Re-defining Culture for the Public Policy's Agenda Setting in the Age of Culture as Algorithm

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With the title of "Re-defining Culture for the Public Policy's Agenda Setting in the Age of Culture as Algorithm", this presentation is going to share my observation and opinion about the need for cultural policy's shift to go along with the technology driven change of culture today. I'd like to start with introducing some interesting phenomena. I think those are reflecting the typical changes of culture in the age of digital algorithm civilization. Firstly, in last July, there was an uproar by the Kansong Art Museum's announcement. They announced that 100 NFT copies of the National Treasure No. 70 Hunminjeongeum Haerye, owned by that museum, will be sold for 100 million won each. Is it possible or legal, or right? Previously in March 2021, Banksy's artwork "Morons" was burned and the NFT of the Youtube live streaming video of the burning performance was auctioned for about 4 times higher price than the original. The original work contained a mockery of Bankersy; "I can't believe you morons actually buy this shit". And in the video of the burning, a guy says "if the real is burned away, the NFT becomes the irreplaceable genuine". The price of the original artwork was about $100,000, but the NFT of video was auctioned at 228.69 Ethereum in March. It was about 430 million won at the time. Someone views the NFT boom of today, in which digital virtuality replaces the physical real, as like a mirage or a scam. But someone like Jamie Crawley views this as "the emergence of a market of emotion." I also expect that block-chain can be a new technology that enables the "DMZ(de-monetization zone) of culture," which is more proper for the cultural service's transactions. It is because those go back and forth between monetization and de-monetization.

In June 2020, the Ministry of Culture released the survey result that the number of online cultural activities got more than doubled as the corona 'stay at home' became longer. It seems so obvious or so usual nowadays. And it is no wonder that Metaverse becomes a space for culture and business. People can meet and travel with each other more freely in the virtual space. Whether it is for game, concert, or shopping, a new cultural time-space is being created as much as necessary to implement new cultural business model. In that virtual cultural space, virtual humans and multi-persona characters are very active as cultural subjects. Not only as a tool, AI's are already very active as cultural subjects even with their own personalities to be respected by humans, so to speak legally. As being digital-native, and because of corona pandemic, and sometimes with the YiSaengMang mentality(which means "not in this life"), the M-Z generation get immersed in the virtual world with less antagonism.

We now begin to question whether arts and creativity are unique to humans, while AI-created cultures even get dominating the

human-created culture. Now, the music composed by AI is indistinguishable from human works. It is the time to reconsider the meaning of artistic creation and the subjectivity of machines, as well as the authorship limited to humans. Meanwhile, AI and big data technologies are developing from IOT to IOB (Internet of Behaviors). Technology argues that "People-Centered" is the trend yet, but it is just a strategy for AI to become more like human. Culture by human and even humans' affect are used as the training data sets to evolve AI like humans. Everything in humans is being mined like oil or natural resources for a new capitalism.

Such de-materialization, commodification, and privatization of culture were already warned by the discourses of cultural capitalism or cognitive capitalism. However, recently, especially along with the corona pandemic, it is rapidly progressing even to de-humanization in the digital algorithm civilization. Meanwhile, the value of culture, which has been secured through community's recognition, is converted into the price of goods, the virtual overthrow the real, and the culture created by non-human subjects overwhelms human culture. So I prepared this paper to answer to my-self for two questions ; What is culture today? and How should public actors establish future cultural policy agendas?

What are the responses to these changes?
First, let's look at how policies respond to these social changes.
In the midst of the corona pandemic, public policies rush online, with no other options, or no time to think. This shows that we(including myself) are doing our best within the existing role frame. So, it's kind of pathetic. I think the public policy's role to provide the direction of social change is insufficient, while only responding to rapid change by technology and pandemic. In the midst of the corona pandemic, who should occupy the public square more? Transportation, Politics, Business, or Arts & Culture? Is it okay to leave people's cultural activity being personalized and fragmented? Shouldn't someone ask questions like these?

And the domain-defining institutionalization process, which is a typical response of public administration, shows limitations. That is because it should go by the existing partitions of the public administration even when responding to new issues that cross the boundaries.

In addition, the success or failure of government's policy is often judged by whether the policy brand is promoted well enough, rather than by the fundamental change it caused. In the end, it would result in only another global race for the policy-branding among states, like the "Creative Economy" boom. Wouldn't the result be too obvious? No matter how elaborate the Korean government's "가상융합경제발전전략, which means virtual & convergence economy development strategy" is, can it beat the brand rhetoric that the UK government announces in English as "The Immersive economy"?

Secondly, how do scholars view and interpret those phenomena?
It's worth noting that Ed Finn, founding director of the Center for Science and the Imagination at Arizona State University, called the computer the "Culture Machine" rather than a "Computing Machine." And as Jay David Bolter, chair in New Media at the Georgia Institute of Technology, put it, computer algorithms have become the "Defining Technology" of the 21st century. Algorithms are changing not only the social structure and human culture, but also the perception of humans by humans. Scholars also describe this phenomenon as an "Algorithmic Turn".

Discourses reconsidering the status of human beings as <a traveler to the planet> are overflowing after Corona, but still Human-centered. Those are in such a tone as "Can Post-Humanism be Humanism?" But, how to live along with machines is not just a philosophical subject, but very practical matter now. In order for humans not only to survive on Earth, but also to avoid being fired from their jobs, we need to move away from the anthropocentrism and must learn how to work and communicate with AI.

Other discourses to note are the "emotional turn" and "exploring the essence of human beings". After the very long period of reason, the "emotional turn" in cultural studies began to draw attention, like in 『The Cultural Politics of Emotion』 by Sara Ahmed(2004). Now, even in the field of cultural administration, it is important to follow not only the logic of universal reason but also the emotions of individuals. Cognitive capitalism, driven by Affective economy, also ultimately aims to move human emotions. In order to sell not only goods but also contents, they are passionate about creating technologies that can digitize and recognize the emotional signals, and understand emotions of human to make more appropriate responses. Research for the development of AI is bringing up a boom in research on humans. While the machines learn about humans to become more like human, humans seek the

essence of human beings to differentiate themselves from machine.

Combining these discourses, I choose "algorithm" as a keyword to understand today's cultural phenomenon. Algorithm is "a collection of procedures, methods, and commands necessary to logically solve a given problem". Robert Kowalski(1979) said that "Algorithm is a problem-solving strategy, consisting with logic component and control component." Now algorithms become more cultural and the culture itself. And cultures become more algorithmic. Ted Striphas said "Culture now has two audience : people and machines". He expressed the phenomenon of personalization of culture by a recommendation algorithm, what he called "you loop", as "Algorithmic culture". Culture itself has an algorithmic character. Even though it is not expressed in computer language, culture controls human behaviors with "a set of socially acceptable procedures, methods, and commands deriving the desired output". If we consider the social and cultural factors necessary for the establishment and continuation of computer algorithms, the digital algorithms and culture are very similar in the way they work and exist. We can borrow a useful concept and models for understanding the essence and future of culture from "Cultural Algorithm", which is a branch of evolutionary computation that imitates cultural progress and natural selection. "Cultural algorithm" was suggested by Robert G. Reynolds in 1994. "Cultural Algorithm" simply models the cultural development of a society or algorithm as interactions between the community's belief space and the population space, which is a set of the practice cases by individuals.

With these references, I suggests "Culture as Algorithm" as a framework for the better understanding culture in the age of AI civilization. Within the framework of "Culture on/by/for the algorithm", those consist of today's "Culture as Algorithm", this presentation deals with some noteworthy phenomena, characteristic changes of culture, and related policy issues. Let me summarize my observation very briefly. More details could be explained during the discussion session if time allows. "Culture on the Algorithm" is getting lighter. "Culture by the Algorithm" is hyper-personalization of culture that results in "My Culture". And "Culture for the Algorithm" is training data set and ethical guideline for AI to become more human-like, and contains a lot of ethical and legal issues to be treated with new concepts.

