

# BLOCKCHAIN FOR SUPPLY CHAINS WORKSHOP SERIES



**DATE:** FALL-2 / October 26–December 7 / 6 Modules

## Organizers

Victoria Shvydchenko (School of Forestry and Environmental Studies), Elle Brunsdale (School of Management - School of Forestry and Environmental Studies). Supported by



## Workshop information

- Open to all Yale - School of Forestry and Environmental Studies, School of Management, School of Public Health, Law School, School of Engineering, Yale College, etc.
- Max capacity: 35 people
- Student profile: as diverse as possible. Open to students with both technical and non-technical backgrounds.

## Course structure

The course will meet once a week - on Fridays and will consist of the two 1.5hrs modules (3 hours total). One module will be a deep-dive into the blockchain technology whereas the second one will explore issues in supply chains and how blockchain applies.

## Course Dates

### MODULE 1

Friday, Oct 26, 1pm–4pm, Evans Hall - 4230

### MODULE 2

Friday, Nov 2, 1pm–4pm, Evans Hall - 4220

### MODULE 3

Friday, Nov 9, 1pm–4pm, Evans Hall - 2420

### MODULE 4

Friday, Nov 16, 10am–1pm, Evans Hall - 4430

### THANKSGIVING BREAK

### MODULE 5

Friday, Nov 30, 1pm–4pm, Evans Hall - 4210

### MODULE 6

Friday, Dec 7, 1pm–4pm, Evans Hall - 2410



## Course Goals

- Developing a solid understanding of the blockchain technology - its basics, properties, use cases and implementation nuances through the lens of the supply chains existing pilots and sustainability considerations.
- Clear understanding of how blockchain design increases sustainability metrics and provides business value through a rigorous analysis of the existing pilots.
- Developing a comprehensive outlook on the supply chains challenges and sustainability in the consumer goods industry, in particular food and fashion
- Developing the initial expertise needed to succeed in the blockchain, supply chains space or **any other industry that interacts with the blockchain**. The course is highly practical-oriented and is aimed at those pursuing careers in consulting, supply chain management and/or product management

## Course Perks

- Real-world practitioners from the international companies and startups
- Developing supply chain management processes on a blockchain software
- Exclusive networking opportunities with the guest speakers

## Guest Lecturers

### Companies



# Workshop Schedule

MODULES DATES	BLOCKCHAIN TECHNICAL PART (1.5 HOURS PER MODULE)	SUPPLY CHAIN PART (1.5 HOURS PER MODULE)
<b>MODULE</b> <b>0</b> (15 MINUTES)	<b>SPEAKER: TAS</b> <ul style="list-style-type: none"><li>• Intro to the course<ul style="list-style-type: none"><li>- Requirements and design of the course</li><li>- Curriculum and the speakers over view</li></ul></li></ul>	
<b>MODULE</b> <b>1</b> FRIDAY OCTOBER 26 1PM–4PM EVANS HALL 4230	<b>SPEAKER: TAS</b> <ul style="list-style-type: none"><li>• History of blockchain</li><li>• The concept of decentralization (logical, political and architecture)</li><li>• Cursory intro to the blockchain key vocabulary: hashing, mining, noncing</li><li>• How blockchain works</li><li>• Distributed ledger and Byzantine fault tolerance</li><li>• Blockchain vs bitcoin</li><li>• Overview of the proof of work consensus algorithm</li><li>• Keys, wallets, backup and storage</li></ul>	<b>SPEAKER: VINCENT STANLEY, PATAGONIA</b> <b>MODERATOR: STUART DECEW, YALE CENTER FOR BUSINESS AND ENVIRONMENT</b> <ul style="list-style-type: none"><li>• What is the supply chain?</li><li>• Who are the participants?</li><li>• What are the existing issues?</li><li>• Why do we care about sustainability in the supply chains?</li><li>• What is Patagonia’s story?</li><li>• Patagonia’s approach to supply chain management</li><li>• Why Patagonia looks into blockchain solutions for its supply chain management</li></ul>



