WORLD ECONOMIC FORUM

COMMITTED TO IMPROVING THE STATE OF THE WORLD

Global Agenda Council on the Future of Software & Society

# Deep Shift
## Technology Tipping Points and Societal Impact

Survey Report, September 2015

# The Six Megatrends

As a foundation to its work, the council sought to identify the software and services megatrends which are shaping society, and their associated opportunities and risks.

**People and the internet**
How people connect with others, information and the world around them is being transformed through a combination of technologies. Wearable and implantable technologies will enhance people's "digital presence", allowing them to interact with objects and one another in new ways.

**Computing, communications and storage everywhere**
The continued rapid decline in the size and cost of computing and connectivity technologies is driving an exponential growth in the potential to access and leverage the internet. This will lead to ubiquitous computing power being available, where everyone has access to a supercomputer in their pocket, with nearly unlimited storage capacity.

**The Internet of Things**
Smaller, cheaper and smarter sensors are being introduced – in homes, clothes and accessories, cities, transport and energy networks, as well as manufacturing processes.

**Artificial intelligence (AI) and big data**
Exponential digitization creates exponentially more data – about everything and everyone. In parallel, the sophistication of the problems software can address, and the ability for software to learn and evolve itself, is advancing rapidly. This is built on the rise of big data for decision-making, and the influence that AI and robotics are starting to have on decision-making and jobs.

**The sharing economy and distributed trust**
The internet is driving a shift towards networks and platform-based social and economic models. Assets can be shared, creating not just new efficiencies but also whole new business models and opportunities for social self-organization. The blockchain, an emerging technology, replaces the need for third-party institutions to provide trust for financial, contract and voting activities.

**The digitization of matter**
Physical objects are "printed" from raw materials via additive, or 3D, printing, a process that transforms industrial manufacturing, allows for printing products at home and creates a whole set of human health opportunities.

# Shift 16: Bitcoin and the Blockchain

**The tipping point:** 10% of global gross domestic product (GDP) stored on blockchain technology
**Expected date**: 2027
**By 2025**: 58% of respondents expected this tipping point to have occurred

Bitcoin and digital currencies are based on the idea of a distributed trust mechanism called the “blockchain”, a way of keeping track of trusted transactions in a distributed fashion. Currently, the total worth of bitcoin in the blockchain is around $20 billion, or about 0.025% of global GDP of around $80 trillion.

**Positive impacts**
- Increased financial inclusion in emerging markets, as financial services on the blockchain gain critical mass
- Disintermediation of financial institutions, as new services and value exchanges are created directly on the blockchain
- An explosion in tradable assets, as all kinds of value exchange can be hosted on the blockchain
- Better property records in emerging markets, and the ability to make everything a tradable asset
- Contacts and legal services increasingly tied to code linked to the blockchain, to be used as unbreakable escrow or programmatically designed smart contracts
- Increased transparency, as the blockchain is essentially a global ledger storing all transactions

**The shift in action**
Smartcontracts.com provides programmable contracts that do payouts between two parties once certain criteria have been met, without involving a middleman. These contracts are secured in the blockchain as “self-executing contractual states”, which eliminate the risk of relying on others to follow through on their commitments.