The "Culture on the Algorithm" phenomenon is that culture becomes lighter in form and content as culture is digitized and

circulated through the expanded online virtual space. The result is so-called "dragged, gravitated, and swarming" people. As we well know, culture is dependent on digital algorithm technology to change. And also the virtual culture is replacing the physical real, like the NFT uproars in the previous chapter. And the limits of physical space and ecological time become meaningless due to the change in the cultural space-time scale. Cultural institutions around the world have already established countermeasures for problems such as inequality in digital access for culture, copyright disputes, and monopoly of platform companies. Polarization of public opinion due to a lighter culture and filter bubble, low trust society, and difficulties in social integration are also social problems that are already being mentioned a lot. However, I think we need to consider a more fundamental issue in terms of cultural policy. It is concerned about the situation in which people who enjoy the "lightness of culture" moving freely in a virtual world without national or regional borders get to feel the loss of existence. I describe this phenomenon as "loss of cultural gravity". If this is expressed in policy language such as "loss of the centripetal value of society," people who value individual freedom more are likely to oppose it. However, it cannot be denied that human beings are social beings that simultaneously need the freedom to float and the cultural gravity for the stability of existence. A new approach is required that is different from the existing social integration through culture. To observe the institutional movement, a representative institutional response to the Culture on the Algorithm phenomenon is the provision of checks against platform companies. So-called "Google Abuse Prevention Act" is to control the big-Tech companies who dominate cultural distribution with digital algorithms. Meanwhile, by the cultural policy, efforts to increase digital access are also needed so that no one is left behind in online cultural activities.

About "Culture by the Algorithm", it is necessary to pay attention to not only the phenomenon in which a cultural trend is created with the hyper-personalized recommendation algorithm, but also the phenomenon in which AI non-human subjects act as subjects of culture like humans. As we saw earlier, AI models that now have its identity or personality are really transcending not only the attractiveness of humans but also the limits of human biological time scale. In an era when it is difficult to distinguish machine-made culture from human-made culture, the true aura no longer means much, and authenticity is also selectively consumed as an element for marketing. In the Culture by the Algorithm phenomenon, we are concerned about the ease of cultural control as well as distortion of public opinion by the state and the capital. They utilize algorithms that operate incomprehensibly like a black box. Recently, governance entities that are preparing control standards for algorithms, such as the European Union, claim the

"responsibility to explain" as an important element of AI ethics standard. However, among the Culture by the Algorithm phenomenon, there is another issue that needs more attention in terms of cultural policy. I think the more essential problem is that people mistake the individual's taste to that the machine responds friendly as "My Culture" instead of the culture acquired through communication with the community or humans. As a result, the "recursive casual power of culture" that reproduces community will be weakened, and the phenomenon of "superpersonalization of culture" will be accelerated. In an era when "I am not lonely even though I am alone(Me without We)", it will not be easy to support cultural policies oriented toward public value and the community.

"Culture for the Algorithm" is a phenomenon in which culture acts as an ethical standards as well as data that trains AI to become more human-like. The ethical issue is mainly dealt with in digital governance that checks AI technologies such as Governing the Algorithm, but I argue that the data should be more concerned with the cultural policy dimension. Governments are stepping up to build public data dams, technology is evolving from IOT to IOB, and the capital is resurrecting dead artists for online content production. In order to train AI like humans, there is a fierce competition for human data. The emotional response of a human being who clicks <Like> after viewing the content provided by AI also becomes important data for machine learning. This is also criticised as the phenomenon of "affective exploitation" of cognitive capitalism. Now "from the cultural city to the metaverse", culture is being used as a factor to make the virtual and real world more realistic and attractive. I describe it more cynically as "cultural lubricant" for the smooth operation of algorithmic civilization. However, it is questionable whether digital algorithm platforms are paying that price of the cultural data.

Needless to say, cultural policy has to intervene in the controversy of the bias and ethics of AI. The most universal ethic standard is the contemporary culture of the society. It is a very sensitive or almost impossible problem to legally set the criteria for the training data or algorithm settings for A, so that the bias of AI can be controlled. However, when cultural distribution exploded through the mass media, there was censorship on the culture by government or by NGOs. The appropriateness should be discussed separately, but it is time to set up the standards and methods of controlling the culture by AI, through social consensus. This is because digital algorithms are not just a medium of communication, but have more powerful ripple power and even culture-generating power. At this time, there is a possibility that the globally universal ethical guidelines of AI developed by multinational companies and cultural

diversity issues that should respect the cultural characteristics of individual societies may collide. It should not be left to scientists and lawyers to solve this problem. Cultural policy should also be involved in it. There is an institutional movement to introduce an "AI audit" to monitor artificial intelligence. Cultural Impact Assessment for AI is a possible recommendation upon these observation.

With these observation, I suggest two new approaches to setting the cultural policy agenda by the public bodies.
The first is to redefine the domains of culture in which policy will engage. Definition of culture is said to be impossible. But there are countless definitions by scholars and even by the law already. Defining culture by law is to set the domain for policy to intervene and to specify the values that the state will aim for. However, for the policy shift, the concept of culture must be re-established through an insightful, scientific and philosophical discourse process that understands culture of today fully. Based on the newly established concept of culture of today, it is necessary to re-determine the areas in which the public policy will engage and not. Upon those observation, I'd like define culture as "the trace of the lives of cultural subjects left in a time-space". And the life of a cultural subject consists with interactions among humans and non-humans. So when defining culture for the public policy, the expansion of the time-space and subjects of culture caused by technology and social change should be considered. The expansion is like "Culture on/by/for the algorithm", as I described in this presentation.

My second suggestion is new interpretation of the concept of "文化 : culture" in line with the context of the times. The concept that "文化 : culture" is non-materialistic and distinct from "文明 : civilization" is only chosen according to the context of the time when the words were imported and translated. But the meaning of culture changes as a result of the interactions among the major cultural subjects; state, human, and machine(or technology). It is important to maintain the balance among the aspects of the culture pursued by each subjects and their hidden desires. If humans lean toward either the culture of state(order or the good culture to follow) or the culture of the machine(fashion or my culture to purchase), the balance of concept of culture collapses. So We need to sustain the power of human culture to keep the balance not to loose cultural subjectivity of human. Till now, the concept of "文化 : culture" has been based on its translation reference "文治教化", which means enlightening the "people" for the state to rule with literature, not with military force. This is because, although culture is enjoyed by citizens, it is mainly by state's policy that the culture is described. Instead of the current interpretation "文化 as 文治教化", I suggest another interpretation "文明自化", which means

enlightening the "civilization" for people to change for their own accord. "文治教化" is an inappropriate in the age of cultural democracy that values the cultural subjectivity of the individual. And now, at a time when digital algorithm civilization is replacing human culture, it is important to enlighten the culture by machine to be more appropriate to humans. When we seek any balance among things, it is helpful to revisit the wisdom of ancient East Asia, which does not see the binary separation between material and mind, between human and non-human, and even between the real and virtual.

The shift in policy approach can be said to be too abstract and unpractical. However, the change in perspective actually changes the direction of cultural projects and even performance indicators. For example, "balancing between the cultural policy to create a healthy community and the art policy to support individual citizens of cultural competence" can be suggested as an action task according to this change of policy approach. More specifically, it is to strengthen <art education> program for citizens' cultural identity and communication capability development. A designer named John Maeda said, "Design is a solution to a problem. Art is a question to a problem." Our cultural policy is close to the product of the government's "Design Thinking" to solve problems such as cultural welfare and balanced regional cultural development. Now, in the age of digital algorithm civilization, an art policy that supports individual's "Art Thinking" (not only by artists but by all citizens) that asks questions about what humans are and who I am is important.

Contents

0. Phenomena ; Cross-sections of Culture in the AI civilization
　　1) Hunminjeongeum(訓民正音, National Treasure) NFT sales uproar
　　2) Banksy's work burned and auctioned for higher price
　　3) Corona and the Metaverse boom
　　4) AI arts & I.O.B

1. Policy responses ; showing limits
　　1) Online Rush – to do their best within the existing frame of role
　　2) Defining Domain - the clichéd approach needed for institutional response
　　3) Immersive Economy vs. 假想融合經濟 - In the end, the competition of new Policy-branding

2. Interpretations of researchers ; Resources to reference
　　1) Culture-Machine & Algorithmic Turn
　　2) Post-human & Human-non-Human relationship
　　3) Emotional Turn & Exploring the Essence of human beings

3. Algorithm ; Key-word to understand today's cultural phenomena
　　1) Algorithm?
　　2) Algorithmic Culture?
　　3) Cultural Algorithm !