# Workshop Schedule

CONTINUED

MODULES DATES	BLOCKCHAIN TECHNICAL PART (1.5 HOURS PER MODULE)	SUPPLY CHAIN PART (1.5 HOURS PER MODULE)
<p><b>MODULE</b></p> <p><b>2</b></p> <p>FRIDAY, NOVEMBER 2 1PM–4PM</p> <p>EVANS HALL 2220</p>	<p><b>SPEAKER:</b> <b>ANTHONY ALBERTORIO,</b> <b>LINNIA (CONSENSYS) + TAS</b></p> <ul style="list-style-type: none"><li>• Bitcoin and Ethereum - differences between blockchains</li><li>• Consensus Algorithms Protocols (PoW, PoS, PoA) and the rewards mechanism</li><li>• Consumer Utility Tokens: What is bitcoin and Ether?</li><li>• Smart contracts</li><li>• Digital signatures</li></ul>	<p><b>SPEAKER: HELEN LO,</b> <b>LO &amp; SONS</b></p> <ul style="list-style-type: none"><li>• The story of Lo &amp; Sons: what is it like to build a supply chain from scratch?</li><li>• Major challenges in operations and supply chain the company faced.</li><li>• Lo &amp; Sons sustainability initiatives: priorities, major concerns, possible solutions.</li><li>• Potential for blockchain technology to mitigate some of the inefficiencies within the supply chain</li></ul>

# Workshop Schedule

CONTINUED

MODULES DATES	BLOCKCHAIN TECHNICAL PART (1.5 HOURS PER MODULE)	SUPPLY CHAIN PART (1.5 HOURS PER MODULE)
<p><b>MODULE</b></p> <p><b>3</b></p> <p>FRIDAY, NOVEMBER 9 1PM–4PM</p> <p>EVANS HALL 2420</p>	<p><b>SPEAKER: BRANDON BOGARD, DELOITTE</b></p> <ul style="list-style-type: none"><li>• Understanding the business and sustainability value blockchain can bring to the supply chains:</li><li>• Use case studies' analysis</li></ul>	<p><b>SPEAKER: TAS</b></p> <ul style="list-style-type: none"><li>• Private vs Public vs Consortium/ Federated</li><li>• Bitcoin blockchain vs Blockchain IBM vs Ethereum: current use cases, key properties</li><li>• Permissioned vs Permissionless blockchain</li><li>• Scalability and Ethereum blockchain: sharding, Plasma, Casper</li><li>• Blockchain and security challenges</li></ul>
<p><b>MODULE</b></p> <p><b>4</b></p> <p>FRIDAY, NOVEMBER 16 10AM–1PM</p> <p>EVANS HALL 4430</p>	<p><b>SPEAKER: TYLER MULHIVILL, VIAANT.IO (CONSENSYS)</b></p> <ul style="list-style-type: none"><li>• Deep-dive into supply chain and blockchain pilots.</li><li>• Viant.io and WWF pilot overview.</li><li>• Opportunities and limitations Ethereum blockchain brings</li></ul>	<p><b>SPEAKER: AMY HALL, EILEEN FISHER</b></p> <ul style="list-style-type: none"><li>• Eileen Fisher's sustainability journey and initiatives</li><li>• Social and environmental cost of the fashion industry</li><li>• Current tools and metrics used to measure the social and environmental impact</li></ul>



# Preliminary Course Schedule

(subject to change) CONTINUED

MODULES DATES	BLOCKCHAIN TECHNICAL PART (1.5 HOURS PER MODULE)	SUPPLY CHAIN PART (1.5 HOURS PER MODULE)
<p><b>MODULE</b></p> <p><b>5</b></p> <p>FRIDAY, NOVEMBER 30 1PM-4PM</p> <p>EVANS HALL 4200</p>	<p><b>SPEAKER: RAVI CONDAMOOR, SAP</b></p> <ul style="list-style-type: none"> <li>SAP's approach to solving the problems for the clients: business value of blockchain</li> </ul> <p><b>SPEAKER: VILHELM SJÖRBERG, YALE DEPARTMENT OF COMPUTER SCIENCE</b></p>	<p><b>SPEAKER: ANJA NIKOLOVA, LVMH</b></p> <ul style="list-style-type: none"> <li>Beauty and fashion supply chain at LVMH - synergies and nuances</li> <li>Sustainability practices among the major beauty and fashion players - example of packaging</li> <li>Procurement, sourcing, new product development, forecast and purchasing - key differences</li> <li>Overview of the tools and software used in the industry for supply chain management and environmental impact's assessment</li> </ul>
<p><b>MODULE</b></p> <p><b>6</b></p> <p>FRIDAY, DECEMBER 7 1PM-4PM</p> <p>EVANS HALL 2410</p>	<p><b>SPEAKER: VIANT.IO</b></p> <p>Designing sustainable supply chains using Viant.io blockchain-based software</p>	

