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The Rise of Infocracy:

Virtualized Human Interplays, Decline of Physical Interactions, and the Adaptation of People's Social Valuation System

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Abstract
Rapid technological advances, our insatiable appetite for instantaneous rewards, and the massive information overflow are impacting our everyday lives. The long term effects of the social informatification, people's overreliance on massive amounts of dynamic digital information, remain enigmatic and poorly understood. Our ability to anticipate, prepare, react and adopt to potential negative consequences of the minute-by-minute existence in the new infoctratic world, complete virtual immersion into a digital information where most time, energy and resources are dedicated to rapid acquisition, processing and inference using large amounts of information, may have a significant long term impact on mankind. This opinion outlines the scope of our virtualized abilities to manage and interpret Exabytes of information and suggests that timely prediction and appropriate response to the information avalanche will be critical to managing the unavoidable social and cultural changes ahead.

The complete and irrevocable proliferation of the Internet in human life has led to unprecedented paradigm shift in mankind's classical beliefs, motivations, and valuations [1, 2]. Our appraisals of social organization, personal character, qualities, abilities and merits are rapidly transcending. These changes are unparalleled and revolutionary! There is a focused drive to redefine human beliefs, emotions, actions, goals, abstract nature, norms, attitudes, policies, and interrelations. These adaptations are propelled by our insatiable appetite for information, the desire for constant immediate gratification, and ability of modern information and communication technologies (ICTs) to satisfy our addiction for instantaneous information [3, 4].

It's very likely that the next century belongs to infocrats. Out are monarchs, patriarchs, matriarchs, bureaucrats, and even technocrats. In are the information-wizards who possess the technological skills, adopt agile and transformative personalities, and have the ability to rapidly search, process and summarize vast amounts of dynamic and incongruent input. Infocrats are people who opt to completely immerse themselves into the world of digital information and spend most of their time, energy and resources on the timely acquisition, rapid processing and expeditious inference of data via continuous synchronous network connections. Direct personal communications are replaced by electronic exchanges of data. Frequently both personal and professional spheres are affected by these virtual interactions [5]. Infocrats constantly expand and adjust their technical qualifications for maintaining the high-throughput information flow. In the crowdsourcing era, their opinions control and contribute to establishing rules, regulations, and authority for digital content on the virtual knowledge network. Infocracy appears to be the next stage of the social evolution of meritocracy, where the foundation of the social valuation is based on merits and perception of intellectual abilities. The self and collective infocratic social valuation of individuals is purely based on their capacity to swiftly discover, efficiently retrieve, individually process and reliably aggregate immense amounts of digital information. This process is accelerated by the expansion of network communication bandwidth, improvements of human-machine interfaces, and the social cravings for quantitative, evidence-based decision making. Even if 0.0001% of all human stored information (estimated to be about 295 Exabytes, 295×10^{18} bytes in 2007) [6] is essential, and if we computationally reduce it further, by summarizing it, to only 0.1% of its size, human interpretation of these data would require on average more than 4 kilo bytes (4 KB) of information to be independently processed by everyone of the 7 billion people on Earth to make sense of this information avalanche [7]. This complexity is further increased by the velocity of time-varying information and the fact that frequently, the same information is interpreted by many different people (in tandem or independently). Clearly, the infoctatic demand is enormous and likely to rapidly grow.

The new infoctatic generation, *Generation-I*, era is defined by constant digital interconnectivity, rapid reduction of physical stimulation and corporeal activities, processing of massive amounts of electronic data, immediate consumption of information and swift feed-in/feed-out processing. It should not be a surprise to anyone that this factorial-speed data explosion will have direct and lasting effects on human culture, health, social well-being and people's values. The powerful drive towards increasing the volume, velocity and scale of cognitive information processing is on a collision course with mankind's traditional culture, including physical interactions, social development and civic values. As of 2013, globally, there are more network-connected devices than humans, and more people with cell phones than people with access to sanitary toilets[1] [8]. In the Generation-I era, the virtualization of human interactions is one of the most dramatic changes observed across geographic regions, socio-economic conditions and cultural organizations. The avalanche of digital information and our craving for its rapid *en masse*

