

**Knowledge Brokering in Science Fiction Scenarios:
Tracing Performances of Information Mediators Through Literature and Film**

*"I am a trafficker of information, I know everything I can."
- The Merovingian, The Matrix Reloaded*

I. Introduction

This paper starts with the pivotal although somewhat trivial assumption that the significance of knowledge has experienced a dramatic ascension over the course of the 20th century. Already in 1969, self-proclaimed 'social ecologist' Peter Drucker stated that "knowledge has become the very foundation of modern economy and modern society and the principle of social action" (Drucker 1969, 347). And in 2007, Karin Knorr Cetina noted that the issue of knowledge and information has become more important than ever before, and – to put it in economical terms – that knowledge has now become the dominant productive force that increasingly replaces capital, labor, and natural resources as wealth-creating factors (see Knorr Cetina 2007; 361). To be sure, the notion of a 'knowledge society' does not intend to foster the thought that the emphasis on knowledge is an exclusive characteristic of contemporary societies, and that former cultural settings did not feature a comparable inclination towards learning and intellectual labor. However, the argument is that there has been a quantitative as well as a qualitative shift when it comes to the societal relevance of knowledge work. This shift is quantitative because of the growing number of people who engage in information-bound, non-manual labor; and it is qualitative as a result of the effective weight that is attributed to all sorts of knowledge claims. For instance in politics, the referral to scientifically 'proven' facts and expert knowledge has become a prime legitimation strategy in decision-making processes (see Jasanoff 1995, 506). But the advancing number of people serving as knowledge workers as well as the ever-increasing corpus of gathered knowledge has also brought about a movement towards greater diversification and specialization. The often foretold demise of the polymath¹ has become reality as academic disciplines started to disintegrate into even more encapsulated think tanks, dealing with highly focused issues and questions. Arguably, this gradual stonewalling of the already hard-to-access ivory towers of science not only led to a process of segregation within academia, but furthermore entailed an intensified alienation between science and

¹ Intelligent Life Magazine (2009): *The Last Days of the Polymath*, online available at: <http://moreintelligentlife.com/content/edward-carr/last-days-polymath>.

society on a more general basis.² Insofar, the sheer quantity of what can be known and what is actually being researched has torn up considerable rifts that are inclined to hamper a swift and efficient exchange of information. But, as the history of (wo)mankind has shown, where there are canyons, bridges might be built. Accordingly, the increased level of specialization has not doomed chances for cooperation and knowledge transferal for all eternity, but has rather triggered the need for a new kind of expertise – one that is versed in creating and sustaining linkages across different realms of experience, capable of mediating knowledge beyond the borders and localities of distinct fields and disciplines. In short, the need for better ways of exchanging and communicating knowledge has been answered by "the rise of the knowledge broker" (Meyer 2010, 118), i.e. people or groups that specialize on the conveyance of knowledge from one world to another.

Following, I shall give a brief account of the concept of 'knowledge brokering' as it has been discussed within academia before then addressing the issue of how the significance and impact of such brokering networks might indeed be fathomed. Thereby, a rather experimental research approach will be embraced that essentially holds that we may just come to learn about the intricacies of brokering processes by considering how such acts of information transferal have been depicted within fictional narratives – e.g. books or films –, thus, how they have manifested within the imaginations and myths of past and present societies. The paper will close with the portrayal of a few distinct scenarios that point towards the benefits but also the potential risks of knowledge brokering.

II. Approaching the Issue of Knowledge Brokering

In a nutshell, knowledge brokers are "intermediaries, bridgemakers or negotiators [who] facilitate and channel interaction" (Sverrisson 2001, 314). They can be conceived as actors "whose job it is to move knowledge around and create connections" (Meyer 2010, 118). They intrinsically function as "linkage agents" (Ward et al. 2009), initiating and stabilizing operations of information exchange. However, in order to understand their true significance, one has to study closely the networks of interrelatedness they are embedded in, for only if observed within the context of particular entanglements the specific dynamics of a brokering process may become visible.

² In the Social Studies of Science this phenomenon is being discussed under the label 'public understanding of science and technology' (abbr. 'PUS' or 'PUSET'), see for example Irvin and Michael 2003.

