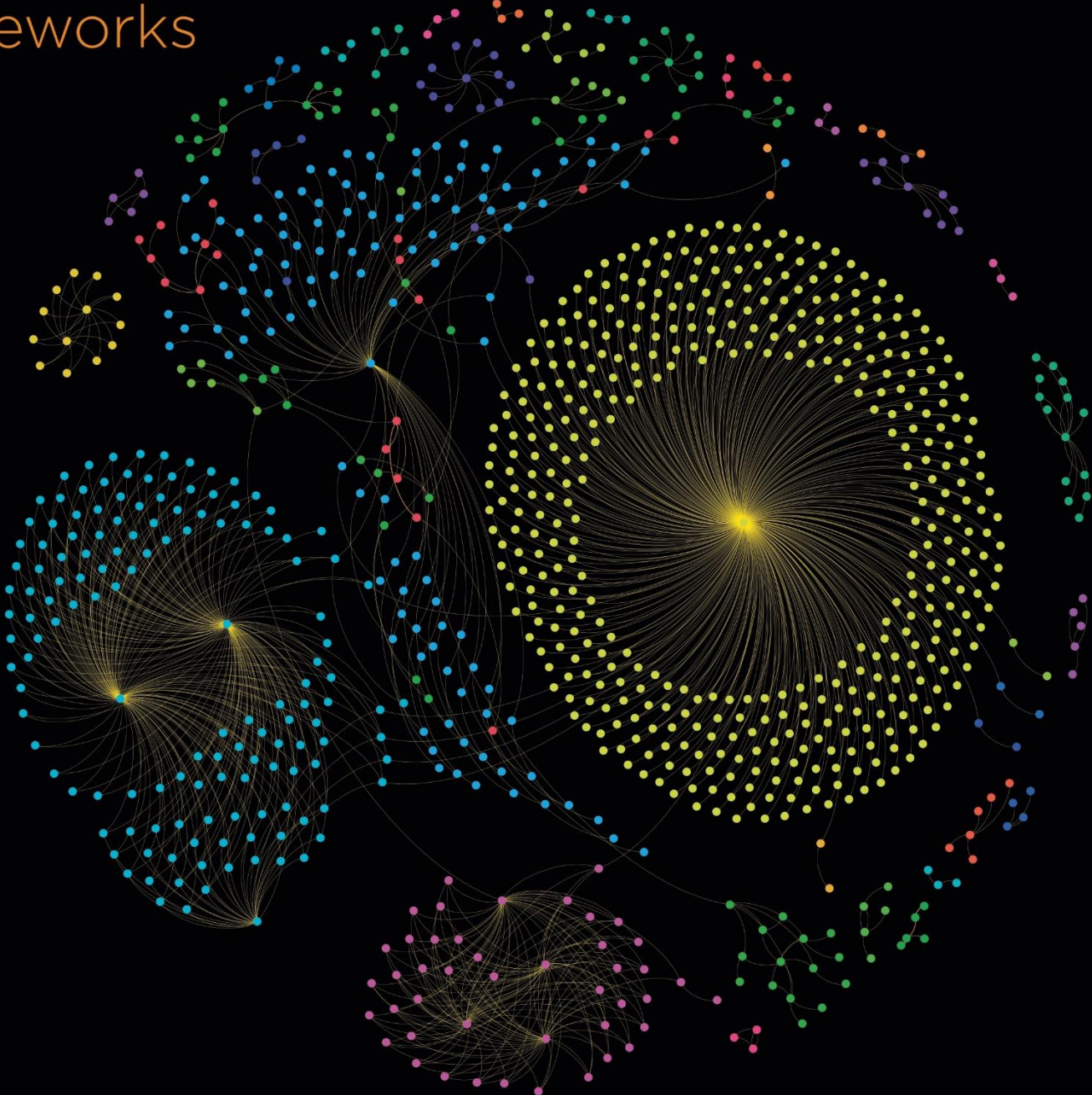


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Guaranteed Fireworks

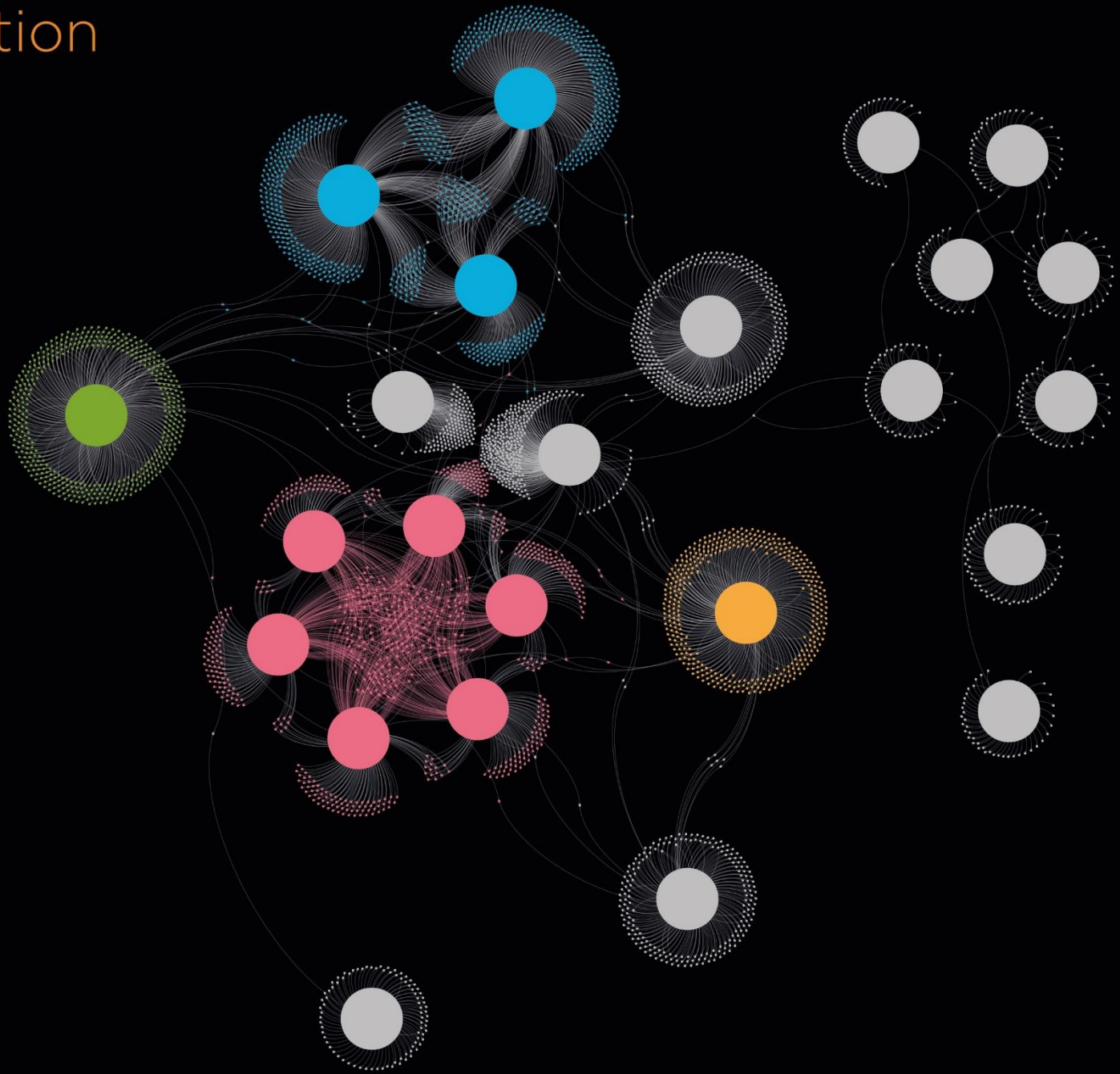
Yurui Zhang



