THE PARTY'S OVER AT THE DIGITAL SOCIETY:
SOME THOUGHTS TOWARDS THE SEARCH FOR SERIOUS THEORETICAL FRAMEWORKS

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Abstract: There has been much in the way of excitement and celebration concerning all things 'digital', which has provided the opening 'context' of the 21st century. We now need to stop, take a break and think clearly about our newly emerging areas. This paper's aim is to provide a discussion of the need for a robust theoretical framework for an idea embraced by the digital society –
that all things, i.e., artefacts, – are connected by a story or a memory to each other and to people, resulting in an all consuming 'internet of things'. The paper introduces a new project 'The Search for New Frameworks for Digital
Research' based at the University of Winchester at Winchester, UK and offers definitions of the area and key terms followed by initial thoughts about how other disciplines choose theoretical frameworks.

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1. Introduction

Technological developments witnessed over the last decade have impacted on all aspects of our lives, from the way in which we work, the way we play, the games we play, the way we shop, the way in which businesses operate and the ways in which we communicate with each other. We have seamless, ubiquitous technology that is available in many formats from the iPad to the Net book; from the mobile phone to the phone that is a camera, a music collection and a way of connecting via a myriad of means to family, friends and work colleagues. All these products use quick, touch sensitive screens, have fast connectivity and are sleek, streamlined and ultra modern.

There is little agreement in the literature regarding definitions of the digital society (the entire community in which we all live) and the digital economy
(the type of society in which we are currently living). These two terms appear to be interchangeable in the literature, so for our purposes we will stay with the term "Digital Society". Each one of us has to some greater or lesser extent had experience of the digital economy. For example, the change a couple of years back, from analogue to digital signals on domestic TV sets
created an opportunity for almost every household to have engagement, no matter how brief, with the digitization of technology.

The digital society is a current perspective, a way of classifying this moment in time, a way of labeling technology in the early 21st century.

So, although the term "digital society" describes a rather "false" situation, it acts as a convenient label for the current state of developing technology. If we are in agreement that we are indeed living in a digital society then a firm understanding of what makes up this kind of society is important for our survival and for future generations. In order to achieve this understanding we require research that will help us to critically evaluate this new kind of society. This "research of the digital society " will help us to assess, to explore and to truly understand current situations.

Since the acceptance of the term, there have been concerns about finding theoretical research frameworks that "fit" the area and yet are flexible enough to be useful for the variety of disciplines who are all interested in digital research. For example, in 2006, scholars such as van Dijk (2006) were commenting on the shortcomings of digital research, such as digital divide papers which identified "lack of theory; conceptual definition; interdisciplinary approach; qualitative research and longitudinal research". In the same year,
Oxman, (2006) was concerned with the theory and design of what he coined the "first digital age". Oxman put forward "a basis for formulating a conceptual framework and theoretical models of digital design". He suggested symbolic representation according to the four components of representation; generation; evaluation and performance. In this, he provided a basis for

"framework designers" per se, which whilst did not wholly solve the problem, did at least provide a mechanism and a suggested way of thinking and organizing the problem. A couple of years later, Robin (2008) when writing about digital storytelling in the classroom, also referred to a problem with the lack of a suitable theoretical framework. He suggests and constructs a framework called "TPCK - Technological Pedagogical Content Knowledge" in order to arrive at a "deeper understanding of the different and more powerful roles that digital media can play in both teaching and learning."

The lack of a readily available, tested, robust theoretical model for digital research is a problem, as we have no readily available point of reference in order to grasp true meaning and implications of the subject. Yet, now after several years of digital excitement, we have the realization that the "digital party" is over and it is time to think seriously about these issues and attempt to offer solutions.

The aim of this paper is to comment and discuss the need for a robust theoretical framework for the newly emerging internet of things research area, and to introduce a new project, which may offer a solution to the problem, called " The Search for New Frameworks for Digital Research'". This project aims to explore and create a new framework, which can be used by those working in the digital industries. The project has two objectives. The first is to produce a literature overview concerning the nature of a search for
appropriate theories whilst the second objective is to apply the chosen theory to a particular context such as the Internet of things.

2. Defining the area

Finding a theoretical framework for "digital research" is in itself, a problem, concerning, for example questions such as, what part of digital research and what perspective do we want to consider. One way forward, is to look at one aspect of digital research, which is fast developing, difficult to define and about which there is little agreement, such as the "Internet of Things".

