

科技部補助專題研究計畫成果報告 期末報告

加速社會中的「隱私實作」：以穿戴式科技如何影響／形塑人們對隱私的認知與實作為例進行社會學觀點的探究(第2年)

計畫類別：個別型計畫
計畫編號：MOST 104-2410-H-343-004-MY2
執行期間：105年08月01日至106年09月30日
執行單位：南華大學應用社會學系

計畫主持人：劉育成

計畫參與人員：大專生-兼任助理：陳韻筑

報告附件：出席國際學術會議心得報告

中華民國 107 年 01 月 10 日

中文摘要：本文主要探討科技 (technology) 與隱私 (privacy) 之間的關係。其中較為主要的觀點是，科學與技術發展在人們對於隱私概念的認知與實作上，構成不同程度之變化。本研究將從技術哲學觀點出發，輔以俗民方法學對於社會成員在日常生活中的實作的探討，並以行動數位設備或所謂「穿戴式科技 (wearable technologies)」為例，提出對科技與隱私之關係在理論上不同的觀察。本研究在過去已建立之隱私研究的基礎上，發展「隱私實作 (doing privacy)」概念，並期待可以適切地理解隱私概念內涵在電子媒介與網際網路時代的變化。本研究嘗試探究使用者的「隱私實作」是如何透過新技術的使用來完成，以及該實作對使用者成員而言具有的意涵。本研究的結論有二：第一，從理論觀點來看「隱私不再」的現象時指出，人們的隱私實作並不一定在嘗試維護或保有傳統上的隱私觀點，而是透過實作來建構、形塑新的隱私觀，此一新的隱私觀也透過新技術的開發與使用，反過來與使用者共同建構這個新的隱私概念。第二，從實作的觀點，隱私或許不再具有價值中立性，而是「訊息／身體」這組區別運作出來的突現物 (emergent)。相較於過去將隱私視為一種「權利」，新型態的科技所形塑出來的隱私概念毋寧是一種反身性運作的暫時性成就 (ongoing accomplishment)，也更具有與科技共構、共生的特性。本研究也主張，此一特性在嘗試理解現代科技與隱私概念之構成的關聯性上，將扮演重要角色。

中文關鍵詞：隱私實作、穿戴式科技、自我追蹤技術、俗民方法學、訊息、身體

英文摘要：This research proposal mainly concerns the relationship between technology and privacy. It will focus on the idea that the development of science and technology to a great extent accompanies people's changing recognition of the concept of and the practices of privacy. Starting from Heidegger's viewpoint of the essence of (modern) technology, and from the observation of layperson's daily practices from ethnomethodological perspective, this research proposal will examine further how technology "enframes" people's understanding of privacy and accomplishing of the practices of it, based on the existing researches on privacy and with the example of wearable technologies. This proposal suggests the idea of "doing privacy" to describe a more dynamic and complex situation in which how people recognize and practice privacy. According to the vision offered to the users by technological developers, wearable technology relates not only to the users and developers, a broader areas should also cover the internet, new social media, big data analysis, data mining technologies, the internet of things, and so on. This vision attempts to present a world of interconnection, co-sharing, co-creation, and co-evolution. It is in this foreseeable future that emerges the question concerning technology and its relation to privacy. The goal

of this research proposal is to investigate how people' s
"doing privacy" is accomplished through using new
technologies, whether voluntarily or not, and its
implications to the world.

英文關鍵詞：doing privacy, wearable technologies, ethnomethodology, new
social media, social acceleration

科技部補助專題研究計畫成果報告

(期中進度報告/期末報告)

加速社會中的「隱私實作」：以穿戴式科技如何影響 / 形塑人們對隱私的認知與實作為例進行社會學觀點的探究

計畫類別：V 個別型計畫 整合型計畫

計畫編號：MOST 104 - 2410 - H - 343 - 004 - MY2

執行期間：2016 年 8 月 1 日至 2017 年 9 月 30 日

執行機構及系所：南華大學應用社會學系

計畫主持人：劉育成

計畫參與人員：陳韻筑

本計畫除繳交成果報告外，另含下列出國報告，共 2 份：

執行國際合作與移地研究心得報告

V 出席國際學術會議心得報告

出國參訪及考察心得報告

中 華 民 國 106 年 12 月 30 日

科技部補助專題研究計畫成果自評表

請就研究內容與原計畫相符程度、達成預期目標情況、研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）、是否適合在學術期刊發表或申請專利、主要發現（簡要敘述成果是否具有政策應用參考價值及具影響公共利益之重大發現）或其他有關價值等，作一綜合評估。

1. 請就研究內容與原計畫相符程度、達成預期目標情況作一綜合評估

V 達成目標

未達成目標（請說明，以 100 字為限）

實驗失敗

因故實驗中斷

其他原因

說明：

2. 研究成果在學術期刊發表或申請專利等情形(請於其他欄註明專利及技轉之證號、合約、申請及洽談等詳細資訊)

論文：已發表 V 未發表之文稿 撰寫中 無

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無

其他：(以 200 字為限)

3. 請依學術成就、技術創新、社會影響等方面，評估研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性，以 500 字為限）。