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Scam Connection

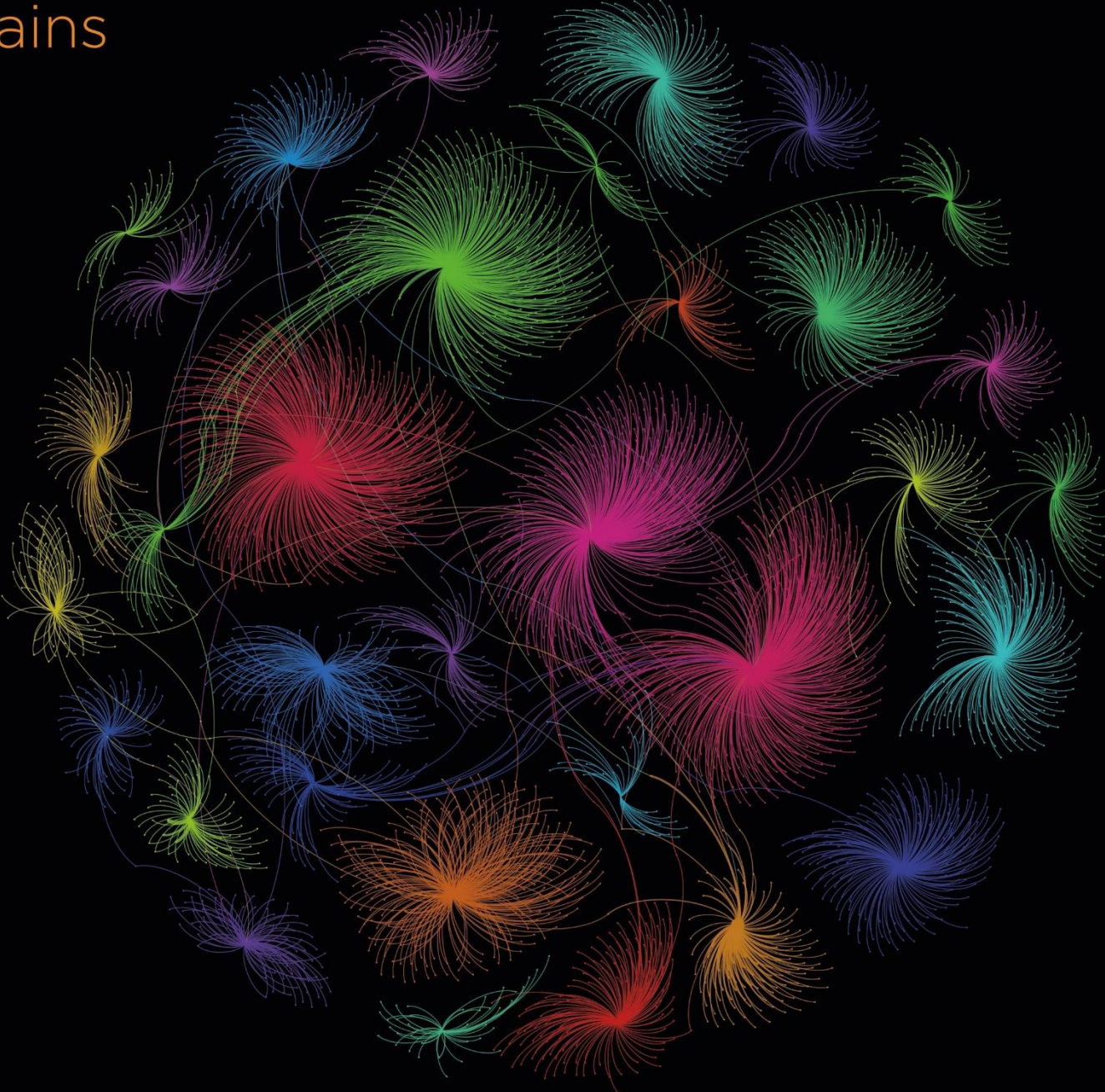
Adi Wijaya



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