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Representing 'things to come': Feeling the visions of future technologies

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Representing 'things to come': Feeling the visions of future technologies[1]

Abstract: Visions of the future pervade the development of computing technologies. This article addresses the production of embodied anticipation inherent to video representations of technological futures. The focus of inquiry is videos produced by HP Labs and Microsoft to illustrate future worlds of technological experience. The principal concern is that these videos, as visual content and artefacts, are performative in their evocation of bodily attunement to prospective technology use. In the first section I analyse the visually oriented logics that situate the videos. In the second section I investigate the evocation of prospective interaction with technologies by drawing upon and developing conceptualisations of affect and the technological unconscious. I argue there is a politics of anticipation of technical futures, understood as the multiple ways in which technological futurity is encoded and, in particular, the relation this has to embodied understandings of the world.

1. Introduction

> "[T]o successfully navigate the… future, businesses need to have a North Star… I believe one of the best ways to articulate this vision is to immerse ourselves in an inspirational view of what the world could look like five, 10, 15 years from now" – *Stephen Elop, President of Microsoft Business Division, 27th February 2009*

Within the development of technology, practises to 'make futures present' often yield discursive and material products, in the form of reports, stories and, of particular interest here, images. In this way, detailed depictions of possible worlds of technology use are produced alongside, and often instead of, materially manufactured prototypes. In this article I specifically address the production of videos depicting imagined futures. I argue such videos are the means and media for rendering the presence of a future. These videos, when watched, re-script the 'indeterminate potentiality' (Massumi, 2007a, page §13) of the future by performatively establishing the presence of what has not happened and may, in fact, never happen. For example, as illustrated in the opening quote, in 2009 Microsoft's Stephen Elop espoused a future orientation, which he suggested is core to the company's strategy, through the medium of

[1] I use 'things to come' here to deliberately reference Alexander Korda's 1936 film of the same name, which was an adaptation of H.G. Wells' 1933 novel 'The Shape of Things to Come'. The imaginative prediction of how we could use future technologies can thus be seen to have an extensive heritage.

video. At its heart lies a process of foresight: literally and figuratively 'envisioning' a future.

Elop empirically demonstrated what he meant by 'an inspirational view

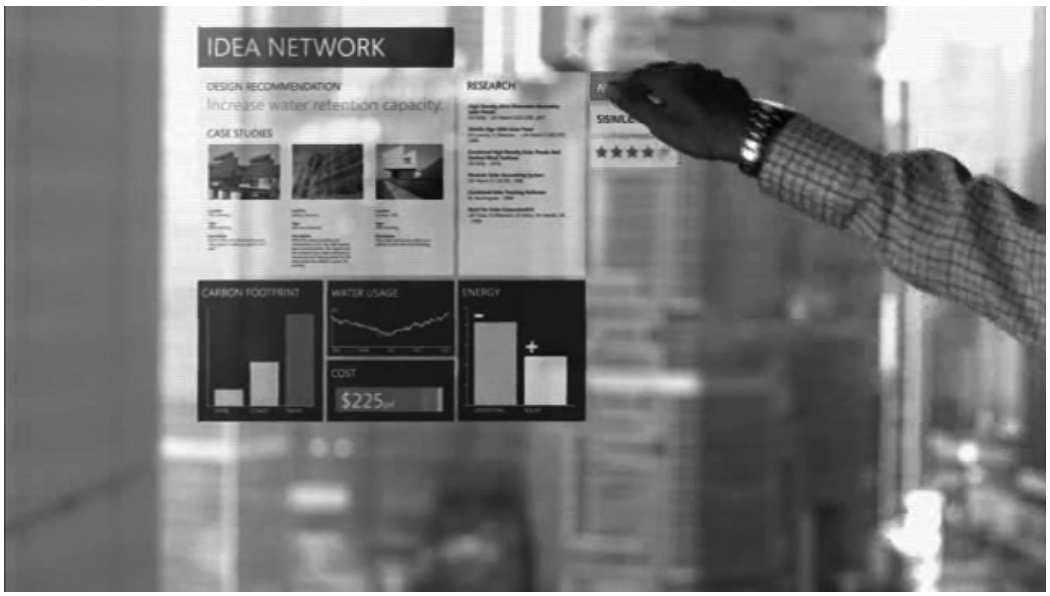

Figure 1 Image captured from Microsoft Office Labs' 2009 "Future Vision of Productivity" vision video (source: screen capture by the author). Images included with permission from Microsoft.

of what the world could look like five, 10, 15 years from now' (Elop, 2009) by showing a video entitled 'Future vision of productivity'. The attendees of the business conference at which Elop spoke saw a man stood in front of his office window, on which were displayed schematics from a current project (see: Figure 1). With a gesture the man sweeps them away, sits down at a desk and begins to manipulate visualisations of information associated with tasks and people with his fingers and change perspective with movements of his hands. Here is a world in which every surface is potentially a screen, where one can seamlessly interact with large amounts of information, which are apparently accessible from anywhere and everywhere. A world in which information about anything can be called up at any time, in any place, using a plethora of devices and systems by relaxed and confident citizens of that world. Indeed, at the heart of this 'vision' is the framing of a citizen/subject whose world is

effortless. The stories constructed around these technologies rest in tension with attempts to demonstrate the technologies as though they are products. This tension invites questions about how 'visions' such as Microsoft's 'Future vision of productivity' attempt to make a future present and what politics ensue from representing specific types of future in particular ways.

Imagining technologies as 'visions' (of a future) is important in our understanding of technology. If a vision is 'the action or fact of seeing or contemplating something not actually present to the eye; mystical or supernatural insight or foresight' (Oxford English Dictionary, 1989) then this article's aim is not to affirm or refute the veracity of that action but to examine it as a means of making futures apparently present. The focus is not the optical nature of 'vision' but the means and representation of anticipation. The article accordingly has three aims: first, to introduce the videos that qualify anticipation of particular forms of technological encounter as artefacts of representation produced in the efforts to represent future computing technology. As images in video form, I refer to 'artefacts' because these discrete products of human activity have an ambiguous status. Both consumers and producers treat them as a kind of commodity with a peculiar value, but they are also objects to be 'read'. Second, I intend to analyse the representational practices of future orientation by which the artefacts in question are produced. These artefacts undergo interpretation and, I argue, in that process lend some materiality to the potential future being represented. Third, I address how forms of future orientation encourage a familiarisation and embodied disposition towards proposed futures. In so doing, this article attends to the role of our sensuous perception of 'visions' and their representational objects constructed to elicit an embodied future orientation.

This article focuses on the representational artefacts of videos produced principally by technology companies to expound visions of the future with computing technologies that enhance and support most of our everyday lives. For shorthand purposes, and with no intention to proclaim a 'genre', these videos will henceforth be referred to as 'vision videos'. These representational artefacts are distinct because of their ambiguous status, they are not purposely advertisements but also are not entirely fiction. The content of the videos has a basis in contemporary industrial research and yet what is depicted (in the form of technological devices or systems) is frequently not yet possible. Such videos have featured prominently throughout the course of computing research, with influential examples such as Apple's 'Knowledge Navigator' (see: Bergman et al., 2004; Houde and Hill, 1997; Tognazzini, 1994).