The Internet of Things can be defined as an emerging technical and cultural phenomenon. The term is attributed to the Auto-ID research group at MIT in 1999, and was explored in depth by the International Telecommunication Union in a report bearing the same name at the United Nations net summit in 2005. Sterling (2005) created the term "Spimes" to describe objects that are linked to the Internet of Things. He defines this aspect of digital research as

"Spimes are manufactured objects whose informational support is so overwhelmingly extensive and rich that they are regarded as material instantiations of an immaterial system. Spimes begin and end as data.
They're virtual objects first and actual objects second."

Leder et al., (2010), also had similar issues with definition: - "The Internet of Things advances the…..notion of objects embedded with the capacity to receive and transmit data and anticipates a move towards a society in which every

device is "on" and in some way connected to the Internet; in other words, objects become networked".

To look for a framework, which would help our understanding of the Internet of Things, is a huge challenge, but nevertheless, it is a worthy and important journey on which to embark.

How disciplines choose theoretical frameworks is of course, a massive, yet critical central question. Theoretical frameworks are important as they are used to frame research – they act as a vehicle for many of the inter-related concepts, ideas and variables pertaining to a particular area of research. They are useful as they can act, for example, as a way of measuring, a way of conveying meaning and a mode of communication that quickly enhances understanding of the work.

So, now we have established that frameworks are useful, we next need to consider whether disciplines choose or formulate a framework and if so, how does that happen? Work has been undertaken in this area, such as Lyham (2002) in his treatise on the "General Method of Theory-Building Research in Applied Disciplines" and the following year, in 2003 (Holton) had concerns that there were "not enough papers that test research methodologies or adopt other existing methods to the (HRM) field."

What informs a view? Prosser (1998) writes about the problems of finding a theoretical framework that fits the discipline of images such as photography, yet is flexible enough to cover new modes of sharing images such as "Flickr." He suggests that most frameworks are derived from history and tradition, yet the digital world does not have this kind of tradition to call upon. Other ideas include the notion of change to act as a catalyst for the creation of a framework. For example, Burke and Basden, (2000) discussed the concept regarding the changing identity of a document – from an idea, to a document to a digital artifact. If a document changes then the identity and the notion of what the document has become, has also changed and we require a framework with which to analyze these problems.

Early sociology frameworks such as the socio-cultural schools of thought, had to take into account a newly changed and fast developing society. This resulted in frameworks that by their very nature had to be robust, yet had to maintain flexibility in order to take account of changing lifestyles, changing technology and realization of equality and power Issues.

To summarize, in our current digital society, the perspective of the "internet of things" does not have tradition to call upon; does not have history as such, and does not have a founding framework. So, there is a real case for research in this area and part one of "The Search for New Frameworks" project will allow for careful thought about this perplexing question. - How do disciplines choose theoretical frameworks if they have not arisen from history, tradition use or folklore of the subject areas?

3. Social exchange theory

The Internet of things lies within the context of the digital economy and as a relatively new research area there has yet to be an established theoretical framework, which can be used as a form of reference.

A useful starting point for our purposes is a theory, rather than a framework - that originated in the early 1960's, that of "Social Exchange Theory" (SET).
SET provides a critical analysis of the exchange of goods and actions to the mutual convenience of both or all parties. Emmerson (1976) stated that Blau writing in 1964 believed that SET is when social exchanges "are limited to actions that are contingent on rewarding action from others."

Four scholars advanced the idea of social exchange theory, George Homans, John Thibaut, Harold Kelley and Peter Blau. As early as 1958 Homans was considering the positioning of sociology and social psychology, and during 1959, Thibaut and Kelley were considering the psychology of group formation and group behaviour (the social psychology of groups) whilst Blau was exploring the notions of what humans will exchange in return for power.

Out of this group who were concerned with microeconomics on one hand and psychology on the other, there arose a new theme that encapsulated all the ideas of the four original thinkers. We must be clear that social exchange theory is not seen as an actual theory that can be proved or disproved, but as mentioned above, as a very important frame of reference. In essence SET is asking the question "what will humans exchange for power?" This theory provides an opportunity to consider exchange – of information – digital or otherwise – and what the exchange mechanism brings into the agreement in the form of "reward" for the information exchanged.