In practice, given the evermore complex and diversified societal situation, knowledge brokers can be located in a variety of fields and contexts, often but not exclusively serving as connection points between scientists and their audiences, i.e. those who produce the knowledge and those who use it. Nevertheless, these performances of knowledge transfer must be recognized as complex and messy processes that go well beyond simplistic, one-way-flow models as they have been used within the very early communication sciences (see Burkart 2002, 195; Ward et al. 2009, 2). Scholars trained in the Social Studies of Science have already investigated a considerable number of locations that seem to be especially prone towards knowledge brokering. For example, while Wachelder (2003) and Leydesdorff et al. (2005) have looked into science shops as potential junctures between science and society, Peters (1995) and Dunwoody (2008) have examined the role of science journalism as a potential mediator between scientific knowledge and a wider public. Odorici (2004), in turn, has unveiled the importance of wine guides in regulating the relationship between producers and consumers, a topic related to the creation of desires that has already been addressed by Hennion et al. (1993). Finally, MacDonald (2002) has tackled the museum as an instrument for the distribution and conveyance of knowledge, and Vogel et al. (2001) as well as Shohet et al. (1996) have looked for performances of knowledge brokering between the academic and the industrial realm. With that, the list of spaces and places (see Livingstone 2003) that have been subjected to thorough investigations is by far not complete. Nevertheless, the account should have allowed for a cursory glance at where some of the key themes and issues of the knowledge brokering literature are to be found.

But, and this is one of this paper's cardinal arguments, knowledge brokers have not only found their places in the daily routines of contemporary societies, they have also become part of the imaginations and myths that surround and pervade those lifeworlds. More concretely, knowledge brokers have repeatedly played pivotal roles in the fictional oeuvres of past and present societies – e.g. in literature, films, and videogames –, for example as resourceful and potentially helpful but sometimes devious guides, as obligatory passage points in dead-end situations, or as cunning information holders in difficult-to-see-through networks of action. Examples for such personified information hubs aren't hard to come by: Martine and Monsieur Singh from Tad Williams' *Otherland* series, the Oracle as well as the Merovingian from the *Matrix* trilogy, the Shadow Broker with his army of information providers in *Bioware's* computer game *Mass Effect*. Adopting a relationalistic notion as depicted above, i.e. one that suggests that the actual repercussions of knowledge

brokering can only be fathomed on a case-to-case basis, this paper intends to map performances of information trafficking as they are pictured within fictional settings in hopes of finding potential answers to the question how people tend to imagine the work and impact of knowledge brokers. However, before turning towards the empirical investigation, I shall briefly elaborate on the theoretical assumptions that may not only highlight the approach's feasibility but also stress its relevance.

III. Conceptual and Theoretical Considerations

Why may it be of importance to consider fictional scenarios that tend to take place in distant and inaccessible worlds? And why should we even assume that looking at these narratives may eventually teach us something about the status of knowledge brokering in contemporary societies? In order to address these questions, we need to take a closer look at the notion of 'scenario' and reflect upon what this term – if dissected scientifically – actually entails. What are scenarios and how can they be conceptualized?

For starters, scenarios have been defined as "plausible, challenging, and relevant stories about how the future might unfold, which can be told in both words and numbers" (Raskin 2005, 36) or as "a description of a future situation and the course of events which allows one to move forward from the original situation to the future situation" (Godet and Roubelat 1996). Also, scenarios have been categorized into certain types, for example there is the differentiation between "likely" and "possible" scenarios (Booth et al. 2009), "descriptive" and "normative" scenarios (Börjeson et al. 2009), as well as the distinction between "best-case-scenarios", "worst-case-scenarios", and "[they are not] trend-scenarios". But what might actually tell us more about scenarios than mere definitions and type characterizations are accounts of what scenarios are not, namely "not forecasts, projections, predictions, or recommendations", i.e. they do not base on the assumption that they future is foreseeable or calculable, but "they are about envisioning future pathways and accounting for critical uncertainties" following the idea that "the future is not preordained but rather is subject to human actions and choices" (see Raskin 2005, 36). Accordingly, scenarios base on the assumption that there is not one *definite* future but several *possible* futures that are always changeable and open for debate. In that sense, scenarios point towards a future that cannot be conceived as a fixed, closed-off temporal space, but as a realm that can be shaped and decided upon. Or, to frame it in a more STS-prone terminology, one could say that the future should be understood as a 'multiple' entity

(see Mol 2002) that continually finds itself in a process of 'in the making' (see Oudshoorn 2003). Hence, the first thing we should keep in mind when talking about scenarios is that they come along with the idea that there are not one but multiple futures – futures that can be assessed and, through practical acts of decision-making, formed. But how are these alternative, multiple futures actually being created? The answer is as insightful as it is trivial: They are being imagined, i.e. they are being created within people's minds. But, following Benedict Anderson (2006 [1983]), the notion of 'imagination' does not mean that something is 'unreal' or purely 'fictitious'. As Anderson has demonstrated drawing on the example of the nation state, the fact that something is 'imagined' doesn't deprive it of its impact. Quite on the contrary, the repercussions of large-scale imaginations may ultimately impinge on the ways reality is being perceived and governed. Insofar, the imaginations that are inscribed into particular scenarios can be conceived as powerful entities of action (actants) that lastingly co-produce people's lifeworlds. The notion of co-production (see Jasanoff 2004, Felt 2009) has emphasized that scientific, technical, and societal realms incessantly shape and reproduce each other, ultimately adding up to what Thomas Hughes has called a 'seamless web' (Hughes 1986). And it is the prime assumption of the paper at hand that the imaginations that are embedded in a plethora of scenario narratives are part of this web as well – not only as storylines that merely incorporate and mirror current visions and opinions, but also as active carriers of meaning that co-produce the complex entanglements of contemporary societies.