This article will concentrate principally on two noteworthy examples of vision videos: HP Labs' 2000 video for the 'CoolTown' project and Microsoft Office Labs' 2004-2009 'Future vision of…' series of vision videos (the most recent being that described above). These videos have exhibited popular influence by attracting widespread comment online. More importantly, they have a particular resonance in contemporary computing research, they represent significant movements in the commercial research conducted by two world-leading technology companies and might thus be considered canonical examples. HP Labs' 'CoolTown' project was a headline initiative to push forward a vision for what computing would become. 'CoolTown' represented a multi-million dollar investment into a particular business strategy exemplified in the vision video. Derivative work from the 'CoolTown' agenda has since

formed further future oriented narratives, such as the 'm-scapes' locative multimedia platform[2].

The 2004-2009 Microsoft Office Labs 'Future vision of…' videos are articulations of how Microsoft envisaged the integration of emerging technologies into the Microsoft rationale of experiencing technology. The videos have developed into a means of proselytising an ethos of technological development and the types of devices and systems that should be produced. While it is certainly possible to see significant overlaps with existing Microsoft technologies, such as Microsoft's 'Surface' touchscreen interface and 'Natal' gestural interface, these videos are, I argue, much more than a vehicle for selling specific devices. As Ian Sands, Microsoft's 'Director of Envisioning' states in an online interview, the process for producing vision videos is directed as a means

> 'to really kind of wrap our heads around what's possible, what's plausible, and what technology roadmaps exist over that time frame [5-10 years]… we look for problems… and we identify which technologies are best suited to start addressing some of those problems, and we have… fun brainstorming with lots of people around the company to kind of imagine inspiring, thought-provoking ways that… start to illustrate what those futures might look like' (Larsen, 2009)[3].

Vision videos are 'paratextual', following Nigel Thrift's (2004b) reading of Gérard Genette's work (1997). A 'paratext' is '[m]ore than a boundary, or a sealed border, [it] is, rather, a *threshold*' that 'constitutes a zone between text and off-text, a zone not only of transition but also of transaction' (Genette, 1997, pages 1-2). Drawing on familiar literacies of technology use and everyday life, vision videos, as 'paratexts', connote action towards particular futures without necessarily committing to that action. To address the aims of

[2] The 'm-scapes' platform will be withdrawn from active support by HP on 31st March 2010 following a shift in research focus. The website that supports the platform is registered at: http://www.mscapers.com/ (accessed: 24/02/10) until that date, thereafter 'm-scapes' will not be an active software platform.

[3] The text of this quote was transcribed by the author from footage in the video interview with Ian Sands, Director of Envisioning at Microsoft, conducted by Larry Larsen (2009).

this article, I problematise the production and reading/viewing of 'vision videos' not as trivial but as situated within a socio-technical 'politics of anticipation'. If politics is a range of forms of action that mark and code practices (following Agamben, 1993; Barry, 2001) then *anticipatory* politics are those forms of action that mark and code practices that evoke and produce futurity. I suggest these forms of action lie in a political tension between the exercise of power, to claim and enact certain types of future, and the negotiation of desire, understood as the sub- and super- personal impetuses that call us to 'look forward'. In particular, I stage this discussion at the scale of the body, in relation to the 'micro-politics' of 'affect', which is a substrate of neurological and biological activities that form the basis for feelings (Damasio, 2000; see also: Connolly, 2002). It is to that 'prospective' and 'pre-cognitive' embodied experience that I relate the anticipatory function of vision videos, which I argue imbue an anticipatory sensibility figured in and through the body.

Anticipation is mobilised through the production of visions but is also emergent (from the culmination of circumstances that produce the events in life, both mundane and extraordinary) as a range of dispositions towards the future. A politics of anticipation is arrived at in the negotiation of various associations of future orientation and invited in the competing forecasts and visions of technology companies. Characterisations of 'the future' as such can vary across modes of anticipation. In contemporary life, we are familiar with a foreboding attitude towards the future, exhibited in practices of precaution, preparedness and prevention that seek to define and regulate potential risks (see: Anderson, 2010a, 2010b). Yet there are also aspirational and confident attitudes towards the future that support inventive practices of anticipation, such as imagining through stories in image and text and enacting scenarios 'as

if' particular types of future come to pass. The politics of anticipation is thus situated in the tension between the articulation of what Adam and Groves (2007) call 'future presents' and 'present futures'. Futures figured by removing their connection with the complex relations of the present to script them are 'present futures', whereas futures figured as 'a realm of latent futures in the making' (Adam and Groves, 2007, page 17) are 'future presents'. Arrangements of present future and future present are negotiated in the production and interpretation of vision videos.

This article stages the tension between understanding vision videos as a commercial laying claim to specific futures and the evocation of unconscious and embodied technological anticipation through two steps. First, the representational formats of 'visions' are examined as apparently lending material value to futures and thus efforts to give them direction in the present. Second, the prospective embodied interaction with and through technologies is explored as engendering anticipated sensations of technological experience based on pre-existing bodily knowledge. This article therefore examines how 'vision videos' operate in relation to science 'fact' and science 'fiction' constructing precisely this politics of anticipation in the efforts to render a form of future present. Conclusions are drawn around the nature and agency of the spatialised anticipatory impetus co-constructed in image to elicit a future-oriented embodied atunement, both by ostensibly 'credible' R&D and more 'fanciful' entertainment practices.

2. Representations of futures: the rhetoric and image of 'vision'

The anticipation of what is to-come, the apparent understanding behind the 'vision', has been described elsewhere as 'anticipatory knowledge' derived from 'practices that create, know and govern possible, potential or preferred

futures' (Anderson, 2007, page 158). Forecasts envisioned rest in rhetoric and image, which constitute a 'visual imaginary': 'When the future can no longer be expected to follow on neatly from the past, then imaginative means must be employed' (Brown et al., 2000, page 8). This emphasis on the visual is inherent to descriptions of future orientation and speculation, which can 'be construed as the rational perception of clear and distinct forms with the unclouded eye of the mind or… the "vision" of the seer' (Jay, 1994, page 29). This section breaks down some of the visually oriented logics that situate vision videos both as artefacts and visual content.