## Guest Lecturers



**Vincent Stanley**  
DIRECTOR OF PHILOSOPHY,  
PATAGONIA

Vincent Stanley, co-author with Yvon Chouinard of “The Responsible Company”, has been with Patagonia on and off since its beginning in 1973, for many of those years in key executive roles as head of

sales or marketing. More informally, he is Patagonia’s long-time chief storyteller. Vincent helped develop the Footprint Chronicles, the company’s interactive website that outlines the social and environmental impact of its products; the Common Threads Partnership; and Patagonia Books. He currently serves as the company’s Director, Patagonia Philosophy, and is a visiting fellow at the Yale School of Management. He is also a poet whose work has appeared in Best American Poetry. He and his wife, the writer Nora Gallagher, live in Santa Barbara.



**Anja Nikolova**  
ASSOCIATE MANAGER,  
LVMH

Anja Nikolova graduated from Yale F&ES in 2017. She is currently an Associate Manager at LVMH (Louis Vuitton Moët Hennessy), the luxury goods conglomerate with ~60 brands including

Sephora, Louis Vuitton, Moët Chandon, Dior, etc.

Anja works in product development at Benefit in San Francisco, where she leads the go-to-market strategy for new products and proposes cost efficiencies for launches, including eco-design. Prior to this, she worked at Kiehl’s (L’Oréal) on their new Sustainable Product Optimization tool.

At Yale, Anja split her courses between F&ES and SOM and worked at CBEY. She is particularly interested in consumer goods investments.



**Anthony Albertorio**  
COMMUNITY CURATOR,  
DEVELOPER, LINNIA  
(CONSENSYS)

Anthony Albertorio is a community curator and developer for the Linnia Protocol (ConsenSys), a project dedicated to giving users ownership and control

of their data, especially in medical contexts. Anthony is also an organizer for the New York Artificial Intelligence in Healthcare Meetup and NYC Blockchain Devs.

Anthony’s passion is in applying artificial intelligence and blockchain technology to medical technology startups as a way to begin to increase productivity and reduce costs. Previously, Anthony worked at Columbia University Medical Center, focusing on medical research related to Spinal Muscular Atrophy and other maladies of the nervous system. To better understand the application of AI, Anthony transitioned to working in adtech and along the way saw how centralized privacy violating technologies track people. He received his Bachelors of Arts in International Criminal Justice and Economics from John Jay College of Criminal Justice, City University of New York.



**Amy Hall**  
VICE-PRESIDENT,  
SOCIAL CONSCIOUSNESS,  
EILEEN FISHER

Amy serves as Vice President, Social Consciousness for women’s clothing designer EILEEN FISHER. In this capacity, she guides the company toward greater alignment

with its Benefit / B Corporation status and Quadruple Bottom Line framework. Amy collaborates internally and externally to position the company at the leading edge of human, environmental and economic sustainability. A frequent public speaker, Amy chairs the advisory board of Social Accountability International and represents the company on the Development Council of Future Fit. An avid cyclist with a self-built bamboo bike, Amy can frequently be found cycling around Westchester.



