

# Social Machines Building Logistics Networks

## Understanding the Supply Chains of Identity, Trust & Data

Co-Sponsored by MIT-KIT and Prof Sandy Pentland (MIT Connection Science & Media Lab)

Venue: MIT Media Lab –6th Floor. <http://whereis.mit.edu/?go=E14>

### Thursday September 18th, 2014 – Agenda

	Time	Agenda	Panelists & Presenters
	8:00 – 8:30 AM	Continental Breakfast	
	8:30 – 8:45 AM (15 min)	Welcome & Opening	<ul style="list-style-type: none"> <li>John Charles (VP, MIT Information Systems and Technology)</li> </ul>
#1	8:45 – 9:45 AM (1 hour)	Social Machines	<ul style="list-style-type: none"> <li>Sandy Pentland (Professor, MIT Media Lab &amp; MIT Connection Science)</li> <li>Scott David (Professor of Law, Executive Director, Law, Technology &amp; Arts Group, U. of Washington)</li> <li>Eric Scafe (MIT-KIT)</li> </ul>
#2	9:45 – 10:45 AM (1 hour)	Physical Supply Chains as Social Machines [Presentation]	<ul style="list-style-type: none"> <li>Scott David (Professor of Law, Executive Director, Law, Technology &amp; Arts Group, U. of Washington)</li> </ul>
	10:45 – 11:00 AM	Coffee Break & Networking	
#3	11:00 – 12:00 PM (1 hour)	Engineering Governance & Economic Incentives	<ul style="list-style-type: none"> <li>David Kappos (Cravath, Swaine &amp; Moore LLP)</li> <li>Don Thibeau (President, OpenID Exchange; Chair – OpenID Foundation)</li> <li>Lynn St. Amour (President/CEO of Internet Matters. Past President of Internet Society)</li> <li>Mark Lizar (Founder, Open Notice)</li> <li>Dazza Greenwood (Founder, CIVICS.com)</li> </ul>
	12:00 – 1:00 PM	Lunch	
#4	1:00 – 2:00 PM (1 hour)	Future Metrics for Systems Performance Evaluation in the Supply Chains of Identity, Trust & Data	<ul style="list-style-type: none"> <li>Juan Botero (Executive Director, World Justice Project)</li> <li>Don Thibeau (President, OpenID Exchange; Chair – OpenID Foundation)</li> <li>Joe Paradiso (Professor, MIT Media Lab)</li> </ul>
#5	2:00 – 3:00 PM (1 hour)	Visualization of Information in the Supply Chains of Identity, Trust & Data	<ul style="list-style-type: none"> <li>Pradeep Sharma (Provost, RISD)</li> <li>Deb Roy (Chief Media Scientist/Twitter &amp; Professor/MIT Media Lab)</li> <li>Dan Harple (MIT Sloan &amp; Shamrock Ventures)</li> </ul>

	3:00 – 3:30 PM	Coffee Break & Networking	
#6	3:30 – 4:30 PM (1 hour)	From Engineered Supply Chains to Thriving Communities	<ul style="list-style-type: none"> <li>Patrick Deegan (Chief Architect, ID3)</li> <li>Bill Hoffman (Director, Data-Driven Development, World Economic Forum)</li> <li>John Zic (Chief Scientist, ICT Centre, CSIRO, Australia)</li> </ul>
#7	4:30 – 5:30 PM (1 hour)	Powering the New Social Machines: Technical & Legal Intersect for Protection of Identity, Trust & Data [Presentation]	<ul style="list-style-type: none"> <li>Eric Scafe (MIT-KIT)</li> </ul>
	5:30 – 7:30PM	Social Event – Silverman Space	
	7:30PM	Close of Day	

## Session Descriptions

The MIT KIT Annual Conference brings together experts on data, technology & society to evaluate and discuss issues on the Internet’s horizon that affect peoples’ futures.