There is a significant history of vision videos in computing R&D. One of the most significant early examples was Apple's 'Knowledge Navigator', produced in 1987, in which a Professor interacts with an 'intelligent' device to organise his appointments, research and teaching[4]. As Tognazzini (1994; cf. Bergman et al., 2004) notes, 'Knowledge Navigator had a profound effect on Apple and the industry'. It inspired many companies to illustrate and publicise a future vision and direction. Tognazzini was himself involved in the production of another significant vision video, produced by a division of Sun Microsystems, entitled 'Starfire'. During the same period key players in the fledgling mobile telecommunications industry also produced vision videos. In the early 1990s Motorola imagined a technological world ten years in the future entitled '2000 A.D' and AT&T, alongside a future-oriented advertising campaign, created an elaborate vision video: 'Connections'[5]. In 1995 Microsoft CEO Bill Gates' book 'The Road Ahead' was accompanied by a CD-ROM with a set of video scenarios depicting various ways in which everyday life would be

[4] Apple produced at least one follow up vision video, in 1988 here was 'Grey Flannel Navigator' in which less sophisticated technology is set in a more complicated narrative of workers at multiple locations.

[5] It is interesting to note that at the same time elaborate depictions of computing technologies were the central premise of popular cinema, for example in the film 'The Lawnmower Man' in 1992, 'Jonny Mnemonic' in 1995, 'Existenz' and 'The Matrix', both 1999.

'revolutionised' by computing technologies. Today, vision videos can be found easily through popular video-sharing services on the internet. It is easy to 'share' the Microsoft video described at the opening of this article by 'embedding' it on one's own blog or website[6]. The distribution of research visions beyond the research seminar or press conference has become significant in technology companies' efforts to demonstrate 'vision'.

Rhetorically, visions have been figured as 'goals', 'targets' and 'destinations' throughout computing R&D. The production of vision videos, however, does not imply this peculiarly linear sense of concretised progress. Instead, it is an attempt to produce forms of anticipatory knowledge in the present, for it is the 'see it to believe it' logic that rests behind their production. The assertion of visions is deliberately beguiling and in those assertions there is an insistent call for us, as an audience, to apparently participate:

> 'imagine, just imagine all of the wonderful applications for this technology, including the many compelling applications for the work environment, authoring and editing digital content is as easy and natural as having a conversation… That's where we're heading' (Elop, 2009)

Such evocations perform a particular function by conditioning certain kinds of material expectation, we are asked to imagine using these technologies in particular material contexts. Yet, these representational artefacts do not frame the technologies and the worlds in which they are situated as a goal. Vision videos lack specificity, instead they imply forms of technological encounter that might come from qualitatively different technologies, or perhaps never come at all. It is in this ambiguous form of controlling action being engaged and yet no apparent obligation to deliver the technologies as such being asserted that a politics of anticipation plays out.

[6] The video shown by Stephen Elop quickly found its way on to the *YouTube* video sharing service, which allows users to copy and paste the appropriate mark-up code (as do many other video services), which describes the video content, into their own code for a website or blog. See: http://www.youtube.com/watch?v=HvA9lA7_5FE (accessed: 18/06/09).

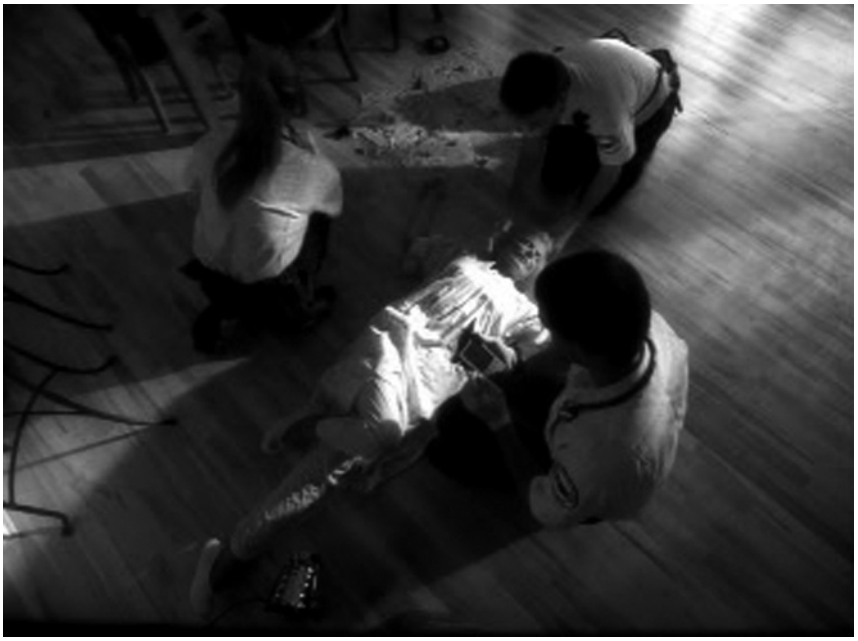

Figure 2 Image captured from HP Labs' 2000 "CoolTown" vision video – A medical emergency mitigated by wirelessly connected sensing technologies (source: screen capture by the author) © Hewlett Packard.

Vision videos are very similar to many other forms of moving image. The representational techniques utilised in these vision videos illustrate that they are not unique. Yet what marks out 'visions videos' from other forms of video is their political ambiguity. They are both 'fun' imaginative artefacts of entertainment and serious investments in the attempt to make particular futures present. The distinctive property of vision videos is the blurring of an apparent commitment to forms of action towards a particular future with imaginative fabulation. I argue this 'blurring' affords the production of anticipation without clear obligation to deliver what is envisioned. The ambiguous status of these artefacts of imaginative 'vision' allows vision videos to operate as entertainment, fiction for its own sake, but equally to introduce and demonstrate particular concepts or functions, acting as a form of 'prototype'. Imagining 'ubiquitous' computing capabilities, spread throughout the everyday environment, has been central to many computing visions in the last 20 years. Beyond the specific merits of the technologies themselves, vision videos map

value on to the future 'world' in which the technologies are depicted. Almost all vision videos concerning these types of technologies present apparently 'good' or positive futures. Given that technology companies produce the majority of such videos, this can be no surprise. The positive nature of the depictions is not always unqualified; the narrative device of 'crisis' is frequently used to demonstrate how the technology will help, for example in relation medical emergency (see: Figure 2).

The image of future visions performs futurity in certain ways: the stylised content of visions use familiar visual vocabularies and give detail to imagined socio-technical activity to lend it material authenticity. Commonly used cinematographic methods are, of course, employed to construct a coherent representation of possible 'future' worlds. For example, camera angles and specific shots direct the viewer's gaze and propel a narrative. Performances are necessarily different because the role of the image is to depict particular forms and actions that centre on the use of technology. The balance of story and schematic demonstration can therefore be skewed towards illustrations of how proposed technologies may work. Technologies are depicted as being used by (Western) people 'like us' in familiar surroundings to contextualise and normalise the idea of their use. Angles of shot and modes of cutting are arranged in vision videos to direct the eye of the viewer towards the depiction of technology use (see: Figures 5 and 6), whereas in traditional cinema technology is more likely to be a plot device to advance the narrative.