Now, as a result of this theoretical approximation, the question why it may prove useful to examine performances of information trafficking within works of fiction seems to have gotten a little bit more easy to answer: Firstly, looking into acts of knowledge brokering as they are represented within fictional scenarios seems valuable since those scenarios are indeed products of particular social and cultural constellations and as such might tell us something about the associations people have with regard to this particular subject matter. Secondly, media-based fictional accounts play a pivotal role in the cultural shaping of our environments. Therefore, it seems quite prudent to pay attention to the ways knowledge brokering is being pictured within such narratives. Finally and in conclusion of this chapter, I would like to argue that (fictional) scenarios as they are embedded within books, films, or any other media format, can best be described as "technologies of imagination" (Anderson 2006, Felt and Strassnig forthcoming), i.e. as tools that stimulate people's imaginations and impinge on long-established conceptions, potentially fostering the emergence of novel sociotechnical environments.

Subsequently, I will briefly elaborate on a few exemplary cases in order to substantiate the theoretical deliberations outlined above with some more tangible, empirical backing.

IV. Case Studies

As stated, it is the key assumption of the paper at hand that we might come to learn about the intricacies of knowledge brokering by considering how such acts of information trafficking are being depicted within works of fiction. Thus, looking at future imaginations of data-handling might sensitize us towards potential benefits or perils that may accompany the widespread emergence of information mediators. Following, I seek to bolster this claim by briefly touching upon a number of distinct narratives, all of which can be ascribed to the world of science fiction. This tendency towards a particular genre is no coincidence since science fiction seems to maintain a particularly tight connection towards 'real world' matters of debate, for example by discussing the implications of surveillance, cloning, or artificial intelligence. In that sense, utopias and dystopias of coming worlds have always entailed an appeal to reflect upon present-day conditions and therefore might – to a certain extent – serve as mirrors to the current state of affairs.

For starters, I would like to consider *Star Trek* as an object of investigation, albeit not the original, mid-'60s television series – which can rather be described as a space western than a diligent portrayal of a prospective civilization – but two more recent shows, namely *Star Trek: The Next Generation* and *Star Trek: Deep Space Nine*.³ In essence, both series can be considered as telling examples of how acts of knowledge brokering might be fundamental to the dealings of future societies. In the case of *Star Trek: The Next Generation* knowledge brokering amongst specialists, i.e. the trained crew of the Enterprise, is pictured as an essential component for the accomplishment of almost any mission: There is an overly powerful Borg ship following the Enterprise? There is an alien live form nobody has ever heard of roaming through the spaceship's corridors? Let's meet in the briefing room – also called the 'situation room' – to discuss and debate our options! Thus, the briefing room actually serves as the ship's brain, as a specific location where senior crew members are asked to evaluate a situation and come up with options or solutions. What is going on in this

³ Intriguingly, references to the Star Trek universe seem rather common amongst STS-scholars. For example Anni Dugdale has analysed the *Star Trek: Deep Space Nine* character Odo as a model for actor-network-informed assemblage-thinking, see Dugdale 2005.

briefing room can be called an act of knowledge brokering not just because people are sharing information and insights with each other while trying to solve a problem, but because all of the participants come from various backgrounds, have a different specialization, and even – as it is Science Fiction – stem from very distinct races. In order to remain comprehensible towards one another, everyone has to communicate his or her knowledge as basic and straightforward as possible. Within the walls of the briefing room, Commander Data, the human android, cannot talk in binary code when assessing the probabilities of a certain plan's chances for success, and Lieutenant Geordi La Forge, the Enterprise's chief of engineering, may not go into the technicalities of each mechanical process if he is asked for his opinion. Thus, the briefing room can be seen as a space that assembles a variety of distinct minds, asking them to render and 'package' their knowledge as basic and understandable as possible. In *Star Trek: Deep Space Nine* on the other hand, such a room of cooperation and information exchange is largely missing, a result of the space station's difficult standing in the Alpha Quadrant. Instead, lively knowledge brokering can be observed via the dealings of two protagonists, namely the Ferengi Quark, the owner of a local bar who appears to be very adept in channeling information as well as tangible goods through his hands, and the Cardassian Garak, who pretends to be a tailor but effectively has been a member of the much-feared Obsidian Order, the Cardassian intelligence. In later episodes, Garak uses the knowledge he acquired as an agent to his own advantage, and, at least in some instances, also to the advantage of the Federation. Within this fictional setting both, Quark and Garak, become obligatory passage points (Callon 1986) whenever their field of expertise is of the essence. Another example would be *Star Trek: Voyager's* Neelix, a Talaxian cook who – after the Voyager gets stranded in the Delta Quadrant – serves the ship's crew as a guide and ambassador in their travel through unknown territory. All in all, the Star Trek universe is filled with examples for acts of knowledge brokering in various settings, as integral part of a future society that in many aspects is not so different from our own.