Funding Fountains

Qiling Shi



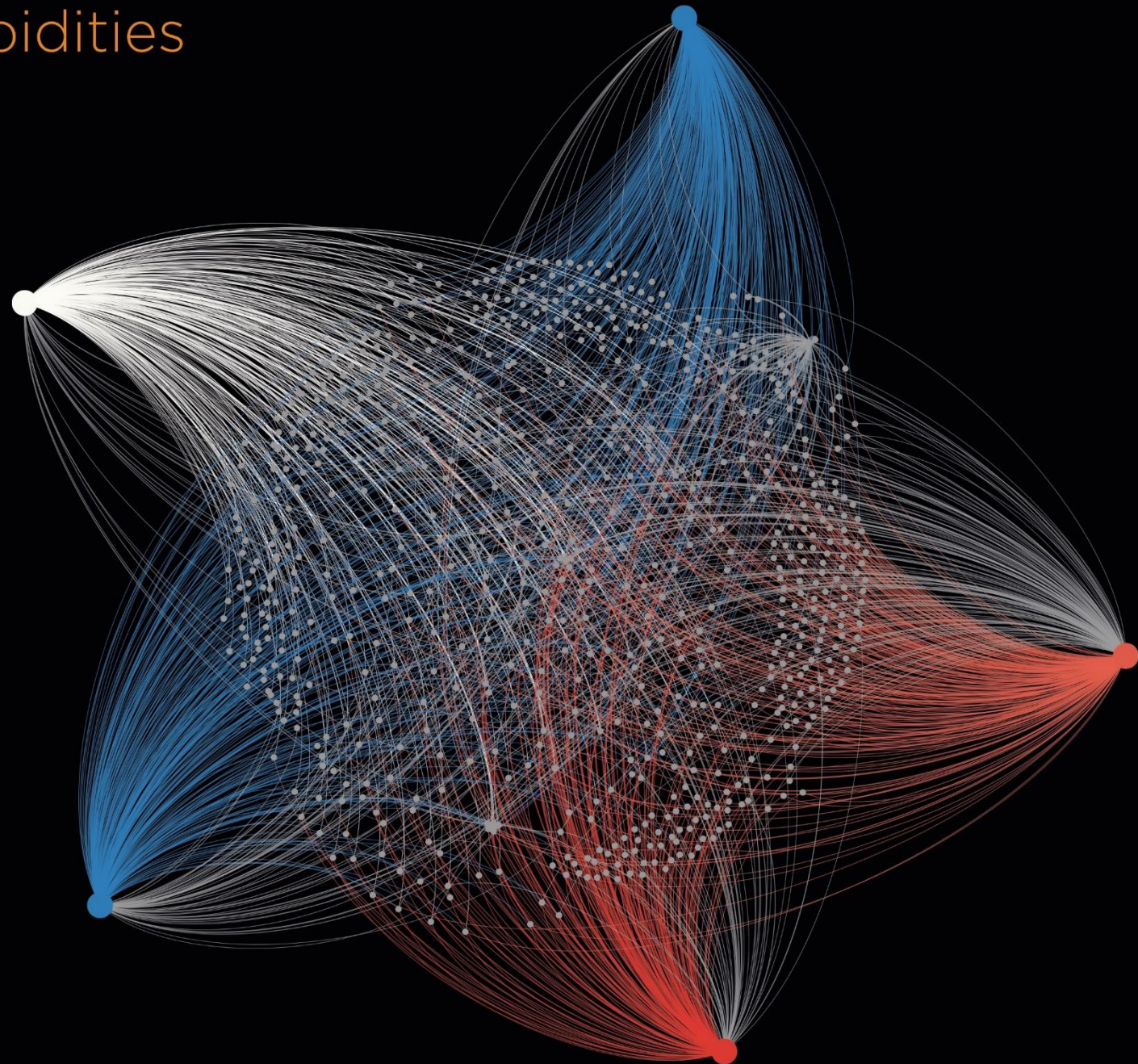
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Drug Co-Morbidities