As viewers we are, therefore, enrolled into reading images as 'sets' or 'communicative spaces' (Lösch, 2006). These 'communicative spaces' both limit and enable what is communicable about the envisaged future (Lösch, 2006, page 394). The literal and discursive framing enacted by vision videos, as 'communicative spaces', thus controls or at least forms the bounds of the

Figure 3 Image captured from HP Labs' 2000 "CoolTown" vision video – A child learns proactively using computing facilities embedded in multiple devices (source: screen capture by the author) © Hewlett Packard

viewers' anticipation. These modes of framing create a finite set for each scenario and yet infer an outside world beyond the frame in which this technology continues to exist, which gives the vision credibility: 'the frame refers to what is around the frame, a spatially and temporally contiguous 'unseen' that may, in its turn, subsequently enter the frame and so become actualized as a seen/scene' (Doel and Clarke, 2007, page 905). The world of the vision cannot thus be totally alien. It relates and, in fact, is constituted in the present which we occupy. The extension of the imaginative world is frequently achieved through the familiarity or banality of what is performed in-frame (using refrigerators and watches for example, see: Figure 3). Accordingly, the encouraged extrapolation 'beyond the frame' is a relatively easy imaginative step.

The narratives employed in vision videos are in large part devices to freight a demonstration of the idea of technology. Vision videos are diegetically designed to denote the seamless integration of proposed

technologies into a recognisable world. Simultaneously, the producers of vision videos must also want the connotation to be that the company has an abundance of 'vision'. As Ian Sands, Director of Envisioning at Microsoft, intimates while discussing the 'Future vision of productivity' video (see: Larsen, 2009), part of the function of these artefacts is to demonstrate 'thought leadership'. In almost all cases, to lend validity and familiarity, the narrative is wrapped in a broader premise, for example placing the technology in an everyday context of health, manufacturing, or education (see: Figures 3, 4 and 5). In rendering trivial the presence of such technologies in worlds like our own, visions also arguably trivialise the exercise of envisioning. While vision videos are clearly for promotional purposes, the intertextuality of visions (see: Doel and Clarke, 2007, page 891; Pickles, 2004, pages 159, 174), their situation in (and propagation of) a broader aesthetic vocabulary, arguably does something more than advertisements. The precision of the image can be seen as a discursive exercise of rendering the ephemeral idea visually 'true'. Vision videos entertain but also imply that the material arrangements depicted are likely to be actualised.

Vision videos, as imaginative representations of possible futures, are 'discursive formations', which are sets of statements and rules that specify what it is possible to say (Foucault, 2000, pages 31-39). As representations of possible futures, these discursive formations condition what it is possible to say about the technological future. Visions videos are thus situated in a discourse of anticipation that disciplines the way future orientation takes place in the living present. Specific visualities of illustration and simulation are a part of the rules for making-visible in particular ways, regularising objects, thematic choices and concepts in 'discursive formations' (Foucault, 2000, page 38). These formations offer internally consistent 'worlds', even beyond the frame the

'spatially and temporally continguous unseen' can enter the frame to be 'actualised as seen/scene' (Doel and Clarke, 2007, page 905). The assumptions each vision is predicated upon therefore remain faithful to the temporal situation of the present in which it is authored, they represent a 'present future' (Adam and Groves, 2007). The futures represented in vision videos, can therefore date, which is abundantly evident when viewing older vision videos. I argue, following Massumi (2007b), that the anticipatory knowledge of what is envisioned remains anticipatory: 'A past anticipation is still an anticipation, and will remain having been an anticipation for all of time'. This is evident in how the image and idea of 'futures' are recycled. For example: in an explanatory video concerning the 'Future of Productivity' vision video[7] Microsoft Office Labs' 'Head of Envisioning' Ian Sands describes digital transcription services and meeting management services very similar to those promoted in Apple's 1988 'Grey Flannel Navigator' video twenty years earlier.

This is politically significant because it is emblematic of the disciplinary function such 'visions' perform in the popular understanding of technology. The imagined, idealised, futures of vision videos solidify the future as a step on the way to potentially achieving such worlds. It is substantially by the virtue of these apparent glimpses ahead that the present, in its material forms is justified. For some, this justification becomes necessity. Therefore, one should enrol into this aspiration, and buy the soon-to-be-launched device more widely advertised by HP or Microsoft, because we are compelled to believe that is the way the future is developing. Once you buy, and 'buy in', to the current technology zeitgeist, then you are part of the material and always deferred present-future evoked by vision videos. Hence, for the technology companies, the videos and we the consumers become profitable investments.

[7] See the Microsoft Office Labs' blog article "A walk through the productivity future vision" (http://www.officelabs.com/Lists/Posts/Post.aspx?ID=77) accessed 01/04/09.

To analyse vision videos is to attend to both 'the representational imperatives of narrative and the non-representational imperatives of the affective-performative [the felt sensations]' (del Río, 2009, page 15). Following Suchman's (et al. 2002) description of the action 'prototypes' afford as physical 'performative artefacts', by virtue of being quite literally 'technologies-in-the-making' (ibid. page 164), vision videos may also be considered as a form of prototype. Both physical prototypes and 'video prototypes' perform in the present with the aim of establishing the 'viability and possibilities of a nascent technology' (Kirby, 2010, page 5). A physical prototype has a more immediate material intensity and yet both the physical and the image-based are 'performative materialised artefacts' (Michael, 2000, page 35), for they both demonstrate and describe actions and functions, and thus render connections with existing technical knowledges. Indeed, there is a significant, if small, academic literature around the concept of 'video prototypes' (for example, see: Bardram et al., 2002; Halskov and Nielsen, 2006; Vertelney, 1989). Interestingly, pragmatic concerns have been raised when such 'prototypes' are tested with the same scientific rigour as physical artefacts: 'In some situations where we have used the virtual video prototypes it has been difficult for people to distinguish between what is possible to implement today and what *might be possible* in the future' (Halskov and Nielsen, 2006, page 231 additional emphasis). In a different vein, and to address their *discursive* traits as 'performative artefacts', we might consider vision videos as 'diegetic prototypes' (Kirby, 2010). Figured by Kirby (2010, page 5) as cinematic portrayals of future technologies to 'demonstrate to large public audiences a technology's need, benevolence and viability' (formulated by 'scientific consultants' with a particular desire for such technologies to be featured), it is a short step to apply the notion to the content of vision videos.

Amongst the motivations for production is always a desire to further a specific agenda in the present. Just as in Science Fiction cinema (Kirby, 2010), those that develop the depicted technologies in vision videos 'have a vested interest in conveying to audiences that these fictional technologies *can* and *should* exist in the real world' (ibid. page 9 original emphasis). Connections are made between different technologies within the videos to suggest potential uses of prospective devices together with existing technologies. For example, the child in Figure 3 uses a device akin to a watch with various screens and other objects in the setting of a family home. Vision videos express an agenda not only for technology development, in the present, but also for the kind of world in which that technology might exist. These imaginative representations of particular futures are value-laden and contingent upon the interests of the producers. The viewer also brings a set of knowledges from their personal experience of technology use. Therefore the performance of anticipation is a juxtaposition of the object of representation and the viewer in a particular moment. So, if these videos, which stitch the ephemeral to the material, are more than marketing tools and perform something like the role of a 'prototype' then they have a performative capacity.