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[1] http://rt.com/news/toilet-phones-water-sanitation-663/

processing impacts people's attentions-span, promotes the need for rigid quantitative algorithms, and exacerbates our reliance on information-processing machines. This trend is different from the millennia-old human pursuit for new tools, environmental exploration and harmony with nature. The contemporary informatification of people appears to have some strong side effects – physical inabilities (e.g., 40% of California's fifth graders were not able to pass a basic aerobic fitness test[2], less than 10% of middle school kids can run 1 mile in less than 8 minutes) [9], health problems (e.g., 70% of obese youth have at least one risk factor for cardiovascular disease)[3] [10], cognitive deficits (e.g., complete GPS-reliable orientation) [11], and social anxiety (e.g., now-a-days, some groups of kids are more comfortable texting each other rather than communicating directly, even when they are physically next to each other) [12].

At 13:08 (Eastern Time) on April 23, 2013, an erroneous Twitter-report of explosions in the White House injuring President Barack Obama wiped out $200 billion of value from U.S. stock markets (DOW dropped 145 points in a minute)[4]. For comparison, the 2013-2014 annual budget of the most populous US state, California, is $99 billion, only half the value erased in 1 minute of information-overload-based stock trading. Our extreme hyper sensitivity to the volume of information, appetite for speedy processing, and aspiration for precise decision making underscore our vulnerability to instantaneous processing of colossal amounts of information.

In this process, the traditional human values, established over millennia, are quickly morphing into a new universal infocratic principles characterized by a core information-driven set of motivational goals and appraisal of ability for virtualized data interrogation. The redefinition of the social norms, in terms of the top 10 human cultural values [13], includes:

1. *Self-drive*, as individual independent thoughts, actions, choices, creativity, exploration to generate compact mass-data summaries, develop new infocratic webtools, or demonstrate news hypes.
2. *Stimulation*, as personal innovation in response to the immense and incongruent information challenges.
3. *Pleasure*, as sensuous gratification for exposure, rapid turnaround or perception of satisfactory data processing.
4. *Achievement*, as recognition of individual success demonstrating relative competence in information processing, or peer-appreciation of meta-data annotations by infocrats.
5. *Gravitas*, as the social status and prestige in the infocratic universe, indicating the right, ability, credentials of an infocrat to control and dominate over data matters, digital resources and virtual interactions.
6. *Social harmonization*, ensuring digital security, safety, and stability of individual infocrats, groups, and their interactions.
7. *Social expectations*, as peer pressures, actions, inclinations, and impulses to conform, or violate, established infoctatic attitudes, beliefs, etiquettes, and behaviors.
8. *Culture*, as compliance in terms of the infocratic community commitments, knowledgebase and phenotypic traits.
9. *Charity and compassion*, as sympathy to preserve, and inclinations to enhance, the welfare of other infocrats in the virtual community.

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[2] http://runningschool.org/getting_kids_fit.shtml
[3] http://www.cdc.gov/healthyyouth/obesity/facts.htm
[4] http://finance.yahoo.com/news/twitter-hoax-sparks-swift-stock-swoon-142013719.html

10. *Universality*, as a holistic doctrine considering all infocrats, their virtual interrelations, understandings, appreciation, tolerance, and protection for their network-based community welfare.

It's clear that the rapid technological advances, our desire for instantaneous rewards, and the massive information overflow are impacting people's everyday lives. The long term effects (over a generation) of these changes remain enigmatic and poorly understood. This limits our ability to anticipate, prepare or respond to potential negative consequences beyond our immediate myopic minute-by-minute existence in the new infocratic world – a world we created ourselves. Let's hope that our increasing virtualized abilities to manage and interpret Exabytes of information daily enables us to predict and respond appropriately, and in time, to the unavoidable social, physiologic, cultural and phenotypic changes caused by the Rise of Infocracy.

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