This year the focus of the conference is on the design, development and deployment of logistical networks that function as hybrid social-technical systems commonly called “supply chains;” as both a metaphor and a model for future social machines.

Supply chains attract participation when they provide participants with leverage and risk mitigation that they cannot otherwise achieve in commercial and other resource management contexts. Supply chain stakeholders are invited to mutually “self-bind” to the rules and to adopt the standard technology to get the benefits. This mutual, interdependent self-binding is measured, communicated and enforced by technology tools and legal rules, enabling the auditable standardization of multi-party behavior in the loose, distributed governance setting of “supply chains.” The supply chain model thus provides a hint of possible pathways to future “auto-catalytic” distributed governance and managed information structures for social machines that will intermediate human-to-human and human-to-organization (HTH/HTO) interaction on the massively distributed architecture of the Internet.

We will examine the evolution of supply chains, with attention to engineering, measurement, UIs, learning systems, governance and enforcement in three settings: (i) supply chains for physical goods, (ii) supply chains for data, data rights and services and (iii) supply chains for general risk mitigation.

All three supply chains rely on data flows, and the co-management of data rights to attract participation, although in each settings the incentives and penalties to which parties are invited to self-bind is different.

Despite their myriad unique structures, a common theme across supply chains is that well engineered logistical networks, that provide reliable measurement of performance and robust feedback mechanisms, can succeed in becoming information management structures that stakeholders can trust. This mechanistic trust, born of reliability, will be explored as the source of additional layers of governance that can be engaged in in more complex settings.

### Session 1: Social Machines

Time: 8:45AM – 9:45AM

Description: If “technology” is defined as those things that leverage human ability (allowing humans to do things that they could not otherwise do), then a microscope, the Internet, and a hammer; and also a corporation, a “co-op” and a school can be considered “technologies.” Once physical, social and economic structures are all conceived of as different forms of “technologies,” calls for their integration seem less remarkable. The concept of “social machines” takes the next step of contemplating integrated human and engineered systems that rely on hybrid social and technical architectures, from the design phase, through development and deployment. While new levels of integration are enabled with emerging information technology, the concept of social machines has precedent. For example, existing global “supply chains” are nascent versions of social machines, and their creation, operation and governance anticipate many of the challenges of “social machines.”

In this era of massive outsourcing, supply chains became extended, and risk compounded. The resort by individuals and commercial and governmental organizations to metrics, information feedback, and governance standards to reduce risk of distributed supply chains on which they depend is further extended in the context of the massively distributed Internet. Information-based services require new levels of engineered “just-in-time” coordination that rewards tight coordination, approaching the level of information integration previously expected of a single business organization.

We can use the well-understood traditional “supply chain” concept as our starting point for analysis. These current supply chains can be viewed as forms of interaction that are loosely-aggregated, reflecting the *autocatalytic structures* where each participant can leverage their respective abilities to achieve goals that they could not unilaterally achieve. In this sense, supply chains are a form of technology that provides leverage to individuals.

## Session 2: Physical Supply Chains as Social Machines

Time: 9:45AM – 10:45AM

Description: Supply chains have been around for as long as there has been specialization of tasks, and people depending on others to supply their needs. Today the global supply chain of goods and services are crucial to the economic survival of the planet. While these supply chains deliver physical goods, they depend heavily on information management structures, including various data exchange networks that operate up and down the supply chain. The data exchange networks (and consequently the supply chains that rely on them) have benefited greatly from the standardization of data formats and provenance-tracking information. Improvements in identity and data standards reduce risk and cost, and additionally increases market expansion possibilities.

In this session we discuss current supply chains as structures of loosely-coupled management of production and consumption at scale, and explore some of the emerging opportunities of the “physical Internet,” where distribution system resources are re-deployed in a more comprehensively structured fashion.