Thought performatively, as acts of making-visible, vision videos act upon the body: 'the representation of the future, conceptualised as a performative *materialised* artefact shapes the 'present' in which it performs' (Michael, 2000, page 34 original emphasis). More than an ephemeral feeling of anticipation, the specific demonstration of function and use of proposed technologies arguably demonstrates producers' attempts to elicit embodied dispositions towards novel devices and systems. This contention forms the crux of the analysis of this article, pursued in the next section. In a sense, vision videos are prospective 'paratexts': '"invisible" forms which structure how

we write the world but which generally no longer receive attention because of their utter familiarity' (Thrift, 2004b, page 585). Forms of embodied disposition can be rendered material in the bodies of viewers because they appeal to the paratextual nature of what is depicted. Vision videos depict potential modes of technological encounter in lucid detail, as if they are achievable in the present moment, and thus, I argue, inherently appeal to 'new modes of reading/writing the world… in the pre-cognitive rather than the cognitive domain' (Thrift, 2005, page 464). It is to that 'prospective' and 'pre-cognitive' embodied experience that I turn to next, to explore if, and how, vision videos imbue an anticipatory sensibility figured in and through the body.

3 Feeling to-come: prospective embodied experience

Through the analysis of the projection of potential future experiences in this article I highlight how particular orientations of the body towards and with

Figure 4 Images captured from Microsoft Office Labs' 2006 "Future Vision of Manufacturing" vision video – two frames in sequence demonstrating a gestural interface shot 'through' the screen (source: screen capture by the author). Images included with permission from Microsoft.

technologies are depicted. In this section I want to discuss four aspects of vision videos as 'performative materialised artefacts' (Michael, 2000), which imbue the anticipation of particular embodied experiences of technology. Let there be no doubt that I am not seeking to affirm a means by which technology companies are indoctrinating consumers into specific forms of technology use.

I argue the manipulation of sensuous dispositions through imaginative representation can be usefully described as a particular type of 'affective' apparatus mobilised in the production of vision videos. This 'affective' apparatus, I suggest, is the ways that images can and do affect the whole body in a variety of biological, emotive and sensory ways that are not only determined by the historical moment in which they were produced (Doel and Clarke, 2007; Massumi, 2002). I therefore begin this section with some conceptual framing.

There is no one definition of affect. It has been and is being used quite differently by a variety of scholars in a number of traditions (cf. Clough, 2000;

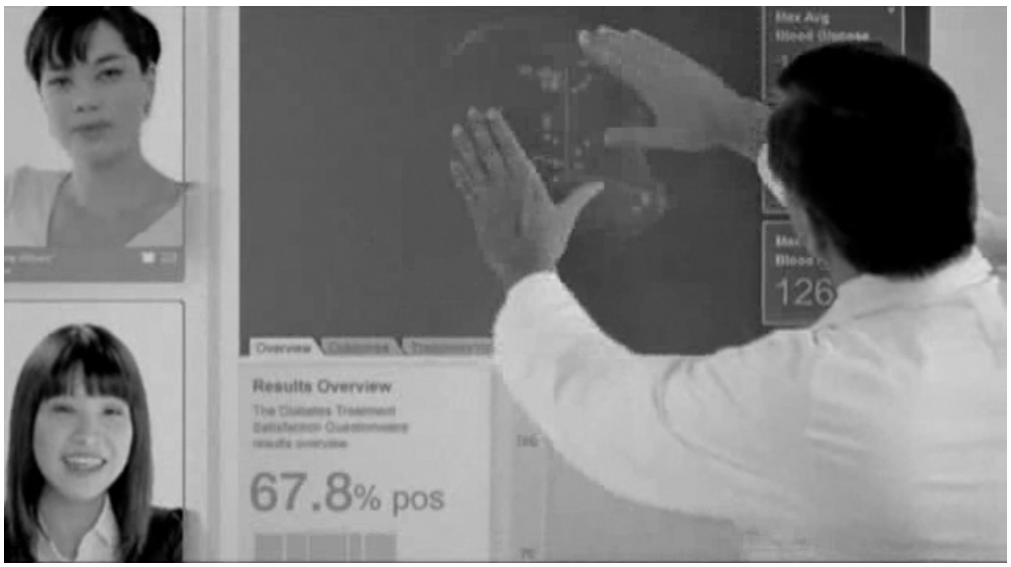

Figure 5 Image captured from Microsoft Office Labs' 2007 "Future Vision of Personal Healthcare" vision - a teleconference in which a doctor manipulates data through gestures. (source: screen capture by the author) Images included with permission from Microsoft.

Damasio, 2000; Terada, 2001; Thrift, 2004a), and thus it is important to take a brief detour through defining the use of the concept here. 'Affect' in this article is taken to be simultaneously a physical phenomenon, immediate to the body, and an impersonal 'force' of feeling. I turn to William Connolly's (2002) reading together of Deleuze's 'Spinozist' philosophy of experience (see: Deleuze, 1988, 1990) with contemporary neurological research (such as:

Damasio, 2000; LeDoux, 1996). From this theoretical juxtaposition, two important facets of affect are that it can take the form of 'a substrate of feeling' that creates 'as if body loops' (Damasio, 2000, pages 280-282) and 'background feeling' (Connolly, 2002, pages 170-171). Affect, and by extension our conscious sensation and emotion, Damasio (2000) argues, does not require conscious thought. Substrates of neurological and biological (for example cardiovascular and hormonal) activity form the basis for feelings, but they do not always result in feelings; they exist as 'potential patterns of activity' (Damasio, 2000, page 79). These substrates can play out patterns of somatosensory activity that are something like 'internal simulation' of sensation 'as if' the feeling was consciously felt. This is useful in theorising how a prospective bodily 'attunement', or 'background feeling', may be formed by vision videos. As Ash (2009, page 5) and Dewsbury (2009) both assert, these affects are expressed physiologically, such as 'goose bumps' or blushing, and are thus *material* as well as experienced sensorily (such as what one comes to understand as the feeling of 'fear'). The appeal to embodied experience thus orientates present understandings and the impetus for possible future bodily dispositions is seeded. Given this conceptual basis, let us thus move on to the analysis.

First, the various modes of dissemination of vision videos result in audiences being found and finding their own way to view them. Vision videos have been shown to business audiences by executives of technology companies to substantiate their corporate vision and direction (for example, Carly Fiorina, former CEO of HP, see Hewlett Packard, 1999; and Stephen Elop, President of Microsoft Business Division, see: Elop, 2009) but are also available online (both from company websites and online video services) to anyone with an interest. Audiences are thus constituted and constituting in relation to the

videos themselves, and whilst the interpretation (inculcated, subverted or otherwise) is a social political concern (further discussion can be found in: Rose, 2007; see also: Gillespie, 2005) it is to the micro-politics of bodies that I would like to turn.