Christopher Hillman

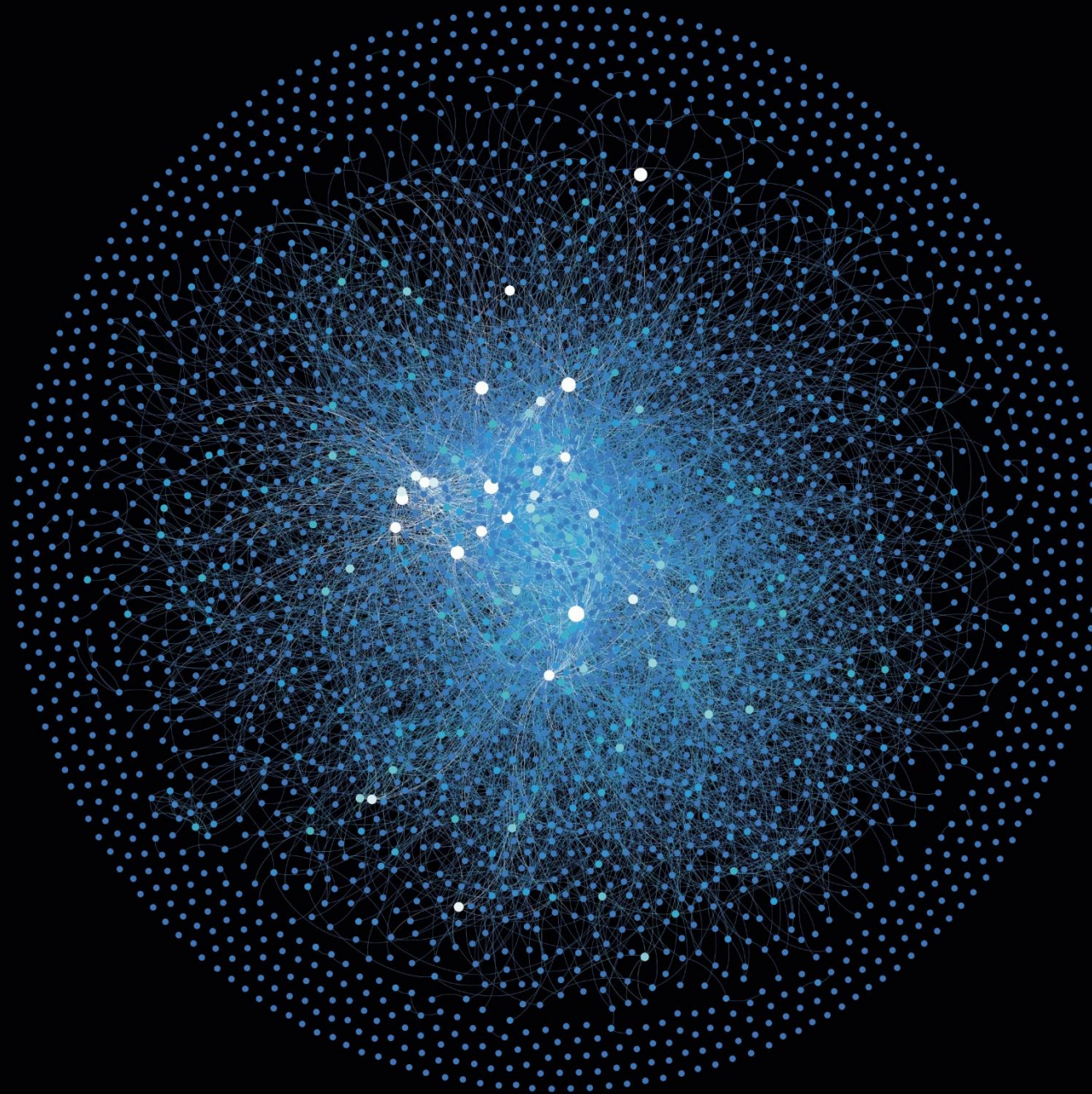


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The Stargate

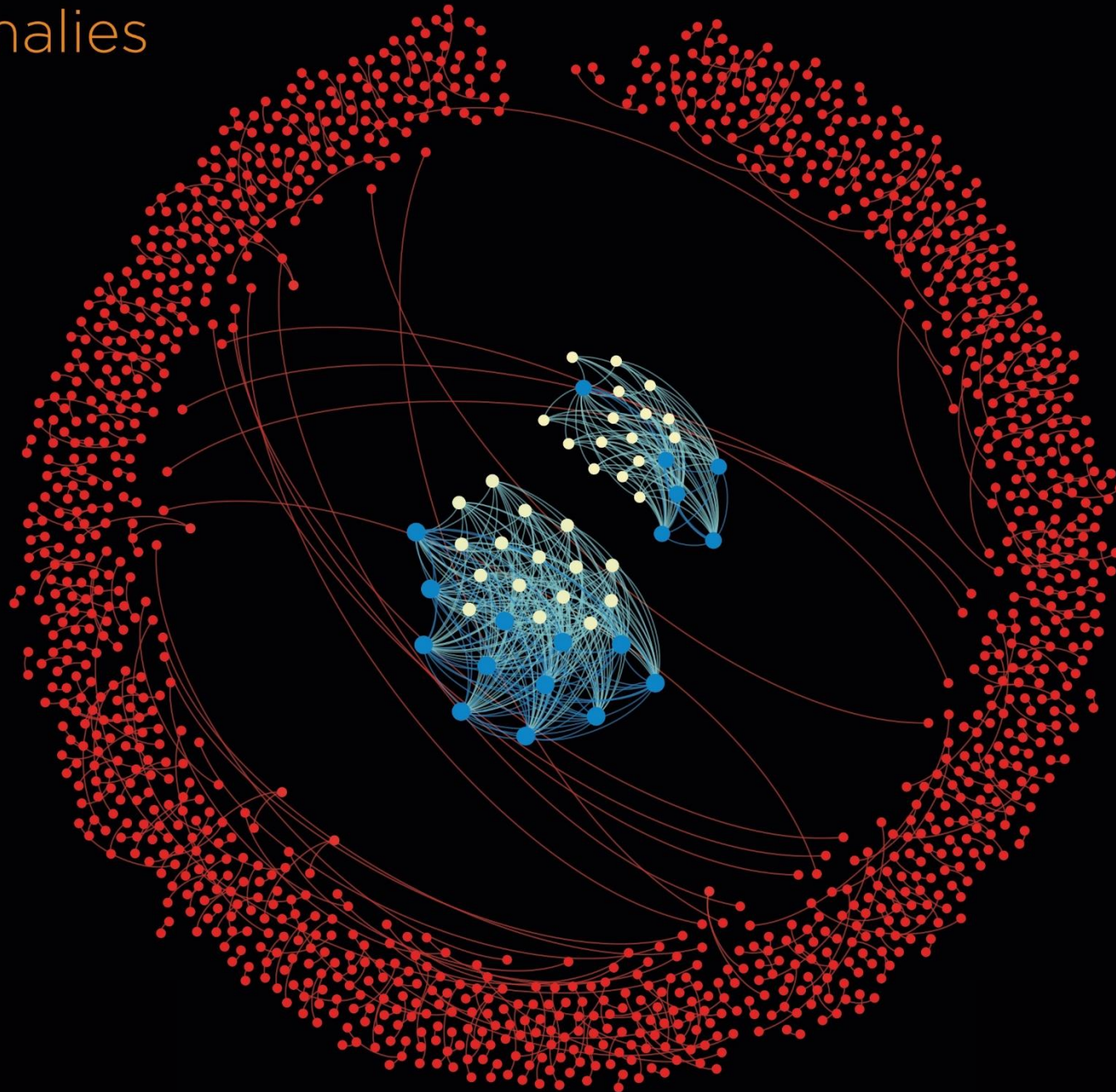
Peter Wang



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Trapping Anomalies

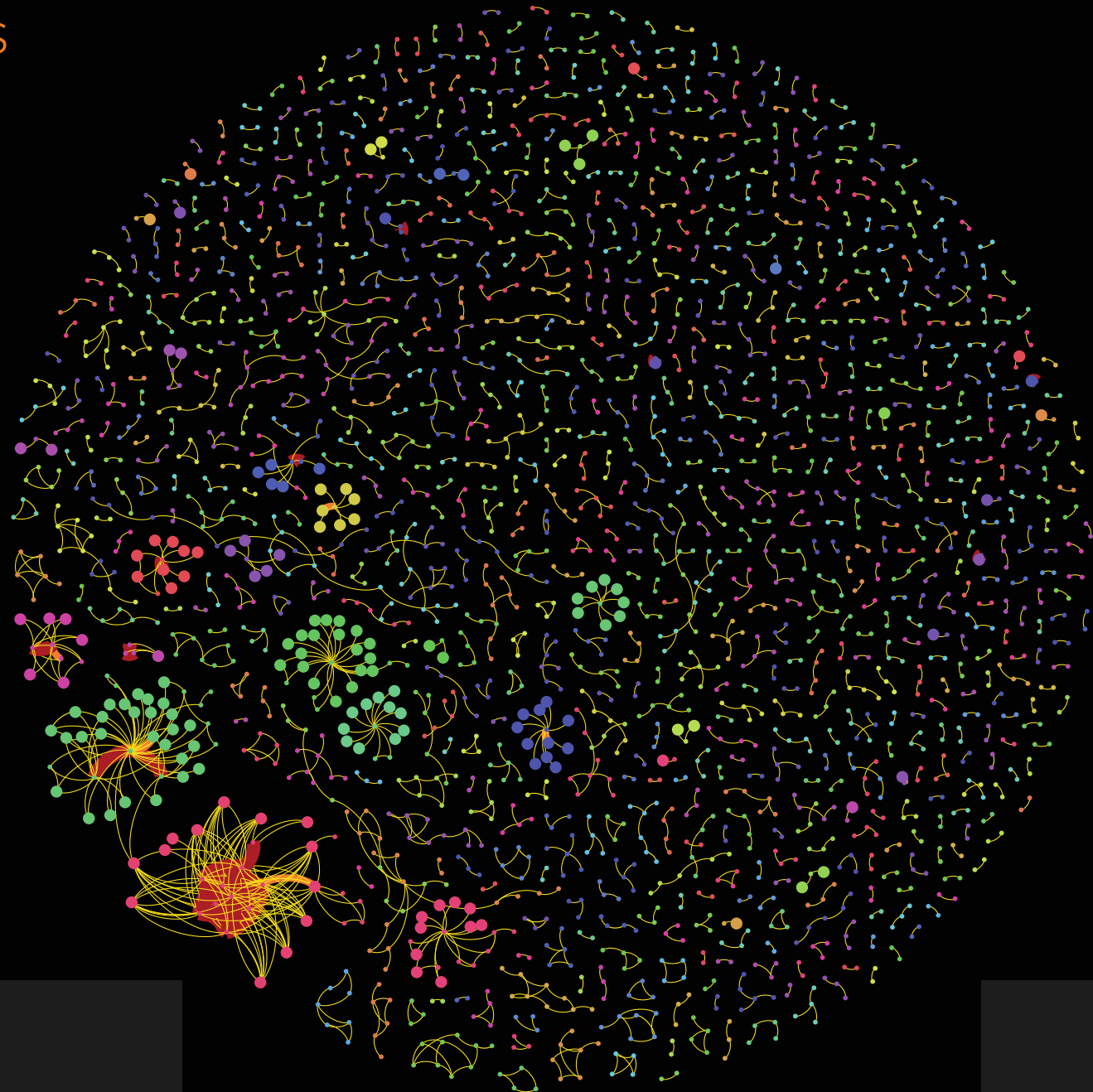
Yasmeen Ahmad



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Fraud Invaders

Christopher Hillman



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Data-driven credit risk management



1

Situation

- Scana need to manage credit risk with high-risk commercial and industrial (C&I) customers
- They do this through analysis of payment history, propensity to pay and other economic data
- In this sector, there is higher financial risk per account and more sophisticated analysis required than for residential collections