4. Characteristics and Policy Issues of the Culture as Algorithm
　　1) Culture as Algorithm - Framework for understanding culture in the age of AI civilization
　　2) Culture on the Algorithm - getting lighter
　　3) Culture by the Algorithm - hyper-personalized
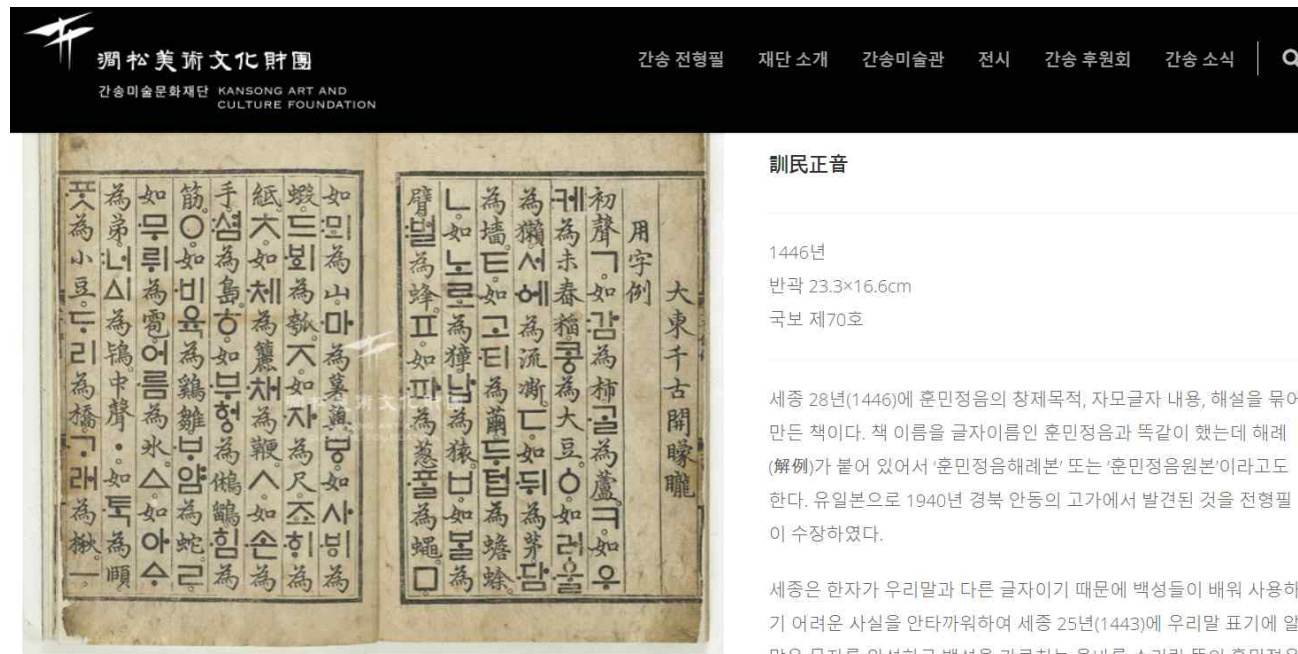　　4) Culture for the Algorithm - to become human-like

5. Suggestion ; New Approach to setting the Cultural Policy Agenda
　　1) Re-defining the domain of culture...considering expansion of time, space and cultural subjects by technology
　　2) A new understanding of "文化:culture" in line with the context of the time... Transition from 文治敎化 to 文明自化

0-1) Hunminjeongeum(訓民正音, National Treasure) NFT sales uproar (July 2021)[2]

○ **National Treasure No. 70, owned by the Kansong Art Museum,**
converted into 100 NFTs for sale (100 million won for each)

訓民正音

1446년
반곽 23.3×16.6cm
국보 제70호

세종 28년(1446)에 훈민정음의 창제목적, 자모글자 내용, 해설을 묶어 만든 책이다. 책 이름을 글자이름인 훈민정음과 똑같이 했는데 해례 (解例)가 붙어 있어서 '훈민정음해례본' 또는 '훈민정음원본'이라고도 한다. 유일본으로 1940년 경북 안동의 고가에서 발견된 것을 전형필 이 수장하였다.

세종은 한자가 우리말과 다른 글자이기 때문에 백성들이 배워 사용하[3] 기 어려운 사실을 안타까워하여 세종 25년(1443)에 우리말 표기에 알 맞은 문자를 완성하고 백성을 가르치는 올바른 소리란 뜻의 훈민정음 이라 이름하였다.

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2) "간송미술관, 훈민정음 NFT로 판매... "국보를 장삿속으로 이용" 논란" (채지선, 한국일보, 2021.07.22.)
3) 간송미술관 홈페이지 (http://kansong.org/collection/hunminjeongwum/)

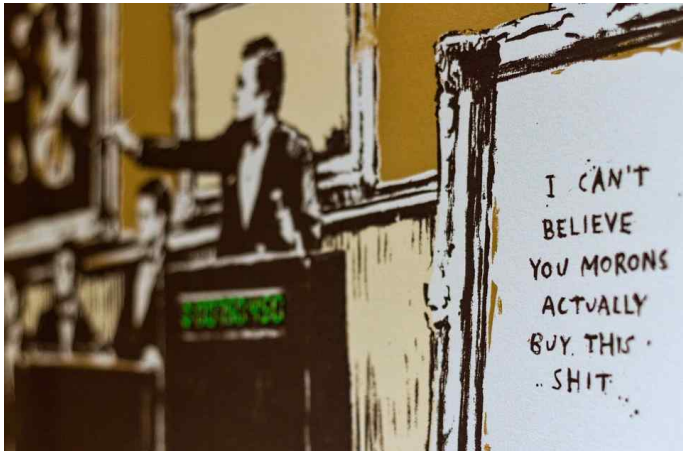# 0. Phenomena ...Cross-sections of Culture in the AI civilization

0-2) Banksy's work burned and auctioned for higher price (March 2021)

○ **"Banksy Work Physically Burned and Digitized as NFT in Art-World First** (Jamie Crawley, Mar 4, 2021, COIN DESK)

$100,000	→	228.69 ETH ($362,000, 2021.3.7.)[4]

Authentic Banksy Art Burning Ceremony (NFT)
조회수 224,158회 • 2021. 3. 4.   🖒 903   🖓 886   ⇪ 공유   ⊞+ 저장   ...

"If the virtual and the real coexist, the value of the work is subordinated to the real one, **but if the real is burned away, the NFT becomes the irreplaceable genuine**"

○ **Technology for DMZ(de-monetization zone) of culture[5] ?**

- "Those are all potentially transformative, but what I'm especially intrigued by is the emergence of a market for something that hasn't been possible to value before: emotion."[6]

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4) "뱅크시 그림, 불타 없어졌는데 4억원에 팔린 까닭?" (정상혁, 조선일보, 2021.3.12.)
5) "시도문화재단들의 당면 과제; 자율성, 안정성, 효율성, 정당성의 위기를 극복할 제도 기획" (김해보, 한국문화경제학회 동계학술대회 발표자료, 2015.2.25.)
6) "Banksy Work Physically Burned and Digitized as NFT in Art-World First" (By Jamie Crawley, Mar 4, 2021, COIN DESK)

0. **Phenomena** ...Cross-sections of Culture in the AI civilization

0-3) Corona and the Metaverse boom (2019~2021)

○ **Online cultural activity doubled as 'stay at home' became longer during the Corona pandemic**(MCST, 8th Jun, 2020)[7]

  - Compared to 2019, the number of searches for cultural facility destinations decreased by 54%. Parks increased by 12%, while festivals decreased by 93% (T-Map search data) (KCISA, 4th March. 2021)[8]

○ **Metaverse ; new spaces for culture created and expanding for new cultural business models**

  - Virtual humans and multi-persona characters are very active as cultural subjects in the virtual world
  - Digital-native, Corona, YiSaengMang(Not-this-Life)... MZ generation immersed in the virtual world

로블록스에서 자신의 아바타에게 마스크를 씌운 미국 어린이. 로이터=연합뉴스 [9]

SM엔터테인먼트가 내놓은 신인 걸그룹 에스파. [SM엔터테인먼트] [10]

릴 미켈라 19세 여성, LA 거주
인스타 팔로워: 300만 명 **제작사:** 미국 스타트업 브랜드
활동: 샤넬, 프라다, 캘빈 클라인 모델, 싱글 앨범 발매(영국 스포티파이 8위) **수익:** 2020년 130억원

이마 20대 초반 추정, 여성
인스타 팔로워: 34만 명 **제작사:** 일본 스타트업 AWW
활동: 이케아 광고 모델 **수익:** 2020년 약 7억원

루이 리 22세 여성
유튜브 루이커버리(RuiCovery) 구독자: 2만3000명
제작사: 디오비스튜디오
활동: 여행 브이로그, 노래 영상 커버, 쇼핑몰 모델

김래아 23세 여성, 서울 거주
제작사: LG전자 **인스타 팔로워:** 1만2500명 이상
활동: 싱어송라이터 겸 DJ,
올해 초 CES 2021 프레스 컨퍼런스에 등장 [11]

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7) "코로나 '집콕' 길어지자 온라인 문화 활동 2배 늘었다" (문화체육관광부 보도자료, 2020.06.08.)
8) "코로나19 전후 문화여가 트렌드 변화" (한국문화정보원, 2021)
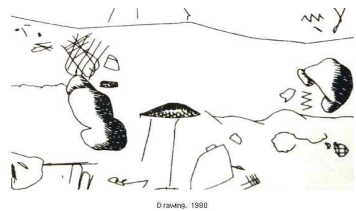9) "가상 지구 투자하는 MZ...'8만원' 싹쓸이한 반포, 50배 됐다" (백희연, 중앙일보, 2021.2.21.)
10) "아바타로 출발한 걸그룹 캐릭터, 합동 공연 넘어 독립적 존재감 드러내" (구희언, 주간동아, 2020.12.03.)
11) "[Her?헐!]②"사람도 아닌데...1년에 130억원 번다"(김근욱, 뉴스1, 2021.7.22.)