本研究計畫包括理論與經驗資料搜集之分析等，部分成果也已經投稿國內外相關期刊，共計兩篇，目前正在審查中。本研究主要從技術哲學觀點出發，輔以俗民方法學對於社會成員在日常生活中的實作的探討，並以行動數位設備或所謂「穿戴式科技（wearable technologies）」為例，提出對科技與隱私之關係在理論上不同的觀察。本研究在過去已建立之隱私研究的基礎上，發展「隱私實作（doing privacy）」概念，並期待可以適切地理解隱私概念內涵在電子媒介與網際網路時代的變化。此外，本研究也探究使用者的「隱私實作」是如何透過新技術的使用來完成，以及該實作對使用者成員而言具有的意涵。本研究的結論有二：第一，從理論觀點來看「隱私不再」的現象時指出，人們的隱私實作並不一定在嘗試維護或保有傳統上的隱私觀點，而是透過實作來建構、形塑新的隱私觀，此一新的隱私觀也透過新技術的開發與使用，反過來與使用者共同建構這個新的隱私概念。第二，從實作的觀點，隱私或許不再具有價值中立性，而是「訊息／身體」這組區別運作出來的突現物（emergent），我們或應視之為一種新型態的科技所形塑出來的隱私概念。

4. 主要發現

本研究具有政策應用參考價值： 否 是，建議提供機關_____

（勾選「是」者，請列舉建議可提供施政參考之業務主管機關）

本研究具影響公共利益之重大發現： 否 是

說明：（以 150 字為限）

本研究較偏向基礎研究，在社會學與哲學的領域，對科技與人、科技與社會的關係進行更多討論與釐清。研究成果可作為更進一步相關主題之基礎，例如在隱私概念上，隱私協定的概念或許可以透過物聯網技術的支持而有可能實際應用。

科技部補助專題研究計畫成果彙整表

計畫主持人：劉育成		計畫編號：104-2410-H-343-004-MY2				
計畫名稱：加速社會中的「隱私實作」：以穿戴式科技如何影響 / 形塑人們對隱私的認知與實作為例進行社會學觀點的探究						
成果項目		量化	單位	質化 (說明：各成果項目請附佐證資料或細項說明，如期刊名稱、年份、卷期、起訖頁數、證號...等)		
國內	學術性論文	期刊論文	1	篇	本計劃發表於國際研討會的兩篇論文，經修改後投稿於期刊，中英文各一篇，目前均在審查中。中文論文投稿於國內資訊研究期刊，英文投稿於 Surveillance & Society 期刊。	
		研討會論文				
		專書		本	請附專書資訊。	
		專書論文		章	請附專書論文資訊。	
		技術報告		篇		
		其他		篇		
	智慧財產權及成果	專利權	發明專利	申請中	件	請附佐證資料，如申請案號。
				已獲得		請附佐證資料，如獲證案號。
			新型/設計專利			
		商標權				
		營業秘密				
		積體電路電路布局權				
		著作權				
		品種權				
		其他				
技術移轉	件數			件		
	收入			千元	1. 依「科技部科學技術研究發展成果歸屬及運用辦法」第2條規定，研發成果收入係指執行研究發展之單位因管理及運用研發成果所獲得之授權金、權利金、價金、股權或其他權益。 2. 請註明合約金額。	

國外	學術性論文	期刊論文		1	篇	本計劃發表於國際研討會的兩篇論文，經修改後投稿於期刊，中英文各一篇，目前均在審查中。中文論文投稿於國內資訊研究期刊，英文投稿於 Surveillance & Society 期刊。	
		研討會論文		2		本計畫目前產出研討會論文共計兩篇論文，均以英文書寫，分別發表於 2016 年 7 月於維也納舉行之「國際社會學年會」，以及 2017 年 8 月於雅典舉辦之「歐洲社會學年會」，兩篇論文均為口頭發表，主題分別是：「Doing Privacy」與「Transhumanism, Post-capitalism, and meta-veillance」。詳細論文請見附件。	
		專書				本	請附專書資訊。
		專書論文				章	請附專書論文資訊。
		技術報告				篇	
		其他				篇	
	智慧財產權及成果	專利權	發明專利	申請中		件	請附佐證資料，如申請案號。
				已獲得			請附佐證資料，如獲證案號。
		新型/設計專利					
		商標權					
		營業秘密					
		積體電路電路布局權					
		著作權					
		品種權					
其他							
技術移轉	件數			件			

		收入		千元	<p>1. 依「科技部科學技術研究發展成果歸屬及運用辦法」第2條規定，研發成果收入係指執行研究發展之單位因管理及運用研發成果所獲得之授權金、權利金、價金、股權或其他權益。</p> <p>2. 請註明合約金額。</p>
參與計畫人力	本國籍	大專生	1	人次	<p>助理工作除了行政相關業務之外，也協助搜集資料、整理資料等。</p>
		碩士生			
		博士生			
		博士後研究員			
		專任助理			
	非本國籍	大專生			
		碩士生			
		博士生			
		博士後研究員			
		專任助理			
<p>其他成果</p> <p>(無法以量化表達之成果如辦理學術活動、獲得獎項、重要國際合作、研究成果國際影響力及其他協助產業技術發展之具體效益事項等，請以文字敘述填列。)</p>					