Taking this argument one stage further, we can ascertain in our own minds, what we perceive as "power". For example, we can refer to power as power over others, power to act, power to empower others, power to create (and destroy), power to buy and power to give. Yet, even this does not answer the query to our satisfaction. We also need to ask another question as to what exchange mechanisms are used to enact the power transaction i.e. money, goods and so on. Traditionally money or a form of exchange that had value was used by all sectors of society. This process has worked successfully for thousands of years, from ancient Rome and Greece through to the early 21st century.

Power of course, is really about information and knowledge sharing. The notion that "information is power", is actually a statement about how those with information should share it in order to empower and help the masses.

The relationship of information and power can be viewed in three ways – that of the individual, that of the group and that of the organization.

4. Information and power

Individuals require information to make decisions and to be effective; in the same way that groups and teams need information in order to compete tasks. Yet both these can exist without information – it is useful – but not pivotal to existence. Organisations however, are different. The critical resource that organizations need to exist and compete is information. Information is required in order to make quality decisions, which assist with the management of the organization and thus can increase overall productivity and profit. Organizations need to adopt and manage knowledge as a successful knowledge initiative enables an organization to become "more innovative, better coordinated in its efforts, rapidly commercialize new products, anticipate surprises, become more responsive to market change and reduce the redundancy of the knowledge" (Gold *et al., 2001*).

We now turn to what has changed in the 21st century that needs to be considered and critically analysed. This new century has seen the onset of the new generation of technologies that use digital rather than analogue interactions. This led to a considerable number of new developments, which allowed for smaller, hand held devices, until the creation and launch of the mobile phone that evolved into today's "Smart Phone". The smart phone uses "technology that is more capacitive than resistive and allows unlimited connectivity." (Pitt et al, 2011). Pitt also identifies four characteristics that have allowed smart phones to become an essential part of current life. First, "smart phones have diverse sets of media capture abilities and second they are equipped with an accelerometer which detects movement and changes the display accordingly. The third reason is that smartphones are able to use geographical co-ordinates thus providing positioning capabilities and fourth, the smartphone has practically created its own market."

The smart phone market consists, for example, of many games, apps and in-car facilities. No doubt future iPhone versions will take us further into a seamless, ubiquitous world of one touch, continuous on line, connection. This market will further revolutionize existing traditional markets

So, now we have an idea of the origins of social exchange, we have asked the question of what humans will exchange for power and considered information as power. We have started to think about how power is invested in technology, and as an example, have commented on the current rise of the smart phone.

All of these changes have given rise to the birth of the digital economy, and it is within this new economy that the Internet of Things has been conceived.
The relevance and the relationship to social exchange theory and whether SET can provide at least some form of a basis for a robust theoretical framework is discussed in the next section.

5. Relevance of the Internet of things to social exchange theory.

Social exchange theory provides an interesting frame of reference for the Internet of things. Instead of exchanging money we can exchange goods, memories or history and place some kind of value on that intangible commodity. This works in both micro and macro situations, across all levels, i.e. individuals, groups, teams and organisations, things become connected and have a certain special quality and power which has been increased by the availability of the new technology. This is the first time that we have seen this in such an all-pervading fashion where technology alone is impacting in such a way. Historically we could argue that great paintings such as the "Mona Lisa" or the Sistine Chapel ceiling also contain more power than the owners of such items.

Social exchange theory is also about value. There are questions about value and how much value we place on memories attached to items, on the nostalgia that memories evoke, and how this value translates into worth – both to the buyer and to the seller and the consequent decisions re price and pricing structures.

Value is a concept much used in business, for example, value chains; value added; added value; face value and value for money are just a few of the commonly used terms in the business world. The concept of value is important to the context of the Internet of Things as digital technology gives us the ability to "increase" or "decrease" the value of a thing or an object.

The Internet of things is certainly technologically determined, socially engineered, evolving and growing as the global knowledge economy shifts and changes. The concept of exchange for goods, for information, for memory, for emotional feelings is strongly present in this context and does
have relevance for social exchange theory as a potential research framework in the area.

6. Conclusion

The aim of this paper was to provide a discussion of the lack of theoretical frameworks for the digital economy and to offer a possible way forward by thinking about exchange mechanisms such as social exchange. The work has provided an introduction and some thoughts regarding how a framework for the "digital disciplines" can be created, which will work on many levels and in new and exciting contexts, such as that of the growing "Internet of Things".

The contribution of the work will be the creation of a new framework that will assist future research in the digital area. The tentative discussion regarding the use of social exchange theory is original and it somehow seems appropriate that the "old" and the "new" should join in order to pave the way for our future and that of future generations. As the digital party closes, new doors open.

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