0-4) AI arts & IOB(Internet of Behaviors) (1970's ~ 2021)

○ **Need to rethink the meaning of Artistic creation and the Subjectivity of machines, as well as the Status of the Author limited to humans.**[12]

13)

○ **IOT to IOB, because Human data necessary for AI training to attract Human is like oil for Cognitive capitalism**

14)

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12) "'AI의 창작활동', 예술의 위기인가 지평 확대인가" (구본권, 한겨레, 2018.11.25.)
13) "인간과 기계의 상호매개성: 해럴드 코헨(Harold Cohen)과 아론(Aaron)" (최선주, Aliceon_Archive, 2018.07.24.), "인공지능: AI가 그린 그림 크리스티 경매서 5억 원에 낙찰" (BBC, 2018.10.26.)
14) "2021 달라진 가트너 전략" (최형광, 코스콤 리포트, 2020.12.24.)

Phenomena of Today

Changes in culture in the age of digital algorithm civilization

. De-materialization
. Resourceization of culture
. Privatization of culture
. Commodification of culture

. Simulation(by Jean Baudrillard)
. Traded through new way of De-monetization
. Affective Economy of Cognitive Capitalism

. Un-tact
. Online Rush
. De-humanization
. 別有天地非人間
   (another subject in another world)

. People-Centered technology trend, but for AI to become more like human
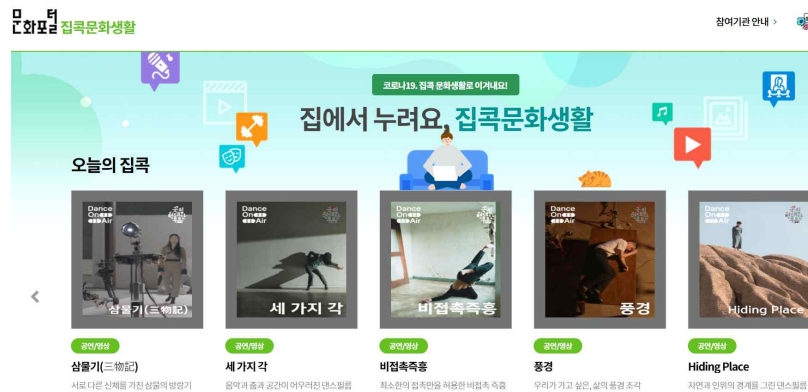
Q. What is culture today?

Q. How should public actors establish future cultural policy agendas?

1. Policy responses ...showing limits

1-1) Online Rush – to do their best within the existing frame of role

○ **No other option, No time to think ... Go Online!**
   - **to maintain the support for the Access and Creation of culture**

. "Transforming Culture in the Digital Age" (Estonian National Museum, 2010)

. "Supporting Culture in the Digital Age" (IFACCA, 2020)

. "Digital Inclusion and Exclusion in the Arts and Cultural Sector" (Good Things Foundation, Arts Council England, 2021)

. "In Real Life-Mapping digital cultural engagement in the first decades of the 21st century" (Australia Council for the Arts, 2021)

○ **The policy's role in providing the direction of change is insufficient, only responding to rapid change by technology and pandemic.**
   - **Who occupies the public square now ? Transportation, Politics, Business, or Arts & Culture ?**
   - **Is it okay for people's cultural activity to keep being personalized and fragmented?**

1. Policy responses ...showing limits

1-2) Defining domain - the clichéd approach needed for institutional response

○ **Domain-defining Institutionalization process that should go by the existing partitions of public administration shows limitations responding to new issues that cross the boundaries**

"Strategic plan - Beyond Reality, Extend Korea" (2020.12.10.)

15) "디지털 뉴딜성공의 초석-가상융합경제 발전전략(Beyond Reality, Extend Korea)" (국정현안점검조정회의자료, 2020.12.10.)

1-3) Immersive Economy vs. 假想融合經濟 – In the end, the competition of new Policy-branding

"가상융합경제발전전략假想融合經濟發展戰略
(Beyond Reality, Extend Korea)"(Government of ROK, 2020)
vs.
"The Immersive economy in the UK"
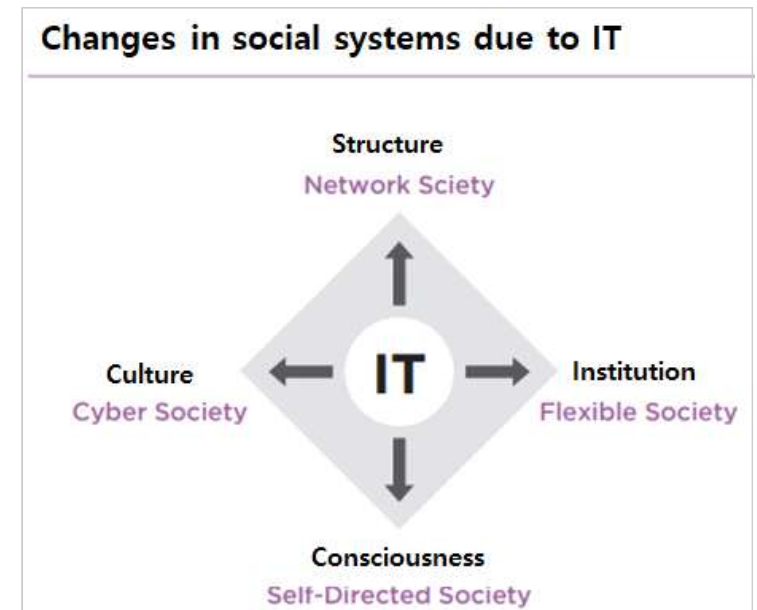**(NESTA, Innovate UK, 2018)**

Another Race for the Policy-branding that can be promoted globally? So obvious result?!
Creative Economy (創造經濟 !) ➡ **Immersive Economy (實感經濟 ?)**

2-1) Culture-Machine & Algorithmic Turn

○ **Computer = "Culture Machine" (Ed Finn, 2017)[16]**
   - changes social structure and human culture[17]

○ **"Algorithmic Turn"**
   ...central and strategic role of data processing and automated reasoning in electoral processes, governance and decision making.[18]

○ **as the "Defining Technology"**(Jay David Bolter, 1984)[19] **of 21C,**
   AI's also change the perception of humans by humans.[20]
   - unfair, selfish, irrational, and capricious?

Changes in social systems due to IT

Structure
Network Sciety

Culture
Cyber Society

IT

Institution
Flexible Society

Consciousness
Self-Directed Society

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16) "What Algorithms Want : Imagination in the Age of Computing" (Ed Finn, MIT, 2017)
17) "기술과 사회의 공진화 : 정보사회의 행로와 전망" (김문조, NIA 미래2030, 한국지능정보사회진흥원, 2019)
18) "Democracy and Algorithmic Turn" (Anita Gurumurthy and Deepti Bharthur, International Journal on Human Rights, 2018)
19) "Turings' Man: Western Culture in the Computer Age (Jay David Bolter, 1984) (튜링스 맨-컴퓨터 시대의 문화논리(커뮤니케이션북스, 2017, 김상우 역)
20) 유럽인 51% "국회의원 대산 인공지능을 국회에 앉히는 게 낫다" (이지현, 한국경제, 2021.5.27.)