## Session 3: Engineering Governance & Economic Incentives

Time: 11:00AM – 12:00PM

Description: Supply chains involve multiple organizations, frequently across cultures and legal jurisdictions, and therefore rely on distributed forms of governance. Different systems of organization share resources by establishing their own logistics networks (i.e. “supply chains”) in order to achieve a common goal. Governance of a logistics networks is a key aspect of its efficiency, stability, sustainability, and scalability.

This session focuses on the “meta-value” propositions of logistics networks infrastructures, and how they depend on the identity, data and information “supply chains” structures. This session brings together different deployments of structures to help management multiple stakeholder interests through “supply chains” of information from various resource spaces, and considers some of the security aspects of supply chain maintenance and discipline.

## Session 4: Metrics for Systems Performance Evaluation in the Supply Chains of Identity, Trust & Data

Time: 1:00PM – 2:00PM

Description: What gets measured gets done. In the distributed governance setting of a supply chain, stakeholders rely on standard metrics, and the ability to audit those metrics, as a form of enforceable trust. A key aspect of the nascent social machine (as a hybrid of social and technical architectures) being deployed on the global scale is the measurements of the components of the logistics networks that cross national boundaries. To enable markets beyond traditional economics requires a new model for gauging the performance of the logistics networks that feed data and metadata into the system.

In this session we look at emerging metrics associated with supply chain governance at different levels. This includes the opportunity to *measure business risk* (and other “promise-enforcement” risks) using the Rule of Law (ROL) index. The ROL index provides standard metrics the help answer the question: “Will promises that are made be kept” in the context of conducting business in countries around the world. It helps quantify the answer to that question, and acts as input into mapping the contract enforcement risk for entities across the globe.

We will also look at the economics of identity, which has important roles to play in security, privacy and liability mitigation online. Future identity markets include both identity assurance markets that can help to guide legal decisions online and big data markets, where so called “de-identified” data is more highly valued for its use in research. Future security and privacy solutions will balance individual and group goals with reference to a coherent set of metrics.

We also look at *engineering incentives* that help guide the second order (emergent) phenomenon of shared resource supply chains. Standards need to be developed that manage “traffic” at the intersection of privacy rights, data security requirements and identity assurance markets. Common adoption of standards can help reduce risk by agreement, and can help to mitigate the displacements from the inevitable non-linear behaviors of these complex information supply chains.

## Session 5: Visualization of Information in the Supply Chains

Time: 2:00PM – 3:00PM

Description: How will people and organizations “steer” new Social Machines? The “virtual” supply chains of identity and information are very complex, with multiple stakeholders directing social machines simultaneously. Imagine a car being driven by 10 drivers at the same time. How can humans participate in “big data” economies

using our current “pre-big-data” minds? How can we leverage new technology, narrative and art & language to provide individuals and their (digital) institutions with “levers” or “knobs” to help them operate and guide the logistics networks?

In this session we look at how human expression in the arts and sciences can provide us with the “dashboard” to view and control these future nested & interdependent logistics networks.

### **Session 6: From Engineered Supply Chains to Thriving Communities**

Time: 3:30PM – 4:30PM

Description: How do we integrate human needs beyond consumer needs into the development and production cycles of logistics networks? How do we create “smart resource” communities of practice? How do we build individual system user trust through correctly engineered “data rights” system and deploy these at scale?

In this session we focus on people, and explore how the efficacy and power offered by reliable and predictable systems can enable individuals and other entities to acquire a more effective economic “voice.” We explore how that economic voice can be raised in a chorus in economic markets and also in social, political domains and other domains to provide individuals with efficacy that will incent system self-binding and adoption in a virtuous cycle of group participation.

### **Session 7: Powering the New Social Machines**

Time: 4:30PM – 5:30PM

Description: How will new social machines get built? Where will the resources (money, time, people) come from? How do we craft delivery of the incentives and penalties in distributed information and identity systems so that the systems can get started? How can we best leverage system performance through better structured second order phenomenon in complex systems? How do we “boot-up” the logistics networks, and what incentives do we need to build into these new networks to ensure social acceptance and global deployment.