To move on to the screen-image itself, and as a starting point, examples of the depiction of embodied action can be addressed somewhat pragmatically.

Figure 6 Image captured from Microsoft Office Labs' 2009 "Future Vision of Productivity" video depicting specific haptic interface interactions (source: screen capture by the author). Images included with permission from Microsoft.

Close-ups that depict specific modes of technology use render in detail hands touching surfaces or precise gestures (see: Figures 3, 4, 6 and 7). The representational 'prototype' does not illustrate technical specifics, it is, instead, performative. Practices of using the technology are the subject of illustration. There are of course alternative readings of the images and scenes, as with other experiences audiences bring their own background and context to their viewing. However, through the persistent demonstration there is also a significant inculcation into anticipating technologies specifically like those represented. The vision of technology depicted in video is 'internally consistent'. It works in a relatively familiar way (drawing on existing

technology) and adheres to its own internal rules as well as the rules of the world rendered on screen. As former MIT scientist, technology entrepreneur and Hollywood 'science consultant' John Underkoffler, in an interview with David Kirby (2010), suggested of a fictional gestural interface he designed for a film:

> 'I think the lay audience look at the technology in the film and say "Wow. Okay, I see how that works. I think I could operate that myself in fact. I learned how from the film' (Kirby, 2010, page 18).

As noted above, the extrapolation beyond the frame draws a thread between what is seen in the image and the unseen, which the imagination fills in, as Underkoffler suggests. More specifically, the close-ups of hands touching surfaces invite sensorial imagination, for example: how much friction there is between fingers and surface or how much manual work or dexterity is required (see: Figures 6 and 7). In Figure 6 we see a character using a touch sensitive surface display, which he manipulates with relative ease using apparently effortless and flowing movements of his fingers and hand. We can see that the same anticipatory action, to elicit familiarity with a proposed form of technological interaction, is used in telling the story of a blockbuster movie and in a vision video. What is figured in these images is an expression of the possible, which, in his analysis of cinema, philosopher Gilles Deleuze (2005a, pages 100-101) suggests can be generated by a proposition, in this case the sensation of embodied technical interaction. This 'vision', whilst created in a specific moment in time, abstracts the sensuous quality from a 'state of things' yet retains a specificity that conditions the ways in which that type of encounter can be anticipated. It is here that the bodily aspect of the politics of anticipation plays out; particular forms of attunement seed the conditions for prospective embodied encounter.

My second and third points concern the micro-politics of affect. So, second, we analyse how the content of the image can affect. The material

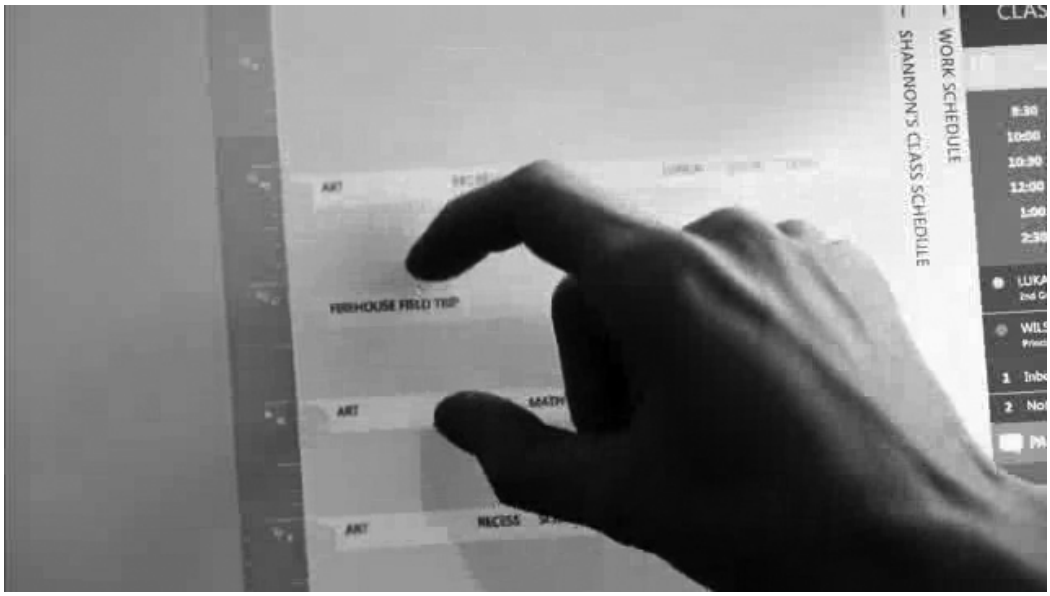

Figure 7 Imaged captured from Microsoft Office Labs' 2009 "Future vision of productivity" video – touch sensitive interfaces are a part of every surface (source: screen capture by the author). Images included with permission from Microsoft.

capacity to construct an image comes together with the phenomenal experience of the viewer to produce an experience of a world on the screen: 'in viewing the image we can draw upon our embodied experience to feel [what is depicted] proprioceptively even though we are not feeling an actual [object]' (Ash, 2009, page 13). Images thus produce multiple affects through the viewers drawing upon their own experiences to 'flesh' them out. Depictions of gestural interaction, such as a 'user' moving fingers across a surface (see: Figures 6 and 7), suggest a tactility that, from experience, the viewer can bodily comprehend. The viewer is asked to think 'as if' we might be using the technology. This bodily comprehension can be distinguished by the viewer from past experience and thus anticipate further similar, yet different, experiences as something novel or future oriented. The power of the existing devices that facilitate this bodily comprehension, such as Apple's recently launched 'iPad', is that they change the bodily expectation of technical

interface. Indeed, Jonathan Ive, Senior Vice President of Product Design at Apple, invokes this type of futurity in a promotional video for the 'iPad': 'millions of people are going to be instantly familiar with it; they're going to know how to use it. In many ways, this defines our vision, our sense of what's next'[8]. The same literacy of inferred futurity plays out in vision videos. The material expression of sensation through the image of vision videos produces an idea or sense of futurity but not 'the future' as such. More broadly, if affects are inter-corporeal forces then the image of bodies in movement and the depiction of certain actions and responses are fundamentally different from a co-present performance of another actual body.

The depictions of gestural and haptic interaction with technologies (see: Figures 4-7) relate to experience of actual embodied interaction. As Dourish (2004, page 145) suggests: 'interaction is already embodied in current systems, and so we can find elements of the embodied interaction perspective in current practice'. This embodied interaction can be anything from the tapping of the keyboard clicking of the mouse to movements of a handheld device (such as the Nintendo 'Wii' games console) and gestures captured by camera (such as Microsoft's recently released 'Project Natal' gestural interface for their next generation of games consoles). Even if not experienced first-hand we have been co-present with people using haptic and gestural computing technologies, such as the Nintendo 'Wii' games console and the Apple iPhone, or even the 'mundane' touch-screen interface in an ATM or carpark payment machine. Radical visions of 'new' technological futures might be alien to the viewer, due to a lack of a frame of reference, or they may rely so heavily on illusion that the fictive nature of the vision becomes fantastical. Forms of attunement in the alignment of embodied dispositions towards prospective technology use are

[8] The text of this quote was transcribed by the author from footage in the Apple iPad promotional video (available from: http://www.apple.com/uk/ipad/ipad-video/), accessed: 27/01/10.

accordingly generated through the careful ways in which the phenomenality of the envisioned technology is depicted. Whilst the producers are clearly aware that it is possible to elicit affects through the techniques they use, there is not a direct correspondence between intended effect and the affects actually experienced.