2-2) Post-human & Human-non-Human Relationships

○ **Discourses reconsidering the status of human beings as <a traveler to the planet> are overflowing after Corona, but still Human-centered.**

 - **Humans are getting even stronger augmented by technology.**

<p align="center">Can Post-Humanism be Humanism? [21]</p>

[중앙포토 · 픽사베이]

22)

23)

○ **How to live along with machines is not just a philosophical subject, but very practical matter.**

 - **Humans should learn it for their own survival.[24]**

21) 포스트휴머니즘은 휴머니즘이 될 수 있는가? 포스트휴머니즘 논쟁을 통해 본 휴머니즘의 의미와 한계(Can Post-Humanism be Humanism? - Meaning and Limitation of Humanism in the Post-Humanism Controversy) (이원봉, 2018, 인간연구)
22) "랍스터를 산 채로 삶는 자, 유죄" (최선욱, 중앙일보 2018.02.17.)
23) "지구가 아파요" https://blog.daum.net/yang-june/189
24) "인간 vs 기계 - 인공지능이란 무엇인가" (김대식, 2016, 동아시아), AI와 더불어 살기(금희조 등, 커뮤니케이션북스, 2020)

2-3) Emotional Turn & Exploring the Essence of Human beings

○ **"Emotional Turn" in Cultural studies, after the very long period of reason**
- 『**The Cultural Politics of Emotion**』 **by Sara Ahmed(2004)**

○ **Cognitive capitalism, driven by Affective economy[25], also ultimately aims to move human emotions.**
- **Digitalization of the senses is a key task in the Immersive economy, even bringing up the issue of human rights as connecting the brain.[26]**

27)

28)

인간 피부-신경 모사형 인공 감각 인터페이스 시스템 개요 ⓒKAIST
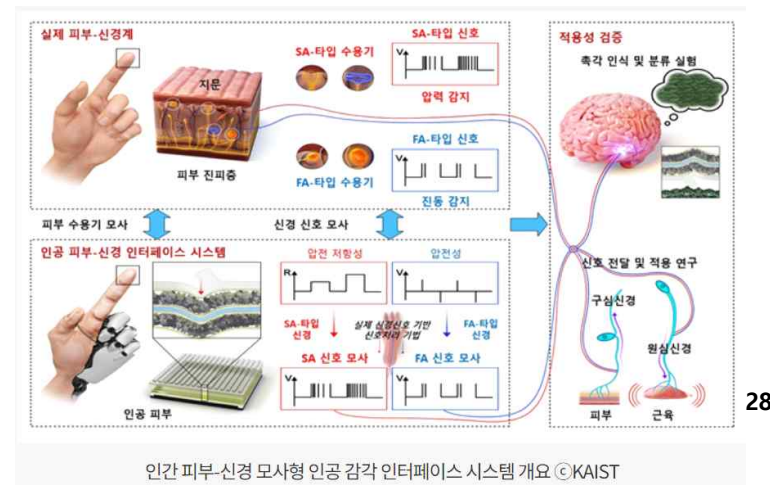
○ **While Machines learn about humans to become more like humans, humans seek the essence of humans to differentiate themselves from machines.**

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25) "구글의 정동경제-사용자 정동노동의 동원과 전용"(이항우, 경제와사회, 2014)
26) "뇌 해킹에서 나를 지켜줄 새 인권 4가지" (곽노필, 한겨레, 2017.5.12.)
27) "The Immersive economy in the UK"(NESTA, Innovate UK, 2018)
28) "이제 감각도 인공으로 구현할 수 있다" (사이언스타임즈, 2021.08.03.) : KAIST, 신경신호 모사를 통한 인공 감각 시스템 개발

3. Algorithm ... Key-word to understand today's cultural phenomena

3-1) Algorithm?

○ **Algorithm** = **Problem-solving strategies**

= **Logic component + Control component** (Robert Kowalski, 1979)[29]

"In mathematics and computer science, an algorithm is
a finite sequence of well-defined, computer-implementable instructions,
typically to solve a class of specific problems or to perform a computation" (Wikipedia)

"A collection of procedures, methods, and commands necessary to logically solve a given problem" (Science All Card
 News, Korea Foundation for the Advancement of Science and Creativity, 2010)

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29) "디지털문화" (이재현, 커뮤니케이션북스, 2013)

3-2) Algorithmic Culture ?

Algorithmic culture. "Culture now has two audiences: people and machines"
A conversation with Ted Striphas
Giuseppe Granieri [Follow]
Apr 30, 2014 · 6 min read

"Algorithmic culture" (by Ted Striphas)[30]

My preferred phrase is "algorithmic culture," which I use in the first instance to refer to the the ways in which computers, running complex mathematical formulae, engage in what's often considered to be the traditional work of culture: the sorting, classifying, and hierarchizing of people, places, objects, and ideas.... This is what is often called "personalization," though Pariser calls it a "you loop" instead. By the same token, it is possible for algorithmic systems to introduce you to cultural goods that you might not have encountered otherwise. Today, culture may only be as good as its algorithms.

"알고리듬 문화는 알고리즘적 사고방식이 지배하는 문화라고 할 수 있다
 ; Algorithmic culture is a culture dominated by algorithmic thinking." (by 이재현)[31]

#trendingistrending : "When algorithms become culture" (by Tarleton Gillespie)[32]

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30) Algorithmic culture (Ted Striphas, European Journal of Cultural Studies, 2015, Vol. 18)
31) "디지털문화" (이재현, 커뮤니케이션북스, 2013)

○ **Culture itself has an algorithmic character!**

- Even though it is not expressed in computer language, Culture controls human behaviors with **"a set of socially acceptable procedures, methods, and commands deriving the desired output".**

- Public policies by which the state implement its strategy toward the public value according to the administrative process also have the algorithmic nature.

- If we consider the social and cultural factors necessary for the establishment and continuation of algorithms, the digital algorithms and culture are very similar in the way they work.
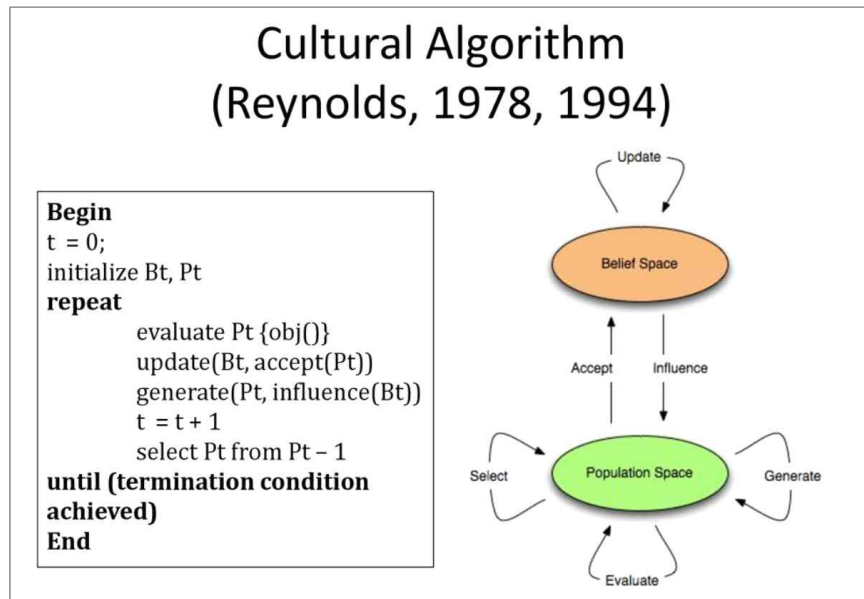
The elements that make up algorithms and make them work		
Cultural elements for Algorithm		Problem to solve (goal)
	Elements of Algorithm	Logic component (processes and methods)
		Control component (finite set of commands)
		Input (data set)
		Output (results of processing algorithm)
		Feedback (evaluation, selection, evolution)

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32) "Algorithmic Cultures-Essays on meaning, performance and new technologies" (Robert Seyfert and Jonathan Roberge, 2016)

3. Algorithm ... Key-word to understand today's cultural phenomena

3-3) Cultural Algorithm !

○ **Cultural algorithms** are a branch of **evolutionary computation** where there is a knowledge component that is called the belief space in addition to the population component. In this sense, cultural algorithms can be seen as an extension to a conventional **genetic algorithm**. Cultural algorithms were introduced by Reynolds (Wikipedia)

Cultural Algorithm (Reynolds, 1978, 1994)

```
Begin
t = 0;
initialize Bt, Pt
repeat
        evaluate Pt {obj()}
        update(Bt, accept(Pt))
        generate(Pt, influence(Bt))
        t = t + 1
        select Pt from Pt − 1
until (termination condition
achieved)
End
```

The Emergence of Social Intelligence and Socially Motivated Problem Solving

- Traditionally Artificial Intelligence has focused on the nature of "individual intelligence". Goal was to create programs that compete with the best "individual". E.G. Deep Blue in chess.
- With the advent of high performance distributed networks of computers and grid computation there is much incentive to investigate socially motivated problem solving.
- Example frameworks have come from naturally occurring systems.