科技部補助專題研究計畫出席國際學術會議心得報告

日期：106 年 9 月 15

日

計畫編號	MOST 104-2410-H-343-004-MY2		
計畫名稱	加速社會中的「隱私實作」：以穿戴式科技如何影響 / 形塑人們對隱私的認知與實作為例進行社會學觀點的探究		
出國人員姓名	劉育成	服務機構及職稱	南華大學應用社會學系
會議時間	106 年 8 月 29 日 至 106 年 9 月 1 日	會議地點	Athens, Greece
會議名稱	(中文) 第 13 屆歐洲社會學年會 (英文) The 13 th Conference of the European Sociological Association		
發表題目	(中文) 超人類主義、後資本主義與後設監視：批判實在論觀點 (英文) Transhumanism, Post-capitalism, and meta-veillance: perspective from critical realism		

一、參加會議經過

歐洲社會學年會為社會學界年度盛事，全世界的研究者均期待藉此與其他國家、領域的研究者進行交流，或有機會可以發展跨國合作。本計畫主持人投稿兩篇不同研究社群的論文，經個別社群審查後均同意以口頭形式發表。惟大會希望每位研究者只口頭發表一篇論文，後來便擇一發表。會議地點主要在雅典的 Panteion University、Harokopio University，一連四天有超過千篇論文發表，涵蓋社會學各個領域，會議的 Keynote Speaker 是社會學界重量級人物 David Harvey，主持人是 Christian Fuchs，演講非常精彩。除了研討會之

外，主辦單位也安排一些在地的導覽與介紹活動，讓與會者有機會深入認識雅典。整體而言，參與國際會議的收穫很大，不僅與相關領域學者交流，也能夠參與一些有興趣的場次，了解相關議題。

二、與會心得

本次第 13 屆歐洲社會學年會由「歐洲社會學會（European Sociological Association）」所舉辦，地點在希臘的雅典。歐洲社會學會（ESA）為國際間重要的社會學研究組織，每年定期舉辦年會以及各種與社會學相關的論壇與工作坊等，應該是除了國際社會學會（ISA）、美國社會學會（ASA）之外，另一個非常重要的機構。本篇論文為口頭發表，該場次共有四位發表人，主要針對資本主義進行研究。在發表後，有不少提問，這些提問也讓我印象深刻，對於後續論文的修改提供了很重要的建議。

三、發表論文全文或摘要

本次發表之論文主題為「Transhumanism, Post-capitalism, and Meta-veillance」，主要從批判實在論（critical realism）的觀點，探討超人類主義、後資本主義與後設監視三個概念及其間之關聯性。超人類主義這個概念近年來不斷受到哲學與科技研究者的討論，關注人類強化、基因科技等議題，後資本主義則是對資本主義的反思，兩者均與科學與技術發展有密切關係，而後設監視便是在其中所茁生出來之概念。批判實在論從後設理論的觀點出發，探討要如何對社會現象有更適切的解釋機制，其對實在的看法不同於超驗實在論或科學實在論，而是一種對理論進行後設處理的一種理論觀點。本論文即嘗試透過批判實在論，將超人類主義與後資本主義之發展作一連結，

並且嘗試解釋在此連結中何以能夠茁生出所謂後設監視的概念。

四、建議

無。

五、攜回資料名稱及內容

電子版會議手冊精簡與詳細版各一份，內容為會議相關資訊，所有場次的論文摘要等。

六、其他

無。

Transhumanism, post-capitalism, and "meta-veillance": perspective from critical realism

(Presented at the 13th Conference of European Sociological Association, 29 August – 1 September, Athens, Greece)

Liu, Yu-cheng, Ph.D.

Assistant Professor, Nanhua University, Taiwan

Abstract:

How does capitalism make people pursuing transhumanism? How does capitalism make people believe that human body/human beings (species) needs to be enhanced and that it should be morally right or simply nothing wrong to look for an “always better” self and life? How does capitalism transform people’s recognition of human body and its labor while developing a world without body? How does the gap between advanced industrial regimes and less developed areas in the world shape different viewpoints of human body and the meaning of its labor, and its impact on the future of capitalism, or of so-called post-capitalism? A world without body, which is probably the result of transhumanism, is also a world of "meta-veillance". Meta-veillance is not just a reflection of our present situation in which surveillance is typical whereas sousveillance still questionable. Either of them has been not enough to offer a suitable answer for the future. Meta-veillance means people being watched by protocols that are co-created through the interaction among people using technologies, technologies in surroundings, and context where people and technologies have been located. The question 'who is watching?' and 'who is watched' can be reframed with this concept. The equality between those watched and those being watched may exist in the idea of meta-veillance. A world without body does not mean body has been cancelled; instead, it gains a new mission in that the presence of human body reminds of its no negligible to us, and most importantly, people's communication with machines are depending more on human body, such as its figures, gestures, organs, and so on. They will also be discussed in this research.

Keywords: transhumanism, post-capitalism, meta-veillance, critical realism

Why Critical Realism?

Critical realism, as its name indicates, has its critical dimension when comparing to other theories of realism. Whatever kind of realism, they are all about how and in what ways to understand or to capture so-called “reality”. The word, or concept, “reality” varies according to different viewpoints, and needs not to be consistent. Whether it exists or not, or whether it may look like, the way we can approach it is to some extent a mediated one, socially, psychologically, historically, scientifically, technologically, or mentally. Reality is an attractive word in that because we always want to know what happens, how and why it looks like that. The ways we conceive of reality turn out to be different strategies to confront it, and they also define who we are, how we become humans, how nature can be observed, how society is possible, or even whether reality can be changed. In this manuscript, three elements supported by critical realism will be discussed in framing a theoretical perspective in articulating transhumanism and post-capitalism, and its potential consequence of meta-veillance. They are the distinction of intransitive and transitive dimensions of knowledge, the idea of emergence, and the stratification of reality.