Third, affect is contingent on the full gamut of the surrounding context of, in this case, the viewer and is specific to the moment of experience but draws upon a wealth of experience engrained in the body. The 'attunement' proposed here is between how the viewer anticipates the feeling of particular forms of technology use and the depiction of 'future' technology use in the videos. It is this attunement of 'background feelings' that generates the various associated senses of futurity and subsequently familiarity. Markers are thus etched into bodily dispositions, 'somatic markers' that can be culturally mobilised and operate 'below the threshold of reflection; [they mix] culture and nature into perception, thinking and judgement' (Connolly, 2002, page 35). It is through these somatic markers brought about in the performance of viewing, between the representational construct of the image and the viewer's body, that we are materially enrolled into anticipation. Affects perform a 'micro-political' role because they are at the level of the body and its constituent parts. The *anticipatory* micro-politics of vision videos plays out in the bodily comprehension and thus attunement to potential technological experiences. In this way vision videos can affectively discipline potential future technology use through present bodily dispositions.

As demonstrations of the technologies, the videos are akin to 'prototypes' because they 'diegetically' walk the viewer through functionality (see: Kirby, 2010). However, it is the rub between the apparent and the anticipated that must be explored here. Vision videos appear to operate in a

mode opposite to that of 'magical' illusion[9] – there is deliberately very little mystery to the depiction of the experience of using the technology. For example, gestural interfaces are carefully and closely shot to illustrate how one will potentially use such technologies. Shots are tightly focussed on specific body movements and detail how the technology responds (see: Figures 1, 6 and 7). Yet there are also aspects that are illusory, in the case of the Microsoft videos no explanation is given of how every surface can possibly be a screen. The groundlessness of these unexplained aspects of the vision asks questions of the present rather than projects into the future. The rub between the emergent potential of the viewer's interpretation and the 'somatic markers' that emerge from viewing exceed the sum of the rhetorical work of the vision. Vision videos act in and upon the present, and, according to Michael (2000, page 33), 'elongate' it. In such a reading of the videos it is their sensational aspect that matters, drawing on existing and past understandings of similar types of technology to elicit affective responses.

Following from this, and as a fourth point, familiarity is engendered in the appeal to a 'technological unconscious' (Clough, 2000; Thrift, 2004c). This unconscious, as such, should not be thought of as a suppressed desire within the body (see Freud, 1922) but rather as a 'desiring production, an assembling that is grasped in its effects' (Clough, 2000, page 61). It operates through the ongoing performance of life and forms 'knowledges' that 'do not belong to 'us' or to the environment. Rather, they have been coevolved, and so refuse a neat distinction between organic and inorganic life or between person and environment' (Thrift, 2004c, page 176; see also: Ash, 2010). There is not a single technological unconscious but plural. The technological unconscious is

[9] In the sense that magical illusion relies on the tenets of miss-direction, distraction and concealment to provoke an experience of what one might otherwise deem impossible, from prior experience of the world (on optical illusions see: Crary, 2001; for discussion of the perceptual vs. the neural nature of illusory phenomena see: Thompson et al., 1999).

the embodied cognition that is inherently worldly, its content is 'the bending of bodies with environments to a specific set of addresses without the benefit of any cognitive inputs' (Thrift, 2004c, page 177). What are thereby constructed are 'spaces of anticipation' (ibid.), formed in the artefacts of vision videos. These 'spaces' are not concerned with what it might be like to use the technology at some unspecified future moment but extending existing experience to engender familiarity with the potential future. This is achieved by asserting 'correct' juxtapositions between human and non-human actors that 'allow things to arrive and become known' (ibid.page 175). These 'correct' positionings are signalled in the very specific portrayals of technology use in vision videos. For example, there are close framings of precise movements made by actors (see: Figures 4-7) to demonstrate how 'we will' use such technologies.

The perception of a sense of futurity, or 'the instant recognition that a technology is going to change my life in ways that I can scarcely imagine' (Rheingold, 2002, page xi), emerges from the embodied attunement that coalesces from the narrative and image of future visions combined with the proprioceptive disposition of memories and 'technological unconscious'. The videos' potential to effect the technological unconscious thus marks it as a form of 'zone of indiscernibility' (Deleuze, 2005b, page 16). This 'indiscernibility' is not necessarily between human and animal, as in Deleuze's (2005b) provocative analysis of Francis Bacon's paintings, but also includes the mediating potential of technology and technical relations. Whereas Bacon's images connect humans to our animality (Deleuze, 2005b, pages 15-19), the explicit and 'hyper real' depictions of technology use in vision videos connect the embodied human, which is already technical through tool use (see: Mackenzie, 2002), to prospective modes of technical being. If the 'degree of

"concretisation"… is the *technicity* of a technology' (Mackenzie, 2002, page 14) then the zone of indiscernibility is a means by which technicity is enacted in relation to anticipation of future technologies. Thus, to somewhat bastardise Deleuze's conceptual tool, the zone of indiscernibility of the images that play with and within the technological unconscious is a mechanism of passage between the 'background feeling' of the unconscious and the conscious sensation of feeling. Following Deleuze (1988, 1995, 1999) the impersonal, pre-cognitive provocation of 'affect', the 'background feeling', pushes toward perception (or 'percepts'), concretised in emotions, bodily sensations, thought and action. When successful, this renders the sensation or feeling of anticipation, towards the emotive, haptic, sensorial nature of the prospective future, but it remains an emergent and uncertain translation (Stivale, 2006; see also: Connolly, 2002, pages 32-36).

It is no doubt possible to portray the examples of vision videos discussed here, and the intentions of those that produce them, as based in a 'Whiggish technological determinism' (Thrift, 2004c, page 181), but I think that would elide some of the subtler properties of what emerges. As Thrift (2004c, page 182) suggests emergent knowledges of 'sociotechnical mediations [are] constantly in genesis that stabilise the collective' such that new technological literacies are evoked as the difference in repetition of existing technical knowledge. The unconscious is not directly scripted, it is not enacted in a cause-and-effect 'subliminal inference', for it is multiple. It is situated in a politics of anticipation whereby bodily dispositions of anticipated technological encounter may be conditioned. However, I argue the technological unconscious evolves and while particular forms of embodied attunement may prove successful it is no guarantee they will not be adjusted in the ongoing performance of technical knowledge and bodily sensibilities. The purpose of

this section was to explore how the viewer grounds the experience of the vision video in the 'background feelings' and embodied attunement enrolled through 'vision video' production techniques.