# Guest Lecturers

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**Tyler Mulhivill**  
CO-FOUNDER VIANT,  
GLOBAL BUSINESS  
DEVELOPMENT

Tyler is the co-founder of Viant.io, a blockchain-based platform for modeling business processes, tracking assets and building the supply chains of the future. Tyler initiated, and is the

Chair of, the Supply Chain Working Group within the Enterprise Ethereum Alliance (EEA). At ConsenSys, he advises Fortune 500 companies on their supply chain strategy and use case development. Prior to joining ConsenSys Tyler help stand up the development of a fintech market offering focused on delivering exponential growth and operational improvement solutions to his clients. He is a registered CPA in the state of New York.



**Helen Lo**  
FOUNDER AND CEO,  
LO & SONS

**Helen Lo** is the founder and CEO of Lo & Sons, a designer and online retailer of premium travel bags and accessories. She started the company with her two sons, Jan and Derek, after becoming frustrated in her

search for a lightweight, stylish and functional carry-on. Born in southern Mainland China and brought up in Macau, Helen earned a B.A. in psychology from the University of Massachusetts, and a PhD in Social Welfare Administration from Brandeis University. While raising her sons, and moving frequently with her husband, the noted astronomer Fred Lo, she pursued a career as a community health administrator, consultant and activist. After moving to Charlottesville, Virginia, where Fred was director of the National Radio Astronomy Observatory, Helen retired and began accompanying her husband on his international travels.

Her futile quest for a fashionable yet practical carry-on bag prompted her son Jan, a product design researcher, to suggest she create one of her own. Helen eventually recruited both Jan and Derek to join her at Lo & Sons, which she self-funded and launched in 2010 at the age of 65.

While she had no prior experience designing travel bags, a commitment to user-centered design became the driving force behind the company’s product development approach. She and her oldest son Jan spent days in airports observing female travelers **struggling with shoulder bags that swung off roller board handles, and fumbling with pocketless black hole totes.** This field research guided the creation of their first products, and this thoughtful design approach is a major reason for the growing popularity of their travel products, which also now includes men’s weekender bags and backpacks.



**Vilhelm Sjöberg**  
ASSOCIATE RESEARCH  
SCIENTIST AT YALE  
DEPARTMENT OF  
COMPUTER SCIENCE

**Vilhelm Sjöberg**, is an Associate Research Scientist, working in Prof. Zhong Shao’s research group at the Yale Department of Computer

Science. He works on formal verification, which is a set of tools and methods to produce reliable, bug-free software. One of his research projects is to apply formal verification to smart contracts for the Ethereum blockchain.



**Brandon Bogard**  
CPA, CISSP, SENIOR  
MANAGER, DELOITTE

Brandon is a Senior Manager in Deloitte’s Risk & Financial Advisory practice, with over twelve years of experience driving information technology and finance projects, primarily with global manufacturing

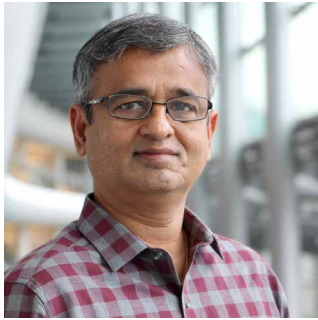
companies. In addition to transformation services, Brandon focuses on emerging technologies and their impacts to businesses and financial reporting. He currently serves as one of Deloitte’s Blockchain Fellows for Risk and Financial Advisory where he speaks on topics of blockchain strategy and adoption for manufacturers.



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## Guest Lecturers

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**Ravi Condamoor**  
ENTERPRISE ARCHITECT,  
CUSTOMER INNOVATION &  
ENTERPRISE PLATFORM, SAP

As an Enterprise Platform Architect at SAP, Ravi is responsible for the strategy, design, and architecture of Modern Intelligence Platforms built on Big Data, Artificial Intelligence, IoT,

and Blockchain to facilitate process efficiency, operational intelligence, and customer insights, for data-driven companies.

After working at some of the industry leaders such as IBM, Sybase, and Oracle, Ravi has donned various technical and management roles in several innovative startups in the Big Data & Analytics industry. He has extensive experience building scalable products and solutions in domains such as Healthcare, Manufacturing, Ad Tech, Fintech, and Industrial Internet.