There are mainly two trends in considering reality. One is transcendental, and the other is constructive. It is also a long-standing debate between ontology and epistemology. Generally, the reality in transcendental realism exists yet is inaccessible, beyond any perceptual and mental experience. On the other hand, in constructive tradition, to its radical form, there is no such reality as its opposite speculates. Every reality is constructed, whether by language, science, technology, or even theologies. In a word, reality in constructive tradition equals almost to imagination or illusion. Their respective heirs include scientism and social constructivism and the tradition of hermeneutics. Although the former studies reality in a scientific method, its later development brings its own crisis to the fore. In some sense, both of them ignores ontology of reality. It may not need to be transcendental, nor to be radically constructive. As opposing to empirical and transcendental realism, critical realism focuses more on the ontology of reality. According to Archer, ontology means attempting at understanding “the things themselves”, rather than just our beliefs or experiences. Critical realism arises within the context of post-positivist crisis in natural and social sciences during 1970s and 1980s. The attempts of critical realists are to develop a “properly post-positive social science” (Archer). In spite of its critical view of reality, it belongs to another paradigm of scientific realism. Against empirical turns in natural

and social sciences, critical realism suggests a meta-theoretical observation of radical empiricism, which treats reality as simply being extracted from experiences, in its radical form, exact sciences, or numbers (Marcuse). There are usually four promises constitute in this properly post-positivist philosophy: ontological realism, epistemic relativism, judgmental rationality, and a cautious ethical naturalism (Archer). Underlying these four pillars of critical realism is the distinction of transitive and intransitive dimensions of knowledge, which has been appropriated to argue with late positivism. In a word, following Archer, “much of reality exists and operates independently of our awareness or knowledge of it”. Besides, “reality does not wholly answer to empirical surveying or hermeneutical examination” (Archer). It is to some extent transcendental because it exists before we experience it or have any knowledge of it. The knowledge we develop to describe it represents the transitive dimension of that reality in correspondence with methods we apply (ref. Archer) (López, 2003, p. 77). The intransitive dimension of knowledge of the reality is usually not so intuitive or perceptual. Bhaskar regards this feature of reality as intransitivity, it exists independently of human beings, and most inspiringly, intransitive dimension of reality can only be represented in transitive dimension of knowledge (Bhaskar). It will not be enough to approach the real if we can only rely on our perceptual experiences through our organs. The advocates of the later in positivism messed up “the laws of nature” and “the laws in nature”, and consider both as one thing (Vandenberghe, 2014, p. 8). Besides, critical realism views reality as stratified: the real, the actual, and the empirical. They are respectively corresponding to generative mechanisms, events generated by these mechanisms, and events empirically experienced. These three levels of reality operate synchronically and diachronically. To some extent they are independent of yet constituting each other. The real includes generative mechanisms, events generated by those mechanisms, and events that can be or have been experienced. The actual presumes all events generated by mechanisms, and provides potentiality for experiences on the empirical level. However, not all events generated by mechanisms can be experienced or observed on the empirical level. The transitive dimension of knowledge has been considered by critical realism as being developed from those can be experienced or observed, whereas the intransitive dimension may indicate those generative mechanisms behind events and experiences. The aim of critical realism is to meta-theoretically find out how to provide better knowledge for the intransitivity of the real, or the unobservable generative mechanisms. It is demonstrated as ontological realism, independent of human beings and transitive dimension of knowledge of the

world.

Since reality has been seen as ontological and knowledge of it includes both intransitive and transitive dimensions, critical realism suggests a kind of epistemic relativism. Any knowledge can be wrong: “...*the intransitivity of real structures means that they will always have the potential for effects that go beyond us (i.e., are out of our control), and the approach means that we should aim to eliminate alternative explanations by testing in some way for their potential effects*” (Mingers, Mutch, & Willcocks, 2014, p. 797). It also constitutes in the scientific method of critical realism, “retroduction” and “Transformational Model of Social Activity (TMSA)” in terms of Bhaskar, or “social morphogenesis” and “reflexivity” in term of Archer. Mingers describes it as DREI: describe, retroduct, eliminate, and indicate (Mingers et al., 2014). Following Bhaskar, since knowledge about reality includes intransitive and transitive dimensions, the former cannot be simply reduced to the latter. In doing so, it rejects methodological individualism, and pays attention to the idea of emergence that cannot be explained properly by it. The stratification of reality indicates the possibility of emergent phenomena. The idea of emergence describes that there is something new appearing on the level of the whole that cannot be found on the level of the individual, or cannot be reduced to its constituent parts. In other words, the relationship between the whole and its parts is not an easy mathematical question, quality change is possible when quantity changes. There is something that cannot be “observed” on lower level which may result in new features on higher level. What can be experienced on the level of the empirical cannot exhaust what may have been produced on the higher level of the actual. Vice versa, what have been produced may not possibly been totally experienced by actors who try to explain what happened and how and why they happened as such. For example, someone may wonder why and how he can buy a cup of coffee in a certain coffee shop with cash, credit card or virtual currency at some price. During the whole question, the operation of certain kind of economic system as a possible generative mechanism may have emergent features that cannot be reduced to any individual purchasing behavior. On the way to develop a better knowledge of the intransitivity of real structures, critical realism accepts that the idea of emergence deserves more attention.

