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A summary of the emerging BINC transition

Social media, mobile apps, internet services, and many more digital phenomena have changed our everyday lives in less than a decade. In fact, most of us use technologies on a daily basis that were wild and crazy science fiction some 45 years ago when computer science first became mainstream at Western universities. However, for most citizens and policymakers, the impact of the still exponentially growing information and communication technologies (ICT) is only starting to become apparent.

Today, a convergence between the bio-, info-, nano- and cogno- (BINC) technologies provides the living and intelligent technologies of tomorrow. All developed countries participate in the development of the BINC technologies and they are about to take off like ICT did a little more than a generation ago, in fact fueled by ICT.

The problem is that democracy, politics, rule of law, human rights, the modern nation state, the market economy, capitalism, the banking system, and the creation of money as we know them are all products of the industrial age and its technologies. As individuals we have learned to navigate the industrial economy and as societies we can somewhat control and define it with politics and legislation. But nobody has a clue what the global economy is going to look like in the post-industrial age of the BINC-technologies.

The industrial economy grew out of austerity and a need for more of everything; more was simply better. Increased productivity was wonderful because it meant fewer hard jobs, more fun and interesting jobs and shorter work hours, longer vacations and cheaper goods.

The BINC economy grows out of a situation where, in the richest parts of the world, more is not better. We are already sick from over-eating. Increased productivity may lead to cheaper goods but fewer needs more, instead we turn the Earth's resources into trash faster and we must consume in order to stay employed.

The world of the BINC technologies will be a world of plenty. Some 2-5% of the population will be able to develop, produce and distribute what everybody needs. It will be a world where everybody could have their own personal fabricator, just like we have personal computers and printers at home today. We would be able to design or download the code for goods we need and fabricate almost anything at home. As these goods could have life-like properties, most can be recycled; technology will become like biology and part of the natural cycles in nature.

There are many reasons to believe that the BINC technology convergence will have as drastic consequences as, say, the emergence of the industrial economy from an agricultural society or the societal transition from the Bronze age to the Iron age. In the matrix next page you find a simplified map of the cultural consequences of new technologies throughout history.

Within and between the nations we see indicators of this current transition. Among them are the emerging citizen privacy issues due to abuse of big data, challenges concerning secure and sustainable energy systems, increasing international taxation issues regarding corporations, a rapidly growing and mainly speculative financial market, increasing costs for welfare and human health, and a radically transforming job market mainly due to automation and digitization. The latter concerns not only blue-collar jobs, but also white-collar jobs. As the matrix below shows, we suspect it is necessary to prepare for a multifaceted transition.

What can we do in Denmark to mitigate this situation?

The Matrix	Stone Age Hunter gatherers	Stone Age - Agriculture - Pastoral nomads	Bronze Age	Iron Age	Industrial Age	BINC Age bio-, information-, nano- & cogno-tech
When?	200,000 ya	(18.000) 10,000 BCE	3500 BCE	1000 BCE	1450 (since Gutenberg) / 1800 (steam engine)	2000
Epicenter	Africa	Middle East	Middle East (2,000 BCE, China)	Middle East, China & Axial Age	Europe - and the US	The West? Japan? Korea? China?
Group size	200	1,000-10,000	10,000-40,000	100,000s Rome: 1 million	Millions	Humanity?
Organiza- tion	Extended families	Villages	Ring-walled cities Empires	Ring-walled cities Empires	Nation states	Mega-cities? The globe?
Technology	Stone	Subsistence farming Animal husbandry	Stock farming, crafts, bronze, architecture	Iron, metallurgy, crafts, engineering	Steam, mechanics, combustion, electricity	BINC
Wealth	None	Land, harvest, ani- mals, probably slaves	Bronze, land, har- vest, animals, slaves	Iron, other metals, land, harvest, animals, slaves	Capital & land	Information?
Money	Gift economy	Shells, grain, cattle etc.	Promissory notes / clay	Ingots, bullion, coins, promissory notes	Paper money	Electronic money
Ownership	Mana / communal	Communal	Kings, free men & serfdom	Kings, free men & serfdom	Individuals, compa- nies, coops	The few or the many?
Knowledge	Myth	Myth	Math, geometry, crafts	Philosophy, math, geometry, crafts	Science, engineering	Artificial Intelli- gence?
Rule	Shaman, ritual, communal	Chieftains	God-kings Rule by law	Emperors, Pope, rule by law & courts	Kings, rule of law, democracy	Cyber-something?
Power structure	Flat / egalitarian	Matriarchs? Patriarchs!	Hierarchical Temples	Hierarchical Holy texts and ideas	Hierarchical, money, force, and democracy	Big data? Soft power?
Information and Com- munication Technology	Oral narrative, rituals, figurines, body ornaments, cave paintings	Oral narrative, body ornaments, clothing, building decorations	Pictography, clay tablets, parchment, text scrolls	Alphabet, text scrolls, index, road system, homing pigeons	Printing press movable type, telegraph, tele- phone, radio, televi- sion	Internet - of everything?
Fears	Famine, change, wars	Famine, change, wars, slavery	Famine, change, wars, slavery, taxes	Loss of self-control, honor vs. shame	Oppression, poverty	Loss of privacy, oppression, sur-/ sousveillance?
Hope	Being with ances- tors or spirits	Fertility	Justice	Nirvana & salvation of the individual soul	Wealth & justice Progress	?
Narrative	Animism, circle of life	Mother Earth / Bull of heaven / circle of life	Polytheism	Monotheism	Nation, Class, Science, Market	?
Hero	Good hunters, elders, ancestors	Good warriors, elders, ancestors	Warrior kings / gods	Messiah	The unique, lone, semi-messianic genius	?