2

Problem

- Excel spreadsheets used to manually analyze customer risk
- A highly manual process that took multiple people multiple weeks to complete
- Less than 1/3 of 1% of C&I customers could be analyzed at a time.
- Not less that a third. Less than a third of one percent
- No, seriously

3

Solution

- A new **Teradata integrated data & analytics** environment
- Automated analysis of 100% of C&I customers on a monthly basis
- A Watch List of 2000 high-risk customers monitored continuously

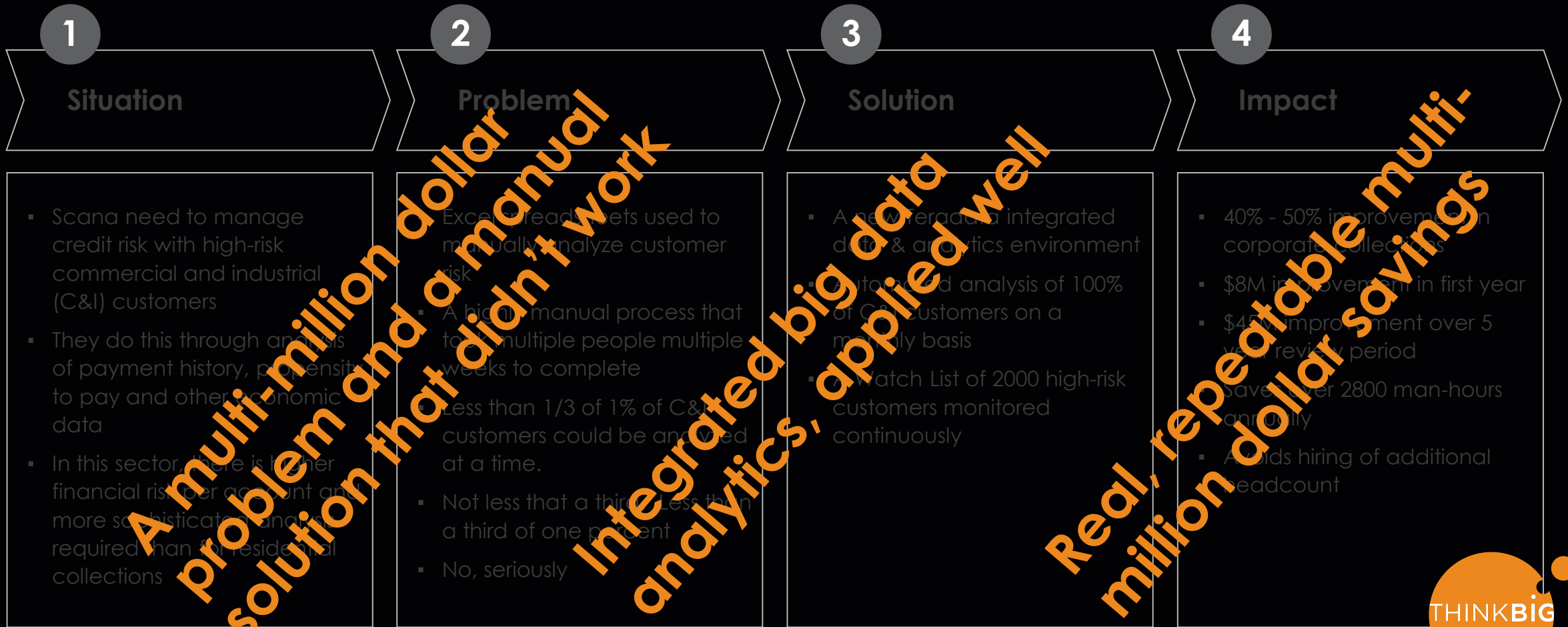
4

Impact

- 40% - 50% improvement in corporate collections
- **\$8M improvement in first year**
- **\$45M improvement over 5 year review period**
- Saves over 2800 man-hours annually
- Avoids hiring of additional headcount



Data-driven credit risk management



13 years on...



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Trends and Research Case Studies Analyst Insights

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SCANA
POWER FOR LIVING

*Business Value and Cost Savings
Derived from Data – SCANA's 13 Year
History in Data Warehousing*

Presented by Anna Russell – DWS Team - Senior Technical DBA

SCANA CORPORATION

SCANA on Data Driven Business Value

Time: 0:57:47

SCANA on Data Driven Business Value. Learn about the business value and cost savings SCANA has derived from data over the last 13 years.



The Art of Analytics

by Tony Ohlsson, Alexander Heidl & Christopher Hillman

The Art of Analytics is a collection of Big Data Visualizations presented as art, created by the Teradata analytics community. The striking images stand as beautiful modern art pieces and yet also tell a story that reveals new insights and meaning from data that surrounds us in our everyday life. The Art of Analytics was created by Tony Ohlsson to inspire new analytic ideas through openly sharing the amazing work analysts create with big data technology. Alexander Heidl is the Art Director for the collection and Christopher Hillman the Lead Data Scientist. To see the full collection or learn more about this artwork please visit us on teradata.com/artofanalytics.

Tatiana Bokareva

Tatiana is a Data Scientist with the Teradata Advanced Analytics team in Australia and New Zealand, working with clients in Government and the Financial Services and Telecommunications industries. She combines her passion for pure analytics with a wealth of Henderson fashion and retail experience. A keen blogger, Tatiana has written many papers and has presented at a host of international conferences.

Her Bachelor's degree with Honours and PhD in Computer Science were studied at the University of New South Wales.

Karthik Guruswamy

LinkedIn data science blogger, Karthik, is a Principal Consultant with Big Data and Advanced Analytics, Teradata Americas.