Another example I would like to stress upon briefly is the Ministry of Truth (or Minitrue, in Newspeak) in George Orwell's famous novel *Nineteen Eighty-Four* (1949). This ministry, in which the book's main character, Winston Smith, works, serves as the sole news agency of Oceania. However, following Orwell's descriptions, it quite quickly becomes obvious that the ministry's main purpose is not merely to *report* on occurrences or to purely *record* historical data, but rather to *amend* history and facts according to the prevalent party doctrine. In that sense, the Ministry of Truth, whose slogans read "War is Peace", "Freedom

is Slavery", "Ignorance is Strength", continuously rewrites history, thereby always obliterating all older, potentially diverging records and notes. For instance, if the predictions of the Big Brother, i.e. the country's enigmatic, omnipresent leader, at some point turn out to be wrong, the chronicles are changed to foster the impression that he has never even made the false predictions but has *always* been correct. Likewise, in the beginning of the book Oceanien is said to be allying with Eastasia against Eurasia, but when this alliance suddenly changes, the chronicles are being altered and henceforth only carry the narrative that Oceanien has *always* sided with Eurasia against Eastasia. The example of the Ministry of Truth points towards issues such as the power of the mass media and the possibilities as well as the responsibilities that come with that power. In this regard we should keep in mind that knowledge brokers may not only be philanthropic mediators, drawing vital linkages between different worlds out of good will, but may also be holders of considerable power, potentially willing to use this power for their own merit.

The final example I want to put forward is the story of Frankenstein and his monstrosity. The course of events might be known but here is the short version: A scientist named Victor Frankenstein fabricates a monster but turns away after seeing the wretchedness of his creation. The monster feels misunderstood by humanity and seeks revenge. It kills off Frankenstein's family and torments its creator until he dies, sick and feeble, in agony. Now, why is this atrocious story of interest when considering performances of knowledge brokering? The answer lies within the first few pages of the book when Frankenstein creates the monster in his laboratory. He goes about his work all by himself, without any help or assistance. The science he adheres to is discredited by his colleagues and the monster he manufactures in a state of feverish frenzy is his alone to see. In that sense, the tale of Frankenstein's monster is a fitting analogy for what might happen if science is done behind closed doors, without any involvement of colleagues or the wider public. Furthermore, the story can be read as an addendum to Bruno Latour's account of the moderns (Latour 1993) that basically holds that the monstrous technologies of modernity are the result of a stripping of scientific developments from all societal implications. Thus, with respect to the matter of knowledge brokering, Frankenstein's monster can be understood as the possible outcome of a technology gone wild, i.e. one that has not been brokered or communicated and thus cannot be discussed or scrutinized. As a result, the monstrosity – or technology – remains an opaque black box, one that is impermeable towards a critic's grasp, forever roaming beneath the threshold of public awareness.

V. Conclusions

Certainly, there are many more worthwhile examples one might elaborate on. However, the depictions outlined above should have succeeded in demonstrating what it means to trace acts of knowledge brokering through fictional scenarios. For sure, further theoretical as well as empirical investigations would have to be done in order to refine the approach and test its actual value. For starters, one would have to consider how the imaginations of knowledge brokering that are inscribed into works of fiction are being perceived and processed by the people reading those stories. Or, to say it in the *lingua* of the Sociology of Expectations (see Brown and Michael 2003): What we have done so far was 'retrospecting prospects' – i.e. we have looked for narrations of knowledge brokering within fictional scenarios –, but what we have to do next is to 'prospect [these] retrospects' – i.e. being sensitive towards what people actually do with these accounts. Doubtlessly, such an investigation would entail a lot of work – but if the primal thesis of this paper holds true and the imaginations embedded within works of fiction effectively play a part in the co-production of our everyday lifeworlds, there might just enough impetus to carry through and dig deeper.

VI. Literature

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