Below we have summarized and grouped 19 critical issues associated with the current technology driven transition:

1. Digital products and services represent an increasing part of the value creation.
2. Only the first digital unit requires capital and creates jobs, the following copies are practically free to produce, which means profit without production. Without production there will be no need for employees.
3. Digital products have no transportation costs, so the best product wins globally: There is no market for the second best; winner takes all.
4. The digital economy (e.g. automation) removes more jobs than it creates. Increased global demand on highly skilled individuals, while competition for the still fewer available low-grade jobs does not raise wages but only working hours and employment insecurity.
5. There is greater return on investment in speculation than in production; you become wealthier from being rich than from working.
6. Information, humans and money can travel freely across national borders. The world is increasingly changing from some 200 national economies to one global economy for which there is no common rule of law, nor macro-economic models or theories. On the individual level, everybody participates in one global job market.
7. Businesses move to places where they don't need to pay taxes. Nation states compete among each other to provide the lowest taxes; it is everybody's race to the bottom.
8. The national economies are becoming communicating vessels regarding prices, wages and workers' rights.

9. The middle class can no longer provide the tax revenue needed to secure good nation state governance.
10. Economic elites are taking over the political power and democracy is deteriorating. Economic and hence political power gets concentrated on still fewer hands.

Points 1-10 mean that the nation state is losing its importance for the economy, while the middle class is getting poorer and the rich are getting wealthier and gain more political power.

11. Big business and governments use the digital infrastructure to access private data from the citizens, which means loss of freedom and power of the citizens.
12. Local consumption generates global warming, e.g. Danish consumption creates CO₂ production in China. There is only one environment.
13. There are no global institutions or other structures in place that can handle this transformation. There is increasingly only one economy.
14. The converging bio-, info-, nano- and cogno- (BINC) technologies transform the world faster than ever before into something we have difficulties imagining, as the pace of new inventions increases exponentially.
15. The global population continues to grow until it approaches 9 billion around 2050.

Points 11-15 mean that we are increasingly globally interdependent.

16. It becomes increasingly challenging to align radically different economic, cultural and governance structures and get them to match, cooperate and embrace each other, e.g. traditional Arabic, industrial Russian and digitized Scandinavian.
17. The political spectrum of left and right used to be about capital interests, now it is about emotions. Left and Right emerged from the industrial society and the struggle for power between workers and capital. Today, in the West, from left to right there is consensus about the open society, liberal democracy, market economy, and some measure of public welfare; there may be disagreements about, for instance, specific levels of taxation or social benefits but overall, there is systemic agreement about the model. As a result, voters are uniting along completely different lines; political parties are increasingly attracting members and voters according to psychological and emotional composition, and less economic interests.
18. Our grand narratives about reality, which used to keep societies together, i.e. religion, nation and class, are being undermined by postmodern deconstruction, globalization and the above-mentioned erosion of the left-right political spectrum. As they lose their explanatory power they are re-discovered in totalitarian form.
19. The only grand narrative that has survived is “the free market”, which provides consumer goods efficiently, but which is incapable of solving the above problems.

Points 16-19 mean that the technological development has out-manuevered politics while increasingly determining the workings of the economy and society both nationally and globally.

To preserve human dignity, Human Rights, democracy, sustainable economies, and social calm the above issues should be immediately taken to the forefront of Danish politics. We see multiple possible solutions to the above problems - some of them very attractive - but the actual solutions should be developed through an open democratic discourse, lead by Folketinget.

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