Over 25 years ago, after starting out as a DBMS developer in Informix, Karthik worked as a data and server architect with several startups in Silicon Valley. He was a senior consultant with Aster Data when Teradata acquired the company in addition to working with social media customers like LinkedIn and LinkedIn, Karthik has been advising Fortune customers such as Dell, Big Automotive, Overstock, and Wells Fargo Bank.

Karthik specializes in HPP, Map Reduce, and Graph, unravelling hidden patterns in customer data and creating visualizations to bring new insights to business users. He works a wide variety of algorithms around Time Series and Pattern Detection, Data Mining, Machine Learning, Neural Nets, Text Classification, and Statistical Analysis in his projects.

Karthik lives in the San Francisco Bay Area with wife, Vidhya, and their two daughters.

Kailash Purang

Lead Data Scientist for Teradata in Singapore, Kailash works across SE Asia, particularly in support of Teradata's Banking and Communication industry clients.

Kailash holds a Bachelor of Economics and Statistics, a Masters in Economics from the National University of Singapore and a Bachelor of Management from the University of London. He's worked in analytics for 10 years.

He spends his spare time developing visualizations that demonstrate how everyone can benefit from simple analytic applications, helping to reduce analytics as a fun, stress-free manner. His headline goal is to help clients realise the full potential of Big Data, so their customers benefit from better services and more relevant offerings.

Stephen Brobst

Stephen is the CTO for Teradata Corporation. His graduate work in computer science was done at the Massachusetts Institute of Technology, while his Masters and PhD research focused on high performance parallel processing. Stephen is also a professor of Management Science and directs work at the Harvard Business School and the MIT Sloan School of Management.

During Barack Obama's first term he was appointed to the Presidential Council of Advisors on Science and Technology, working on Networking and Information Technology Research and Development. Stephen was recently ranked by *Forbes* as the #4 CTO in the USA (from a field of over 1000).

Stephen has been teaching advanced data visualization (including a deep examination of the patterns in the economics super graphics at The Data Warehousing Institute and other forums for over 10 years. He is an avid fan of the outdoors and is co-opedated across New Zealand and the USA, together with Andrew Cardno.

Andrew Cardno

Andrew, CTO for Veeva, holds a Bachelor of Surveying from Otago University and a Diploma of Computer Science from Victoria University. He's worked over 40 years and worked in the areas of cartographic visualization and high performance database design. Also, Andrew and his team have been awarded two Smithsonian laureates for historic information technology related to data visualization.

He has co-authored a book on mathematical gaming analytics, and written over sixty articles about data visualization and advanced analytics. Andrew, originally from the South Island of New Zealand, now lives in California with his wife and four children.

Frances Luk

Frances Luk is a Data Scientist in the loan team based in Copenhagen. She grew up in Hong Kong until one day she decided to try something new. Now she lives in Denmark with her husband and two cute kiddies. She has a Master degree in science from University of Copenhagen, prior to her Data Scientist role, she spent 5 years developing online Java applications and she has 7 years of data warehouse and data analytics experience from banking and logistics industries. She is involved in cross-industry pre-sales and professional services big data engagements within Denmark and Nordic countries.

Frances's passion for data science comes from having a strong technical background with great curiosity on business. Every bit of data is remarkable to a piece of the puzzle for her. She enjoys pulling pieces together and she has great joy when an insight appears, she loves seeing the surprised and amazed faces from clients when unknown insights are discovered. That is her fuel to her daily work.

Todd Margolis

Todd is a team media producer of immersive platforms. He's also a Senior Solution Architect of GIS, where he develops innovative visual analytics with technology partners. Drawing on 10 years' experience creating inter-consultative immersive and interactive artwork and systems, he's written many papers on mixed-reality artwork and systems.

As a project scientist at USC's Qualcomm Institute, he created large-scale visualizations for the display of geo-spatial data bases such as social media, integrity and economic disparity, as well as correlations between environmental factors and asthma. Also, Todd co-invented several visually-rich, interactive systems and, in 2004, received an MFA in Electronic Visualization from the University of Illinois.

Todd lectures on new media and art at several universities and, in 2009, he co-edited and collaborated on a permanent art installation at Chicago's Midway Airport. Also, he helped found Applied Interactivity, and is a former Director of the collaborative, one-stop agencies. His work has been shown at museums, festivals, and galleries all over the world.

Sundara Raman

Sundara is a Senior Solution Architect at Teradata's Service Telecom industry clients by day and an aspiring data scientist by night. He is an inventor and patent holder at an Australian patent (with his wife) on Computer Aided Psychological Assessment and Treatment that applies the principles of Cognitive Behavioral Therapy (CBT).

So if you catch sight of Sundara, juggling multiple cell phones, you'll know he's not banking. He's using

Peter Wang

Peter, a Senior Big Data Consultant for the Big Data COE (Greater China) team, is a key member of Teradata's team of diversified Chinese Data Scientists who have pioneered new analytic techniques for the Banking and Telecommunications industries. He has over 40 years' telecom experience in OSS, signaling analytics, and cyber-security analytics.

He was runner-up for the Best Programmer Award in Information and Communication sector, and held part of the research appointments. Tatiana received the prestigious Women in Engineering Scholarship, training at National ICT Australia for a PhD concerned with the internet of things and building self-healing, self-healing, fault-tolerant, sensor networks, originally from Moscow, Tatiana now lives in Sydney Australia, with her two young children.

Anonymous

The fact that one of our analyst artists must remain anonymous is a sign of the times. Analytics plays a vital role in supporting a wide variety of sensitive topics - peace keeping, medical research, prevention of epidemics, border integrity and managing financial risk. Often, the analysts who support these

issues have to do so in secrecy to avoid becoming extremist targets.