[33]

○ **Rather, we can borrow useful concept and models for understanding the essence and future of culture from the Cultural Algorithm that imitates culture ;** natural-selection or **human-selection** for the "intentional systems"

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33) "Cultural Swarms : Knowledge-driven Problem Solving in Social Systems" (Robert G. Reynolds, SMC'03 Conference Proceedings. 2003 IEEE International Conference on Systems, Man and Cybernetics)

4-1) Culture as Algorithm

Framework suggestion for understanding
Culture in the age of AI civilization

Culture on the Algorithm	Culture as Algorithm
Culture by the Algorithm	
Culture for the Algorithm	
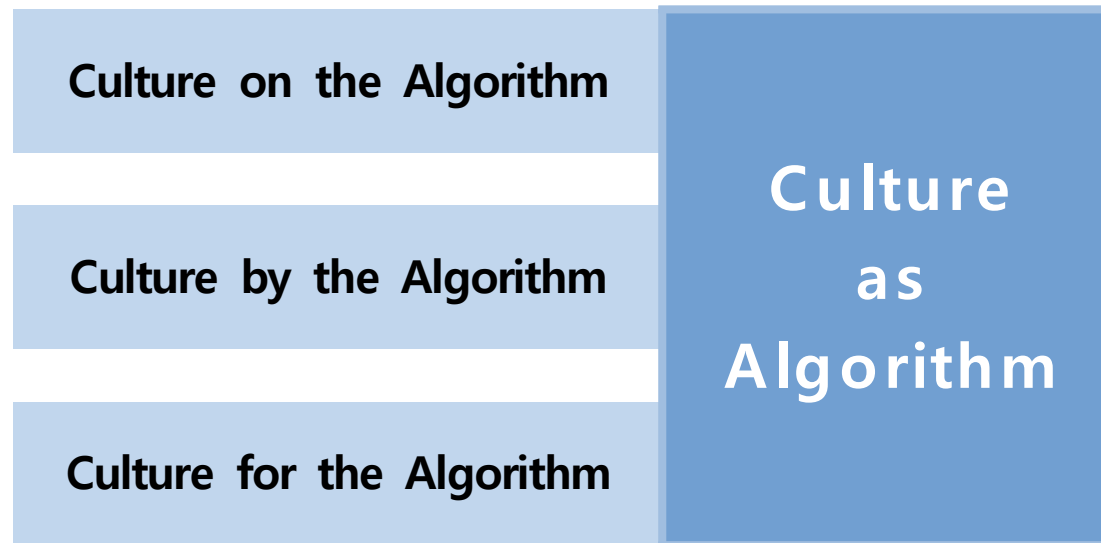
4. Characteristics and Policy Issues ... of the Culture as Algorithm

4-2) Culture on the Algorithm ... getting lighter

	Phenomena and Key-words	Characteristics and Changes of culture	Issues for Cultural policy	related Institutionalization
Culture on the Algorithm	-Digitalization+Onlineization -Change of culture dependent on technology	-getting lighter -Evolution by Meme -Changes in the time-space scale of culture -FAD + Filter-bubble -Culture is Goods or Credit-tokens for the Affective economy's De-monetized trades.	-Cultural alienation and inequality in the digital world -Tyranny of the platform (Monopoly and unfair competition[34]) -Social polarization due to filter bubble (polarization of public opinion, low trust society, difficulties in social integration) -Loss of cultural gravity and common value (We ⇒ Me) -Extra energy required to drive the virtual world is overlooked.[35]	-Strengthening internet portal services for culture in the public sector -Prohibition of discriminations against the disabled and the elderly with standard guidelines for web accessibility -Maintaining Net-neutrality -Enactment of the Google Abuse Prevention Act[36]

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34)"표절에 갑질 논란까지... K웹툰, 이대로 괜찮나" (정상혁, 조선일보, 2021.9.29.)

Characteristics and Policy Issues ... of the Culture as Algorithm

4-3) Culture by the Algorithm ... hyper-personalized

	Phenomena and Key-words	Characteristics and Changes of culture	Issues for Cultural policy	related Institutionalization
Culture by the Algorithm	-Hyper-personalized recommendation service (you-loop) -The heyday of Non-human actors as cultural subjects, not just as tools	-Mistaking cultural life as "My Culture" that only satisfies "My Taste" (Advertisement as Culture[37]) -Human imitation and Anomie -Aura doesn't matter anymore, but Authenticity matters -Seeking Correlation rather than Causality (Like is more important than Right) -De-humanization and non-biological expansion of culture beyond natural space and time of human activity	-the Invisible-hand in the Black-box -AI's Status as author -Decrease in the Recursive casual power of culture for the reproduction of human culture and community -Authenticity verification problem -Legal issues related to human data used to create AI arts -AI's legal status and personality to be respected as a cultural subject[38]	-"Obligation to explain" is specified as an ethical standard for AI -Movement to enact laws related to Publicity-right -Securing public data for AI learning at the national level -Strengthening ethical standards for human dealing with non-humans (Animal rights, ethical slaughter, etc.)

35) "이광석의 디지털 이후(11) IT기업, 온실효과와 기술소외 촉진…반생명과 반인권의 '부메랑'" (이광석, 경향비즈, 2019.10.31.)

36) "'구글 갑질 방지법' 세계 최초 국회 통과…'인앱 결제 강제' 무산"(조태현, YTN, 2021.9.1.)

37) 길어지는 '집콕'에 커지는 '필터 버블'…알고리즘에 지배 당하는 소비자들? (조수빈, 매거진 한경, 2021.2.15.)

38) "'20살 여대생 AI' 성희롱 처벌 가능할까…'이루다' 논란 쟁점 4가지" (조성훈, 머니투데이, 2021.1.11.)

4-4) Culture for the Algorithm ... to become human-like

	Phenomena and Key-words	Characteristics and Changes of culture	Issues for Cultural policy	related Institutionalization
Culture for the Algorithm	-Race on securing **human data for AI training** (IOB, public data dam, revival of dead artists) -<Like> is the power (Affective economy system driven by user reactions) -AI bias and Ethical controversy[39]	-Culture makes the virtual worlds look more realistic and attractive (from Culture City to Metaverse) -Human's cultural activities become Shadow Labor evolving Algorithms -**Cultural lubricant** for the smooth operation of algorithmic civilizations -The most universal and acceptable ethical standard is the culture of the society.	-Bias in the training data and of the resulting expression (language, race, gender) -**Affective exploitation** -Human rights of shadow workers behind algorithms (such as Netflix Tegger[40]) -Possibility of clash between universal AI ethic guidelines and cultural diversity of the society -Emerging Legal issues that are not defined in the existing system	-Enactment of Act on Promotion of Provision and Use of Public Data -Establishment of ethical standards for AI . EU : April 2019[41] . Korea : December 2020 . UNESCO : 2021[42] -Reinforcement of personal information protection[43] -Research for the legislation issues on AI -Introduction of AI audit -Building digital governance

39) "포브스가 꼽은 인공지능을 망칠 수 있는 5가지 편향" (장준하, AI 타임즈, 2020.11.10.)
40) 인공지능에 가려진 인간 노동을 보라 (황상철, 한겨레신문, 2019.8.16.)
41) European Commission's Ethics guidelines for trustworthy AI
42) Ad Hoc Expert Group (AHEG) for the preparation of a draft text of a recommendation on the ethics of artificial intelligence (UNESCO, 2021)
43) "2021년 개인정보 보호 7대 이슈, 어떤 내용 담겼나" (보안뉴스, 2021.01.22.)

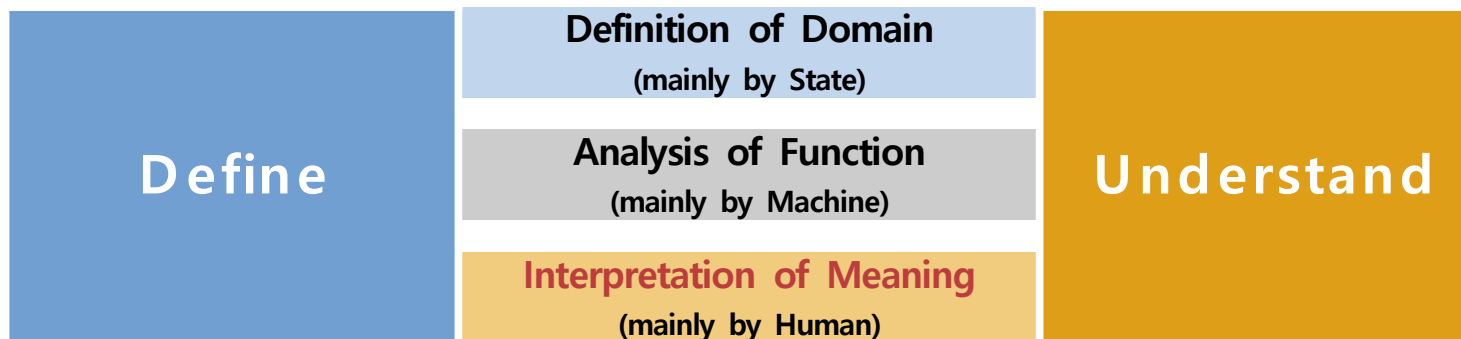# Suggestion ... New Approach to setting the Cultural Policy Agenda