Post-capitalism and transhumanism

Post-capitalism is a term usually discussed by some leftist thinkers to describe a future

of capitalism. Although Marx did not use the word, he did give a possible picture of how capitalism would meet its next stage. In spite of its not happening, as Marx predicted, there were always social thinkers discussing it. With a theoretical viewpoint, capitalism may not meet its end in the future, but it perhaps develops a different logic whether in its foundational idea of liberal market or in the nature of its constituting element, “capital”. The generative mechanisms influenced and transformed by advanced technology behind both of the idea of liberal market and of capital indicate a transfer from focusing on scarcity to the idea of abundance. By which means the abundance of digital data which generated not just by some traditionally defined machines, but increasingly by various technologies used in daily life whose epiphenomenal function is to produce tons of data, whether they can be accessed by the users or meaningful to them. Most of the time, it has been called “big data”. Big data are collected from everywhere, such like surfing on the internet, browsing webpages, using wearable computing technologies, or planted technologies, or even from surveillance cameras on the streets. We are now flooded with tons of data yet don’t know where they are stored, how they can be and will be used, or who can access them anyway. In spite of this, we extract information from big data, and seeking for meanings within it. Big data surmount over everything and provide a “new layer of reality centred on information” (Mason, 2015). They are either recorded in digital form or transformed in order to be understood by computing machines. Even face recognition technology designs a method to transform as many as possible features on faces into digits in order to be computed and analyzed by machines. These data assist us to identify or even “decide” for us who’s who. However, they may have some errors in recognizing if we cannot exhaust everything we need to identify a face and if we don’t have enough powerful computing devices to process those data. That’s why we usually have only “percentage” of correctness. In other words, those data provide us a potentiality in experiencing things as it is on the empirical level. Therefore, big data can be considered as existing in the actual level, which is generated by various mechanisms. Furthermore, it can be argued that it is possible to take big data into consideration because more and more data can be produced, preserved, and processed with advanced technologies. However, what can be discovered with big data may not be exhausted, it provides only part of events that can be experienced on the empirical level. The abundance of data results in a radical transformation of the viewing of reality. Technologies such like virtual reality, augmented reality or mixed reality are all depending upon how much data we can produce, preserve, process, utilize, and analyze. The virtual becomes the

real in the sense that the latter can be digitized and becomes nothing but plenty of digits, and in doing so, the real is taken for granted that it can be and has to be better to be re/presented as such. Since the boundary between the virtual in terms of the digital, and the real in the process of digitization has been blurred, it renders possible a combination of human and machines (or technologies), or “cyborg” in some discussion in terms of posthumanism, not just legitimate but also morally ought-to-be. The latter provides a basis for the idea of transhumanism, and in return, transhumanism may also enhance the relationship as a no-return way.

On the level of the empirical, those can be or have been experienced may only be part of the actual. For example, we know we can pay a dollar to buy a cup of coffee, and we also know this one dollar can be used in the same way to buy something else. However, we don't have to actually buy everything in order to testify its function or its value as such. Perspective from critical realism divides the former as transitive dimension of knowledge from the latter as the intransitive one. Those have been experienced provide a portal for the actual, the potentiality of other events that can be experienced somehow or somewhat. Contrary to “Big” data collectively produced, Steve Mann suggests an idea of “Little” data that together may complete what he terms “meta-veillance” (Steve Mann). According to Mann, “meta-veillance” means “a sensing of a sensor” or “a sensing of the capacity of a sensor to sense” (Mann, 2016). In other words, “watch those who or what are watching”. The idea of meta-veillance mainly depends upon little data, that is, data from below. According to Mann, little data are generated by users purportedly apply sousveillant systems, contrary to surveillance systems such as street camera, for acquiring data of the surveillance systems. To some extent, big data is generated almost unconsciously, whereas little data is produced consciously by technology users. Little data can be experienced and produced by people using technologies on the empirical level. Hence, it may be meaningful to users who generate them. Surveillance usually means “watch from top”, while the idea of sousveillance refers to “watch from below”, sous-veillance, we-watch. The former indicates a kind of authority while the latter anti-authority. Mann suggests that we have always been watched by authority but we cannot watch back. For example, we usually cannot film the police officer with our camera while they are doing the same to us. The two sides are asymmetric in the act of watching, hence confirm a kind of hegemony. What can be little data include not just those produced by conscious actions against surveillance, but also those generated by people whose purpose is mainly to assist or “surveil”, watch,

themselves. Data from self-tracking technologies may belong to this category. People self-track many kinds of status about themselves, such like weight, blood pressure, steps walked, mood, even brainwaves. Advanced technologies render self-tracking much more efficient and sufficient. For example, with a smart watch, we can document data about ourselves such like steps, latitudes, heart beats, glucose level, places visited (GPS), and so on. Data produced by self-tracking technologies has been experienced by users, and the explanation of it cannot be done without referring to big data. To some extent, big data has gradually created a new “WE” for us. Just like Heidegger’s discussion of Das Man, or The One, *“Everyone is the one, and no one is himself. The one, with which the question about the who of everyday Dasein answers itself, is the nobody to whom every Dasein has indeed already surrendered itself in being among one another* (Heidegger, Being and Time, p. 128/165f).” Different from it, however, the new “WE” is accumulated by tons of data produced both from top and from below. There may be not just traditional standards about human beings developed by some kinds of tradition or exact science, but also “NEW” standards generated through data.