# Organizers



**Stuart DeCew**  
**EXECUTIVE DIRECTOR**  
**AT YALE CENTER FOR**  
**BUSINESS AND THE**  
**ENVIRONMENT**

Stuart DeCew is the Executive Director at the Yale Center for Business and the Environment. In this role, Stuart is responsible for overseeing

the management, administration, strategy and development of the School of Management and the School of Forestry & Environmental Studies research, education and outreach programs in business and the environment.

Prior to his arrival at Yale, Stuart worked as the National Logistics Coordinator for the Bill Bradley for President Campaign and subsequently served as a Legislative Aide for a member of congress in Washington, DC. He then volunteered for the Peace Corps where he acted as a local governance consultant for municipal and provincial governments in Paraguay. After the Peace Corps, Stuart directed a non-profit campaign to promote sustainable land use practices in Florida. Directly before matriculating at Yale, he was the on-site producer in Cairo, Egypt for Pangea Day, an international documentary film festival sponsored by the TED Prize.

Stuart graduated from the joint degree program at the Yale School of Management and the Yale School of Forestry and Environmental Studies in 2011 with a focus in corporate environmental management, energy efficiency and environmental marketing. During his time in the joint degree program, Stuart uncovered energy efficiency investment opportunities at RBS Citizens Financial Group as an EDF Climate Corps Fellow (2010) and developed a comprehensive environmental communications and marketing plan for United Technologies Fire and Security (2009).

Stuart holds a BA from the Colorado College in History.



**Victoria Shvydchenko**  
**MASTER OF**  
**ENVIRONMENTAL**  
**MANAGEMENT 2019**

Victoria is a Master of Environmental Management candidate with a background in international diplomacy and lobbying. Her personal passion and professional focus at Yale

is centered around blockchain application for the sustainable and innovative supply chains with an emphasis on the global fashion industry.

This summer, Victoria interned with the Social Impact team at ConsenSys, an Ethereum blockchain venture production studio. During her internship, she spent her time working on consulting engagements with the public and private sector clients and research on blockchain's impact on sustainability metrics within the supply chains.

Victoria co-founded "Blockchain for Sustainable Solutions", the first blockchain for social impact conference at the Yale School of Forestry and Environmental Studies with speakers from IBM and ConsenSys. Prior to Yale, she worked with the United Nations and Ukrainian Ministry of Foreign Affairs to co-found the official U.N. Youth Delegate Program to represent national interests on behalf of the Ukrainian government.

Victoria holds a B.A. in International Relations from the Taras Shevchenko National University of Kyiv and is an alum of the U.S. Department of State UGRAD exchange program. In her free time, Victoria enjoys exploring modern art exhibitions and eating spicy food.

# Organizers

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## **Elle Brunsdale**

**MBA 2019**

**MASTER OF ENVIRONMENTAL  
MANAGEMENT 2019**

Elle Brunsdale is a MBA-MEM degree candidate at the Yale School of Management (SOM) and School of Forestry and Environmental Studies (F&ES).

She is passionate about

leveraging innovative technologies, financing mechanisms, and science-based policies to enhance the resilience of socio-ecological systems in the face of climate change. She most recently interned on the Business Development and Policy team at Bloom Energy (distributed energy resource & fuel cell company) where she helped identify strategic growth opportunities related to biogas, carbon capture, and microgrids. The previous summer she interned on the infrastructure/real assets team at Encourage Capital, an investment firm seeking to change the way that capital is deployed to solve critical environmental and social problems. Prior to graduate school, she worked for a big data start-up applying predictive analytics to public policy (FiscalNote) and on water infrastructure policy at the U.S. Congress (Congresswoman Napolitano (CA-32)) and the Quito Water Fund (Ecuador).

At Yale, Elle Co-Founded the “Blockchain for Sustainable Solutions Conference” and conducted research on private sector climate-related investments as a Fellow for the Kerry Initiative and as a Research Assistant for Data Driven Yale. Elle graduated with distinction from Yale College with a double major in economics and environmental studies, where she was also a heptathlete on the Yale Varsity Track and Field Team. Elle grew up in Colorado and loves to fly-fish, play piano, and train for triathlons.