Although we're unable to credit the artist in this case, we remain keen to see their day-to-day involvement and the practical benefits their dedication brings to society.

Alexander Heidl

Producer and one of the original contributors, Alex coordinates the output of all Art of Analytics images in concert with Teradata's data scientist community. His strong eye for both the creative and technical aspects of design enables him to help others extract valuable business insights from these complex analytical images. He specializes in manipulating Aster Lens and Graph images to develop these high-quality works of art.

Alex, who grew up near Frankfurt and graduated from Kingston University, London, began his career working as a BI Project Manager, taking a keen interest in the effect ecology has on our

ability to communicate with multi-level audiences. Today, Alex is based in Zurich and works as a cross-industry analytics and business value consultant for Telecom International. His evident passion for visualization is central to the success of his current role, helping him share complex concepts and analytic insights with clients throughout the territory.

And when Alex is not working into the early hours, creating images of hot trending customer implementing analytical skills, you can find him motor biking through the Alps, shooting the world with his camera in search of the next great code and picture.

Paul Dancer

For the past 10 years, Paul has supported Teradata clients in the UK and Australia, in his role as a Senior Consultant. Currently, he's leading a group of metadata scientists develop innovative Big Data techniques to optimize data storage and processing patterns in very large, complex, analytic ecosystems.

After gaining a Bachelor of Science in Business from Swinburn University, he worked for British Steel, General Electric, and Capgemini. With his long-standing interest in code generation plus forward and reverse engineering through metadata, Paul is considered one of the go-to people for complex problem resolution in Teradata's Service Professional Services practice.

He sees enormous potential for Big Data with the adoption of new technologies and increasingly-complex analytic ecosystems. Originally from Wales, Paul now enjoys life on Sydney's Northern Beaches, with his wife and son.

Yasmeen Ahmad

One of Teradata's most creative and insightful data scientists, Yasmeen works with analysts teams providing leadership, training, guidance, and hands-on support to deliver actionable business insights. Consequently, she travels extensively covering the France, Telecom, Government, Retail, and Business markets. Every business challenges an analytical conundrum. In other words, pulling new or untapped sources of data to work, and introducing new techniques to sharpen the competitive edge.

Previously, Yasmeen built analytical pipelines for complex, multi-dimensional data types in the Life Sciences industry, she gained her PhD in Data Management, Mining and Visualization from the Weizmann Institute for Science and Technology, and has taught MIS course segments (data science and BI) at several senior academies, and gained a strong reputation for speaking at conferences and events.

Growing up in Scotland gave Yasmeen a deep love of the outdoor life, particularly hiking the Scottish Highlands and sea kayaking.

Yurui Zhang

Yurui is a Senior Consultant in Teradata's Big Data COE for Greater China, partnering with banking clients to develop innovative risk analytics. He's worked in the field for over 10 years, primarily for the Banking, Insurance, and Telecommunications industries. Yurui specializes in advanced analytics for marketing, risk management, and CRM, dedicating his career to developing new techniques and analytical skills.

He holds a Masters Degree in Communications and Information Systems from Jiangxi Jiaotong University. After graduation, Yurui joined SAS, China as an Analytics Consultant, before moving on to Teradata and Big Data Analytics.

Yurui, who lives in Shanghai with his wife and daughter, has a deep passion for traveling. At their apartment, he sits, swims, and plays tennis and basketball whenever possible.

Tony Ohlsson

Creator and director of 'The Art of Analytics' project, Tony Ohlsson is Director of the Finance, Telecommunications, and Retail Centres of Excellence for Telecom International.

Originally from Sydney, Australia, Tony has spent his last decade spearheading the world's largest Big Data analytics projects. He's been based in Asia for the last 12 years, most recently in Singapore.

Tony believes that amongst data science is the backbone of analytics. It's the data artist who creates the data, discovering new insights and inspiring change for the business community.

Actually, this whole Art of Analytics thing arose out of a general workshop meeting. Data visualization charts stuck on the meeting room wall looked, to all intents and purposes, like works of art. They quickly caught the eye of passing executives who walked through the remarkable messes discussing this new and insightful phenomenon.

Tony holds a Commerce Degree in Marketing from the University of New. An experienced speaker at events, he was a finalist in the Australian Young Business Person of the Year for his early work in CRM. Tony has a wife and two children.

Chris Hillman

Chris has built up a 200-year track record in BI and advanced analytics, currently working as a solutions architect, principal consultant, and technology director in the retail and e-commerce sectors. Research Analyst, Data Scientist in the Advanced Analytics team for Teradata International.

Based in London with his wife and two children, Chris is involved in start-up analytics for Big Data projects, helping customers unlock insights from their data, and decide whether MapReduce or SQL is the right technology for their particular analysis.

He's studying (part-time) for a PhD in Data Science at the University of Dundee, applying Big Data analytics to data from the Human Proteome project. Research involves the real-time analysis of Mass Spectrometry data using parallel algorithms. He's currently actively include lecturing on Hadoop and MapReduce coding.

Qiling Shi

Date scientist Qiling (Mary) partners with banks in China to experiment with large-scale risk analytics (using high-performance super graphics). The goal is to uncover new ways of monitoring the in China's highly-complex commercial system. Their work for corporate customers including "Fund Foundations" is one of a number of innovations that the team has brought to the world banking world while helping it.

Qiling is a pre-sale or Data Data Scientist at University of Central University of Finance and Insurance (Department of PRC) in Beijing. He is currently working in the office and published papers.



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