Capitalism helps framing a preferred environment in promoting self-tracking culture in two ways, encouraging or even urging people to produce tons of data with various technological devices. Firstly, following Bauman, capitalism in its later time brings a consumer society. Everyone has to become a consumer, not just a producer in the earlier industrial capitalism. Consumer society focuses upon how to become a consumer, the obligation of being a consumer, consumer capacity, and consumer choice. It relies upon two things, mass production and mass consumption. The former benefits from the development of automation, while the latter emerges as a result of cost down by mass production. With the assistance of technologies, consuming behaviors can be recorded easily not just in digital form but also in excruciating detail, and becomes part of big data in order to be utilized by those who can access them. People are trained or inculcated to be a “good” or “qualified” consumer in the sense that they may consume goods not because they need them but because they want them (out of desires instead of necessity): to have a better time with your family, then you need a better or bigger car, for example. Pursuing a “better” life becomes morally right no matter what the word “better” may mean. With the development of technology, it becomes a utopian vision not just of human society, but also of human beings. It also becomes reflexive since people start to believe in those data generated through technic gadgets and adjust themselves according to them. Data exists no longer outside of ourselves, not just

something collected by others. In order to develop a better self, we have to know more about ourselves, and advanced technology assists us in doing so while requiring us not to consciously notice it. The passage from society of producers to society of consumers indicates not just the role of people that has to be changed, but also the nature that can be recognized, identified, or understood. With technologies, becoming consumer accepts being watched by data not just generated by others, but also by ourselves. Self-tracking movement, or so-called “Quantified Self (QS)” movement, adopts the words “self knowledge through numbers” as its motto, may demonstrate this trend.

On the other way capitalism framing a preferred self-tracking environment is through commodification with the help of technology. Data goes to digital in that it can be commodified and exchanged at the speed of light. The time you spend on a post shared by your friend or other providers on the Facebook or other social media websites may decide if other posts of your friend or related contents will show on your personal wall in the future. The algorithms used by Google or by almost all social media services are on one hand recording everything about their users, and on the other hand, based on it, they can screen or decide for their users what need to be seen on the “screen”. Commodification makes everything in some ways consumable, even your time, blood pressure, or glucose level. Advanced technology radicalizes commodification characterizing capitalism, hence leaves space for discussing the future of capitalism. In Marx’s discussion of commodification, commodities constitute an objective world, in which they speak their own language and they are independent of human world. It is a process of objectification in which something is separated from subject who spend labor and laboring time. This kind of laboring leads to Marx called “alienation”. The development of digitization and information technology makes changes on the levels of not just quantity but also quality of commodification. Nowadays, even some insurance companies will give their clients smart watches to monitor their movements and health-related numbers in order to evaluate risk before accepting insurance or to provide evidences for future claims.

In forming a consumer society and radicalizing commodification, later capitalism provides a “friendly” environment for the development of self-tracking culture based on tons of digital data produced by advanced personal computing machines, including various wearable computing devices. Underlying this trend toward self-tracking culture to some extent would be a utopian thinking coming from those advocates of a kind of

almost unlimited technological development, technophiles, who positively believe technology will bring human beings a better future, not just a better society, a better world, but also better human beings. The transformation of the nature of humanity has been discussed by both of technophobes and technophiles, and it results in an imagination of the future of capitalism. For example, Srnicek and Williams in their book *Inventing the Future*, discussing how a world without work is possible, suggest, “*The pathway towards a postcapitalist society requires a shift away from the proletarianisation of humanity and towards a transformed and newly mutable subject. This subject cannot be determined in advance; it can only be elaborated in the unfolding of practical and conceptual ramifications. There is no ‘true’ essence to humanity that could be discovered beyond our enmeshments in technological, natural and social webs* (Srnicek & Williams, 2015, p. 515).” Those advocates usually talk of the whole species, instead of individuals. It is not easy for Nietzsche, who talked about the death of God and the idea of superhuman, to imagine this day comes so close to us in his times. Now scientists develop algorithms to simulate or simply create consciousness, and in doing so, they would like to believe our consciousness is also nothing but some complex numbers and equations. This trend is partly how transhumanism emerges and why it may provide a possible explanatory mechanism if we would like to know how post-capitalism may connect to the idea of meta-veillance.

“Better” in its sense either refers to quantity or quality, however, with Quantified Self movement and with those self-tracking technical devices, it has to be realized in numbers, or in accountable or digital forms. It is possible to talk about how quantity may lead to quality change, it is also possible not to think like that. Data provides different levels of reality, while underlying which may be the ideology of “human beings as a whole deserves becoming better” as an unobservable or taken-for-granted generative mechanism whether on the level of the empirical or of the actual. However, it does promote generating big data and little data with advanced technologies. As discussed earlier, the former provides potentiality for being experienced in the empirical, while the latter reflexively interacts with the former as part of it. In doing so, the distinction of transitive and intransitive dimension of knowledge may deserve re-consideration if data can be used to re/present everything, and if we believe in so. In other words, there may be no reality independent of human worlds, and no whatever critical realism or its former, scientific realism claims, intransitive dimension of knowledge of the real. Everything can be explained in and through data, and the rest

will be how much data we will need in developing a better knowledge of the world, and what kind of more advanced technology we need in order to collect and process data. To some extent, when trying to develop a better explanatory mechanism to understand transhumanism and meta-veillance, with perspective from critical realism, the distinction it supports seems to dissolve itself in the process of seeking explanations. This dissolution also relates to the distinction of human and non-human, or to a possibility of combining human and machines, as some posthumanists discussed before such like Donna Haraway's idea of "cyborg". Cyborg can really be meaningful to us only if a world presuming everything can be transformed to or re/presented in digital data exists. The nature of humanity comes to the fore when we debate to what extent it can be re/presented in digits. What does "full development of humanity" mean? And in what ways can we assure the so-far status has been "full"? In Marx's imagination of the era after capitalism, "...*the future of humanity... it is first of all a practical matter, to be carried out in time. ... "the development of human power which is an end in itself* (Srnicek & Williams, 2015, p. 517)," which may pave a way for transhumanists and the idea of meta-veillance.