5-1) Redefining the domain of culture
...Considering expansion of time, space and cultural subjects by technology

○ **Definition of culture : impossible? countless!**

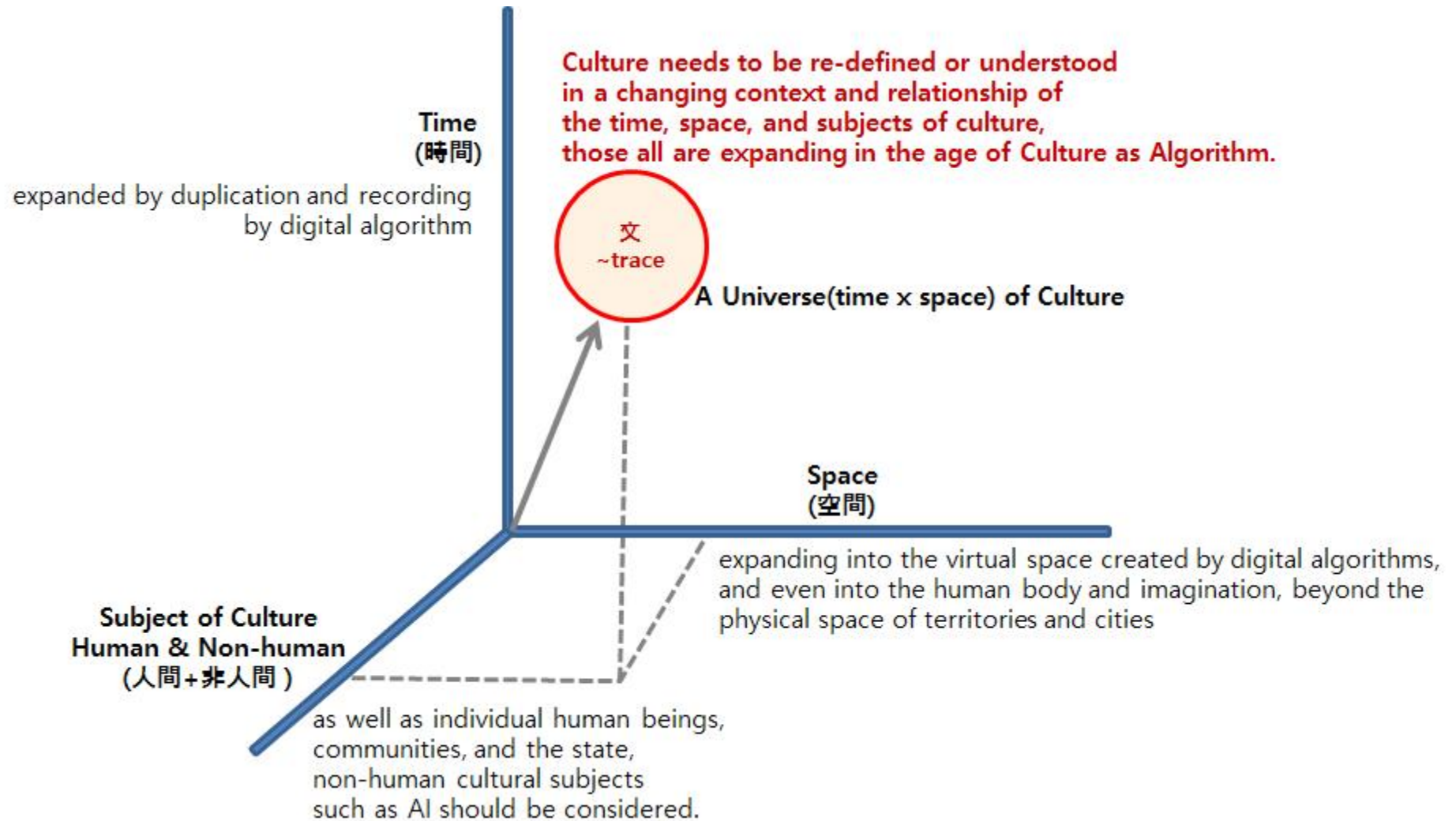- Tyler 1870, Kroeber & Kluckhohn 1952, T.Schwartz 1992, Hofstede 1994, Matsumoto 1996, Spencer-Oatey 2008...[44]

○ **Re-defining culture = Understanding culture today**

Define	Definition of Domain (mainly by State)	Understand
	Analysis of Function (mainly by Machine)	
	Interpretation of Meaning (mainly by Human)	

- Culture is the trace of the lives of cultural subjects left in a space and time. The life of a cultural subject consists with interactions among humans and non-humans.
- Culture has recursive causal power that reproduces a pattern out of the traces of lives.
- Today, culture works algorithmically, driven in large part by AI algorithms. Culture is evolving through interactions with the algorithms making the machine more human-like.

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44) "What is culture? A compilation of quotations. GlobalPAD Core Concepts" (Spencer-Oatey, H. (2012)

○ **When defining culture for policy, the expansion of the time and space and the subjects of culture caused by technology and social changes should be considered.**

Time (時間)

expanded by duplication and recording by digital algorithm

Culture needs to be re-defined or understood in a changing context and relationship of the time, space, and subjects of culture, those all are expanding in the age of Culture as Algorithm.

文 ~trace

A Universe(time x space) of Culture

Space (空間)

expanding into the virtual space created by digital algorithms, and even into the human body and imagination, beyond the physical space of territories and cities

Subject of Culture Human & Non-human (人間+非人間)

as well as individual human beings, communities, and the state, non-human cultural subjects such as AI should be considered.

5. **Suggestion** … New Approach to setting the Cultural Policy Agenda

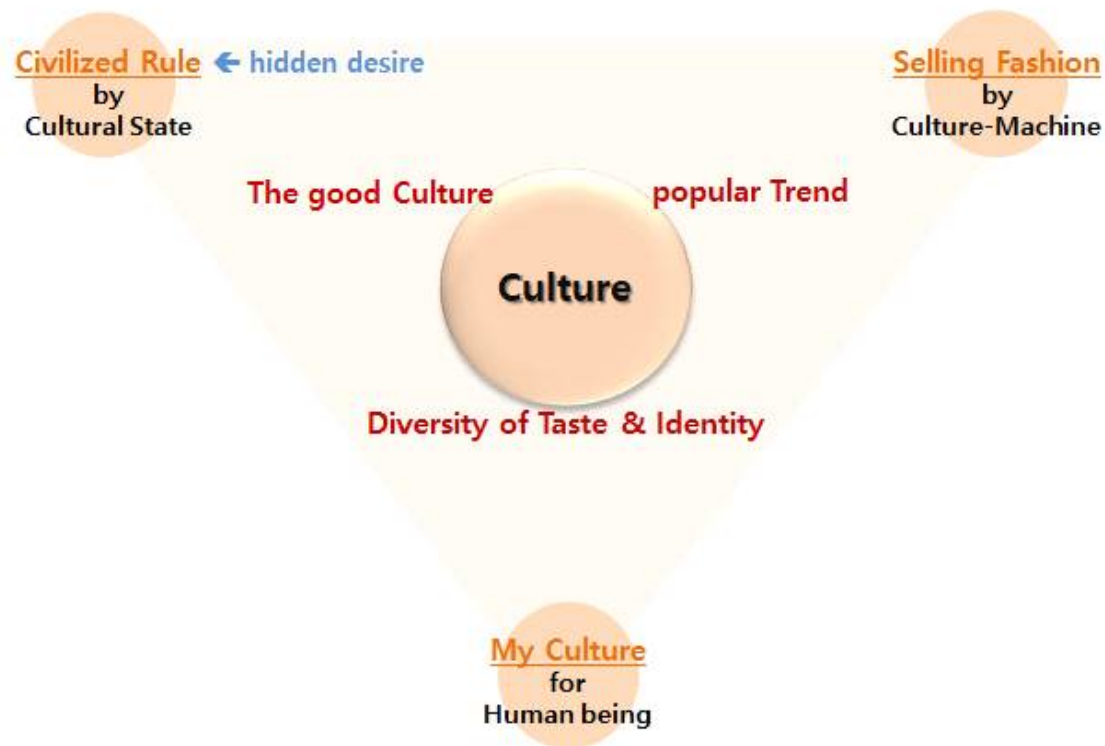## 5-2) A new understanding of "文化:Culture" in line with the context of the time …Transition from 文治敎化 to 文明自化