4 Conclusions

This article has deconstructed the simplistic notion that visions represent goals to which we are moving/working towards and highlighted the ways in which vision videos act within and constitute a present. To address how vision videos can produce the affects of anticipation this article critically reviewed the visual logics of vision videos, in section one, and, in section two, explored the means by which embodied knowledges of ('not-yet existent') technology use can be engendered. If the future as such is not operated upon and remains potential, yet to be resolved, then vision videos are clearly not depictions of the future. If we don't simply interpret vision videos as the instantiation of goals or the construction of a temporal horizon to which we orientate the present (rather like: Koselleck, 2004; cf. Pickering, 2004), then we can understand them as artefacts in/of the present that form and are formed by relations from which can emerge anticipation. Vision videos are accordingly 'performative materialised artefacts' (Michael, 2000, page 35) that mediate between a sense of 'present future' and 'future present' (Adam and Groves, 2007). As 'performative materialised artefacts' vision videos are productive of a sense of futurity that 'encapsulates the inescapable reaching out of the ever present' (Adam and Groves, 2007, page 175), the rub between present future and future present. There is evidently intention behind some, but not all, of the relations formed. The specificity of the content of the visions—things *will* work in a certain way—and the manner in which visions are asserted illustrates how claims are

made on the future. To illustrate this we can return to Microsoft Executive Stephen Elop's speech:

> 'contextual and anticipative [sic.] insight relates to how people will derive insight from information, information will be increasingly contextually relevant, enabling search, discovery, and analysis based on user profiles and intent' (Elop, 2009)

Intentions are, of course, not always carried through, neither are they necessarily successful. To read vision videos merely in terms of the intentions of the company and individuals that produce them is to elide the constitutive significance of 'not-knowing' in subjective experience (Dewsbury, 2007), and to ignore the less defined, and less certain, affects these performative artefacts have.

To advance the discussion of a 'politics of anticipation' I want to work through two ways in which we can interpret such a politics: first, politics as the exercise of power; and second, politics as the negotiation of desire. We can analyse each in turn with regard to how they can articulate the negotiation of 'present future' and 'future present'. Firstly, then if we read a politics of anticipation in terms of the exercise of power then we might think about vision videos as vehicles for asserting authority and thus laying claim to the future. A normative 'technologically determinist' reading of vision videos might see their content as goals towards which companies are specifically working, largely driven by economic imperative (Galbraith, 1974). Visions can become institutionalised and thus be seen as regulatory (Foucault, 2007), insofar as they can be figured as programmes—which are 'sets of calculated, reasoned prescriptions in terms of which institutions are meant to be reorganised, spaces rearranged, behaviours regulated' (Foucault, 1991, page 80; see also: Rabinow, 2003, pages 39-40). The rationale here would be the calculation of *the* future as 'present future'. We might read the video as the object of a rhetoric of

anticipation (Eagleton, 1986, pages 206-207). Obversely, if we understand visions as representational constructs of a 'future present', then power is less clear-cut. The 'mechanisms of power' (Foucault, 2007, pages 1-2) emerge from, and are an intrinsic part of, the relations in which the performative artefact of the vision is situated. The power of the vision, or rather its artefact, is the effects it has on the technological unconscious, and these effects are emergent. The anticipatory action enabled by vision videos is akin to an affordance (pace Dourish, 2004, page 118). Rather than a property of the environment, an anticipatory affordance is a property of the body that affords action should that body become appropriately equipped. Anticipation therefore remains as such and can be propagated (Massumi, 2007b).

Secondly, we can read the politics of anticipation as the negotiation of desire. In this sense I suggest desire can be figured in two ways: as the presence of an absence in the present that infers the future (akin to a Hegelian sense of desire, see: Kojève, 1980); or the 'pre-personal' push of a world that is becoming; the impulse that carries us 'forward' (Thrift, 2000, pages 216-217; pace Deleuze, 2004). According to the former desire comes forth from an implicit state, such that 'everything has, in a sense, been here all along' (Butler, 1987, page 24). Desire according to the latter is the 'sub– and super-personal' production of reality even though 'social representation and belief deprive us of much of that reality *ex post facto*' (Holland, 2005, page 54). Future orientation, not as a determinate state but as an openness to potential, is a strong underpinning of the means by which the world is performed. Desire flexes in constant tension with the necessary rational push for description and representation. The performative aspects of vision videos as artefacts are entwined with the technological unconscious and it is here that a politics of anticipation as the negotiation of desire operates. For it is the technological

unconscious, that pre-personal substrate of unconsidered anticipations (Thrift, 2004c, page 177), which affords 'new senses of sense [to] become possible built on the new frames of anticipation and forms of memory that can show up and be touched in and by events now' (ibid. page 188). Perhaps the most important effects they have are therefore interpretations of the present, there may be no conscious working towards particular goals nor a conscious expectation but as iterations of technologies ebb and flow, apparent 'advances' are not a surprise, they are already bodily familiar. As viewers we are enrolled into a community of anticipation, insofar as we familiarise ourselves with an anticipated form of technological experience, but the specificity of that unconscious familiarity becomes peculiar to the viewer only when it is made personal in cognitive action. The space of the technological unconscious, and the forms of unconsidered anticipation therein, is 'within a signifying chain as the instability of all iterability' (Butler, 1991, page 28), which, for Butler (ibid.), is the iterability of difference in the performance of identity. As such 'the unconscious, is not 'in' the body, but in the very signifying process through which the body comes to appear' (ibid.). Not only tool-use but our imagination of technology is therefore inherent to the technological unconscious, always and already filtered through 'cultural markers inscribed in visceral process[es]' (Connolly, 2002, page 34).

To conclude, it is important to explicitly highlight that this kind of analysis cannot be about drawing schematic deductions. As has been demonstrated throughout this article, there are contradictions to how vision videos function, they illicit affect in certain ways, they offer stories about a near-future, based upon past experience and are constituted in (and constituting) a present. Vision videos can also elide the future by blurring present science 'fact' and 'fiction' through the combination of specific affects

evoked from pre-existing experience (for example with contemporary technologies that have many facets of the functionality represented, such as the touch-screen on the iPhone) with images of currently impossible technologies that remain unexplained. The ambiguity of the orientation of vision videos towards either a 'future present' or a 'present future' leaves them at once significant as 'performative prototypes' and trivial as entertaining 'fictions'. It is these contradictions that are of interest and worth foregrounding. A technological unconscious engenders a bodily sense of familiarity with apparently novel 'advances' in technology development. I have suggested (building on Thrift, 2004c; Clough, 2000) that a technological unconscious situates the future orientation demonstrated by 'vision videos', as representational and discursive artefacts. By unpicking the ways in which a politics of anticipation plays out in the artefacts and articulation of future orientation this paper has highlighted the ongoing development of a technological unconscious that significantly contributes to how we understand our evolving use of technology.

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