Meta-veillance as an emergent phenomenon

If transhumanism offers a better knowledge of generative mechanism that promote social trend toward "a new layer of reality centred on information (or data)", big data may provide a potential for people's experiences on the empirical level, its form in "little data", while actually big data may indicate more than it spoke. Transhumanism as an explanatory mechanism can elaborate and support how we conceive of big data as possessing potentiality of re/present how reality is real for us. Just like some advocates of data analysts suggest, big data can show something we may not know in that on one hand it is not sampled from a small group and inferring to the whole, and on the other hand it contains not only coarse data but also "fine" data. Its granularity increases with the advanced technologies used everywhere in daily life. If we take pixels for example, when computing and hardware technology are powerful enough to process huge data required for high resolution pictures or animations, they are considered as capable of recording and presenting closer to the real. Retina level of mobile phone or computer screen makes people see much more detail than before, and the most important, it also makes people "believe" that the world is constituted of those pixels or can be reduced to them if we can develop more advanced technology. The ability of technology to processing data has been required by the increasing quantity of

data, and vice versa. They are independent yet also interdependent of each other. The result is that it creates an imagined WE composed of and extracted from data "and" the belief in data that can show a real world to us that is also a consequence data seduces people to pursue wants. Here "meta-veillance" emerges.

In Steve Mann's discussion of "meta-veillance", it is constituted of surveillance and sousveillance, that is, data from above and data from below. In doing so, people can develop a sense of sensors, or surveil the surveillers. Knowing or with capability of sensing who and what is sensing, and having equal opportunities or rights to sense back, plays an important role in the era where everything becomes digital. The word "veillance" comes from Latin "vigilare" and later French "veiller", both mean "watch". By which it is also related to the visual. Meta-veillance is also a visual concept since not just digitalization but visualization have been emphasized greatly by many data analysts. Both of them play an important role in order to be understood not only for professionals but also for laymen. Visualization has been already an old method to transfer information, stories, and experiences within generations and groups. The difference between those old times and today will be that on one hand, the element consisting in visualization transforms from quality data to quantifiable and quantified data. On the other hand, whereas the former produced by authorities such like churches or state rulers, hence forming power or hegemony, the latter comes or aggregates from both of the top and the bottom. However, it also forms a similar power or hegemony when people believe in how and to what extent they can be described, they should behave, or they are influenced by those data generated by themselves showing to them. As Mann describes, we should complete surveillance with sousveillance in order to provide a society of meta-veillance. (Therefore) As an emergent phenomenon from generating tons of data and believing in data that can bring a real reality to us, meta-veillance can also be described as a protocol constituted by the interactions among people, technologies, and data generated by both. It is an ongoing achievement since the boundary of human and non-human has been blurred, and the former has been increasingly represented or constituted by the latter in digital form. Therefore, reality re/presents itself in the process of generating data with technologies and being watched by those data. When data has been considered as a kind of currency in a so-called information society or in a coming era of post-capitalism, following Marx, what we have to elaborate more is that to what extent data speaks its own language, and it has nothing to do with the human world, and that we human beings believe it can lead us

to develop a better knowledge of the world. Meta-veillance is defined not just as a sense of sensors, but also as reflexively being watched by data generated actively by ourselves. Take one example from my research on wearable technologies. More and more people, who self-track themselves, would explain their tiredness with their smart watches which told them how many hours they spent in deep or shallow sleep last night. The feeling of tiredness and the explanation of it has been transformed from a function of body to a function of data, whether on the level of big or little data. When we take for granted data and its potentiality to re/present reality, meta-veillance emerges, and it is contributed by capitalism and its promotion of consumer society and of the development of technology.

Conclusion

It needs no rush to come to any conclusion either human beings should follow the road transhumanism advocates or its opposite. Either of them can form a new hegemony, radical or traditional one. In this manuscript, with perspectives from critical realism, we found that the distinction of transitive and intransitive dimensions of knowledge of the reality seems to dissolve itself in providing a convincing explanatory mechanism of how little data has been generated and experienced by technology users, and how and to what extent big data has a potentiality in providing certain reality that can be experienced by users with their little data, and how the idea of transhumanism can be one of generative mechanisms in developing a better knowledge of the world toward a “better” kind. In its division of reality into at least three layers, critical realism contributes to our elaboration of the idea of meta-veillance as an emergent phenomenon. We are now to some extent meta-veilled by data generated by ourselves and by the belief of the blurring boundary of human and non-human and the transformation of the former into a mixture of both of them. The idea of meta-veillance focuses more on how people treat data generated actively, either consciously or unconsciously, by themselves. The effect of meta-veillance will present itself in people reflexively having conversation with themselves. It may lead to a more equal world in that people are meta-veilled by a protocol constituted by both of little data and big data. However, it may also be a new hegemony since data from meta-veillance has been visualized in order to be “seen”, and regarding the process of visualization, we may have more to discuss in the future.