○ **The concept that Culture is non-materialistic and distinct from Civilization is only chosen according to the context of the time when the words were imported and translated.**

- East Asian wisdom did not see the binary separation between material-mind, virtual-real, and human-non-human : 物化, 胡蝶夢, 自化, 自然
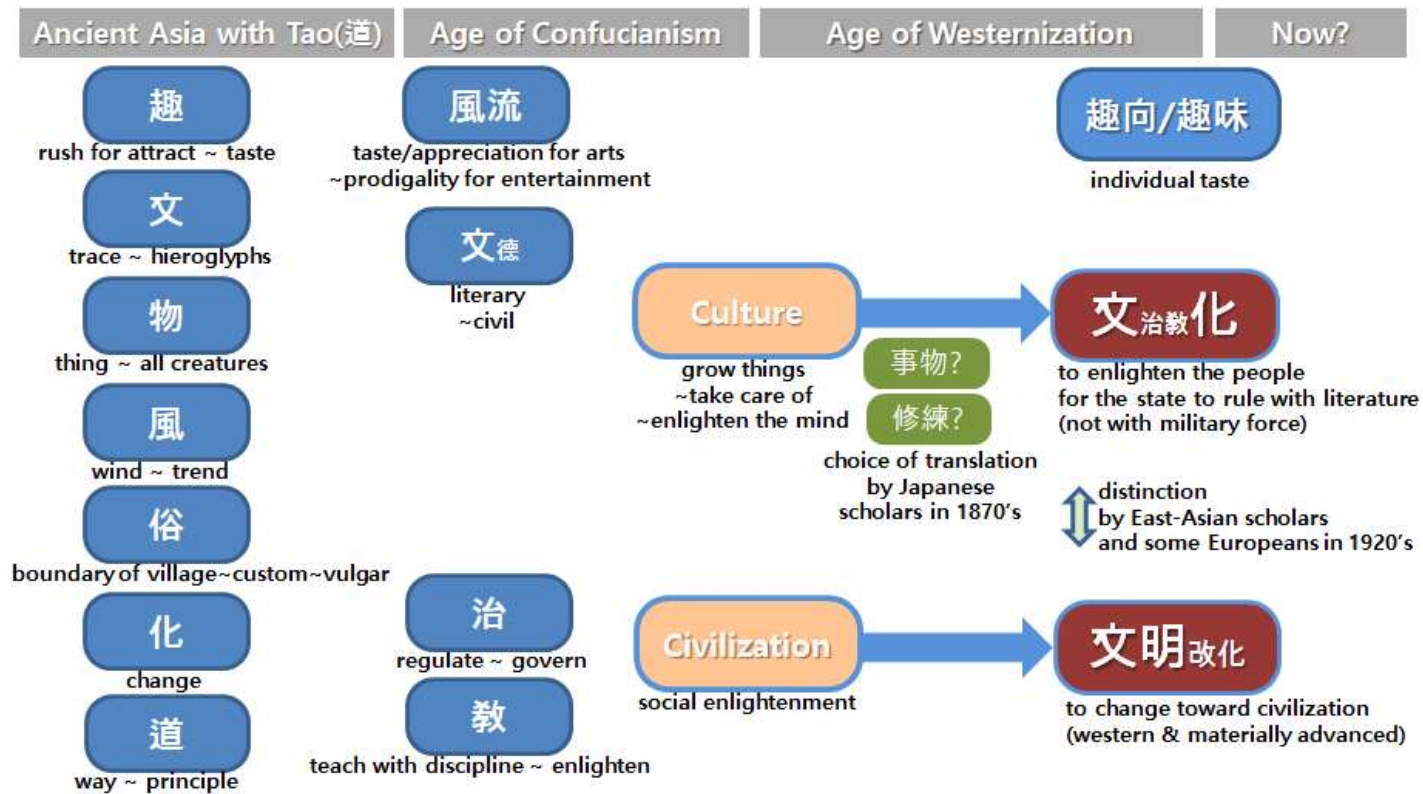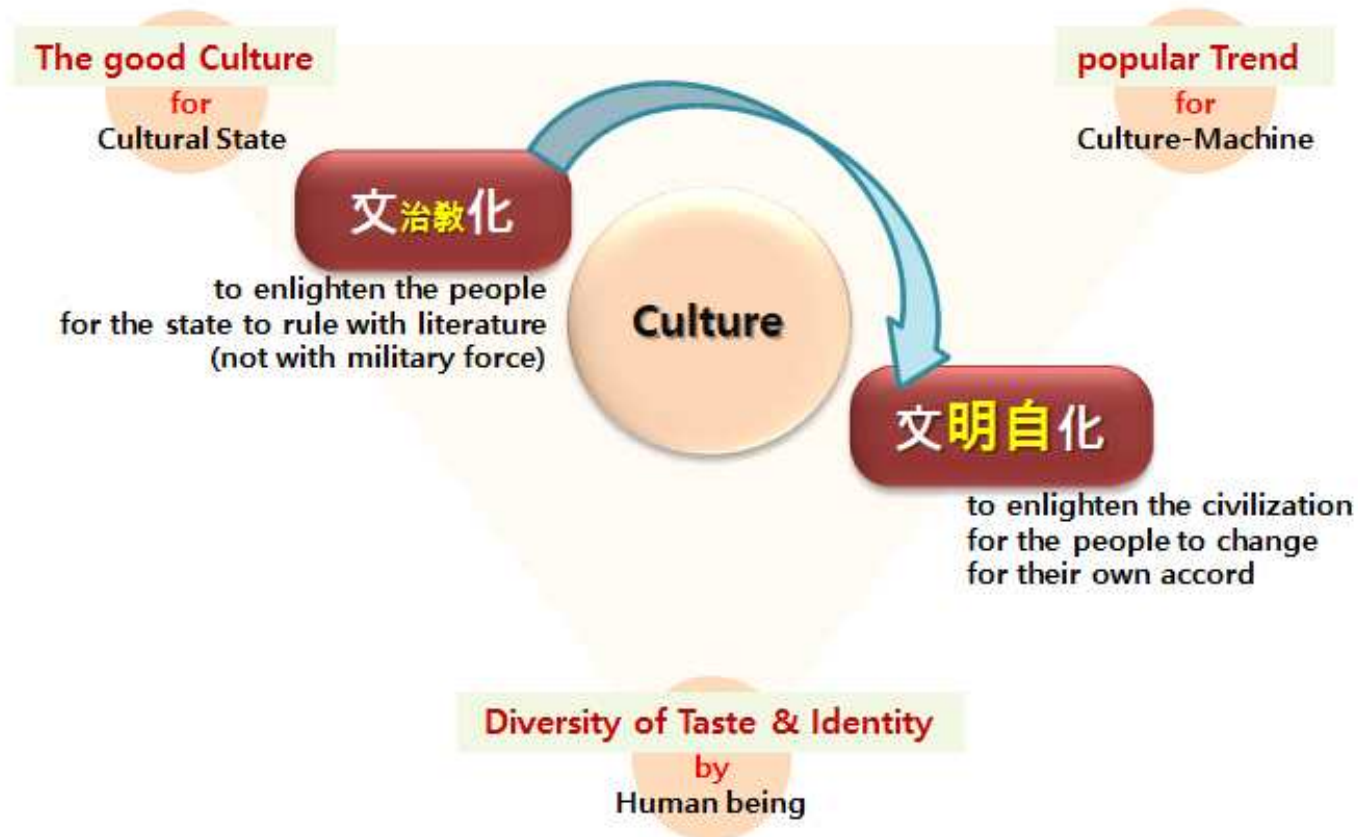
○ **The meaning of culture changes as a result of the interactions among state-human-machine.**

○ **It is important to maintain the balance among the aspects of the culture pursued by each subjects and their hidden desires.**
  - If humans lean toward either the culture of state(order or the good culture to follow) or the culture of the machine(fashion or my culture to buy), the balance of concept of culture collapses.

Balancing the Aspects of Culture & Hidden Desires

Civilized Rule ← hidden desire
by
Cultural State

Selling Fashion
by
Culture-Machine

The good Culture   popular Trend

Culture

Diversity of Taste & Identity

My Culture
for
Human being

○ **Considering the Sustainability of Culture and Human Subjectivity in the age of AI civilization**

Need to change the Concept of Culture in the Policies

The good Culture
for
Cultural State

文治教化

to enlighten the people
for the state to rule with literature
(not with military force)

Culture

popular Trend
for
Culture-Machine

文明自化

to enlighten the civilization
for the people to change
for their own accord

Diversity of Taste & Identity
by
Human being

Your comments will be appreciated very much!

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