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104年度專題研究計畫成果彙整表

計畫主持人：劉育成			計畫編號：104-2410-H-343-004-MY2				
計畫名稱：加速社會中的「隱私實作」：以穿戴式科技如何影響／形塑人們對隱私的認知與實作為例進行社會學觀點的探究							
成果項目			量化	單位	質化 (說明：各成果項目請附佐證資料或細項說明，如期刊名稱、年份、卷期、起訖頁數、證號...等)		
國內	學術性論文	期刊論文		1	篇	本計畫發表於國際研討會的兩篇論文，經修改後投稿於期刊，中英文各一篇，目前均在審查中。中文論文投稿於國內資訊研究期刊，英文投稿於Surveillance & Society期刊。	
		研討會論文		0			
		專書		0	本		
		專書論文		0	章		
		技術報告		0	篇		
		其他		0	篇		
	智慧財產權及成果	專利權	發明專利	申請中	0	件	
				已獲得	0		
			新型/設計專利		0		
		商標權		0			
		營業秘密		0			
		積體電路電路布局權		0			
		著作權		0			
		品種權		0			
		其他		0			
	技術移轉	件數		0	件		
		收入		0	千元		
	國外	學術性論文	期刊論文		1	篇	本計畫發表於國際研討會的兩篇論文，經修改後投稿於期刊，中英文各一篇，目前均在審查中。中文論文投稿於國內資訊研究期刊，英文投稿於Surveillance & Society期刊。
			研討會論文		2		
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		專書論文		0	章		
		技術報告		0	篇		
		其他		0	篇		
	智慧財產權 及成果	專利權	發明專利	申請中	0	件	
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			新型/設計專利		0		
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		積體電路電路布局權		0			
		著作權		0			
		品種權		0			
		其他		0			
	技術移轉	件數		0	件		
收入		0	千元				
參與計畫 人力	本國籍	大專生		1	人次	助理工作除了行政相關業務之外，也協助搜集資料、整理資料等。	
		碩士生		0			
		博士生		0			
		博士後研究員		0			
		專任助理		0			
	非本國籍	大專生		0			
		碩士生		0			
		博士生		0			
		博士後研究員		0			
		專任助理		0			
其他成果 (無法以量化表達之成果如辦理學術活動、獲得獎項、重要國際合作、研究成果國際影響力及其他協助產業技術發展之具體效益事項等，請以文字敘述填列。)							

科技部補助專題研究計畫成果自評表

請就研究內容與原計畫相符程度、達成預期目標情況、研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）、是否適合在學術期刊發表或申請專利、主要發現（簡要敘述成果是否具有政策應用參考價值及具影響公共利益之重大發現）或其他有關價值等，作一綜合評估。

1. 請就研究內容與原計畫相符程度、達成預期目標情況作一綜合評估

達成目標

未達成目標（請說明，以100字為限）

實驗失敗

因故實驗中斷

其他原因

說明：

2. 研究成果在學術期刊發表或申請專利等情形（請於其他欄註明專利及技轉之證號、合約、申請及洽談等詳細資訊）

論文： 已發表 未發表之文稿 撰寫中 無

專利： 已獲得 申請中 無

技轉： 已技轉 洽談中 無

其他：（以200字為限）

3. 請依學術成就、技術創新、社會影響等方面，評估研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性，以500字為限）

本研究計畫包括理論與經驗資料搜集之分析等，部分成果也已經投稿國內外相關期刊，共計兩篇，目前正在審查中。本研究主要從技術哲學觀點出發，輔以俗民方法學對於社會成員在日常生活中的實作的探討，並以行動數位設備或所謂「穿戴式科技（wearable technologies）」為例，提出對科技與隱私之關係在理論上不同的觀察。本研究在過去已建立之隱私研究的基礎上，發展「隱私實作（doing privacy）」概念，並期待可以適切地理解隱私概念內涵在電子媒介與網際網路時代的變化。此外，本研究也探究使用者的「隱私實作」是如何透過新技術的使用來完成，以及該實作對使用者成員而言具有的意涵。本研究的結論有二：第一，從理論觀點來看「隱私不再」的現象時指出，人們的隱私實作並不一定在嘗試維護或保有傳統上的隱私觀點，而是透過實作來建構、形塑新的隱私觀，此一新的隱私觀也透過新技術的開發與使用，反過來與使用者共同建構這個新的隱私概念。第二，從實作的觀點，隱私或許不再具有價值中立性，而是「訊息／身體」這組區別運作出來的突現物（emergent）。相較於過去將隱私視為一種「權利」，新型態的科技所形塑出來的隱私概。

4. 主要發現

本研究具有政策應用參考價值：否 是，建議提供機關
(勾選「是」者，請列舉建議可提供施政參考之業務主管機關)

本研究具影響公共利益之重大發現：否 是

說明：(以150字為限)

本研究較偏向基礎研究，在社會學與哲學的領域，對科技與人、科技與社會的關係進行更多討論與釐清。研究成果可作為更進一步相關主題之基礎，例如在隱私概念上，隱私協定的概念或許可以透過物聯網技術的支持而有可能實際應用。