**MINORITY REPORT – SPECIAL EFFECTS TECHNOLOGY AND IMPLICATIONS**

After E.T., Spielberg started to consult experts, and put more scientific research into his science

fiction films. In 1999, he invited fifteen leading scientific experts convened by the Global Business

to a hotel in Santa Monica, California for a three day "think tank". He wanted to consult with the group

to create a plausible "future reality" for the year 2054. Production Designer Alex McDowell

kept what was nicknamed the "2054 bible", an 80 page guide created in preproduction which listed all

the decided upon aspects of the future world: architectural, socio-economical, political, and

technological. ." McDowell teamed up with architect Greg Lynn to work on some of the technical

aspects of the production design. Lynn praised his work, saying that "[a] lot of those things Alex

cooked up for Minority Report, like the 3-D screens, have become real." Spielberg described his

ideas for the film's technology to Roger Ebert before the movie's release:

*“I wanted all the toys to come true someday. I want there to be a transportation system that doesn't emit toxins into the atmosphere. And the newspaper that updates itself... The Internet is watching us now. If they want to. They can see what sites you visit. In the future, television will be watching us, and customizing itself to what it knows about us. The thrilling thing is, that will make us feel we're part of the medium. The scary thing is, we'll lose our right to privacy. An ad will appear in the air around us, talking directly to us.”*

News sources have noted the future technologies depicted in the film were prophetic. The Guardian published a piece titled "Why Minority Report was spot on" in June 2010, and the following month Fast Company examined seven crime fighting technologies in the film similar to ones then appearing. It summarized that "the police state imagined in the Tom Cruise flick feels a bit more real every day."

Other major media outlets such as the Wall Street Journal have published articles dedicated to this phenomenon, and National Public Radio (NPR) published an August 2010 podcast which analysed the film's accuracy in predicting future technologies. Companies like Hewlett-Packard (HP) have announced they were motivated to do research by the film; in HP's case to develop cloud computing.

**Technologies from the film later realised include:**

* Multi-touch interfaces similar to Anderton's, put out by Microsoft (2007), Obscura (2008), MIT (2009), Intel (2009), and Microsoft again, this time for their Xbox 360 (2010). A company representative, at the 2007 premiere of the Microsoft Surface, promised it "will feel like Minority Report." When Microsoft released the Kinect motion sensing camera add-on for their Xbox 360 gaming console in 2010, the Kinect's technology allowed several programmers, including students at MIT, to create Minority Report inspired user interfaces.
* Retina scanners, by a Manhattan company named Global Rainmakers Incorporated (GRI) (2010). GRI disputed the notion that its technology could be the threat to privacy it is in the film. "Minority Report is one possible outcome," a corporate official told Fast Company. "I don't think that's our company's aim, but I think what we're going to see is an environment well beyond what you see in that movie—minus the precogs, of course." The company is installing hundreds of the scanners in Bank of America locations in Charlotte, North Carolina, and has a contract to install them on several United States Air Force bases.

**Technologies in development include:**

* Insect robots, similar to the film's spyder robots, by the United States Military. These insects will be capable of reconnoitre missions in dangerous areas not fit for soldiers.
* Facial recognition advertising billboards, being developed by the Japanese company NEC. These billboards will theoretically be able to recognize passers-by via facial recognition, call them by name, and deliver customer specific advertisements. Thus far the billboards can recognize age and gender, and deliver demographically appropriate adverts, but cannot discern individuals. According to The Daily Telegraph, the billboards will "behave like those in...Minority Report...in which Cruise's character is confronted with digital signs that call out his name as he walks through a futuristic shopping mall." IBM is developing similar billboards which plan to deliver customized adverts to individuals who carry identity tags. Like NEC, the company feels they will not be obtrusive as their billboards will only advertise products which a customer is interested in. Advertisers are embracing these billboards as they figure to reduce costs by lowering the number of adverts wasted on uninterested consumers.
* Crime prediction software, developed by a professor from the University of Pennsylvania (2010). The software, which was detailed in a Daily Mail article titled "The real Minority Report" upon its announcement, "collates a range of variables then uses an algorithm to work out who is at the highest chance of offending." As in the film, the program was announced for a trial run in Washington D.C., which, if successful, will lead to a national rollout.
* Electronic paper, development announced by Xerox (2002), MIT (2005), Germany (2006), media conglomerate Hearst Corporation (2008), and LG; a South Korean electronics manufacturer (2010). In 2005, when the Washington Post asked the chief executive of MIT's spin-off handling their research when "the "Minority Report" newspaper" would be released, he predicted "around 2015." Tech watch's 2008 article, "‘Minority Report’ e-newspaper on the way", noted that Hearst was "pushing large amounts of cash into" the technology.

**Filming**

Minority Report was the first film to have an entirely digital production design. Termed "previz", as an abbreviation of previsualization, production designer Alex McDowell said the system allowed them to use Photoshop in place of painters, and employ 3-D animation programs (Maya and XSI) to create a simulated set, which could be filled with digital actors then used to block out shots in advance. The technology also allowed the tie-in video game and special effects companies to cull data from the previs system before the film was finished, which they used to establish parameters for their visuals. Spielberg quickly became a fan.

The film contained many complex action scenes. These included the auto factory chase scene, filmed in a real facility using props such as a welding robot, and the fight between Anderton and the jetpack-clad officers, filmed in an alley set built on the Warner Bros. studio lot. Industrial Light & Magic did most of the special effects, and DreamWorks-owned PDI was responsible for the Spyder robots. The scene where Anderton gets off his car and runs along the Maglev vehicles was filmed on stationary props, which were later replaced by computer-generated vehicles.

From a stylistic standpoint, Minority Report incorporates elements of film noir. The picture was deliberately overlit, and the negative was bleach-bypassed during post-production. The scene in which Anderton is dreaming about his son's kidnapping at the pool is the only one shot in "normal" colour. Bleach-bypassing gave the film a distinctive look; it desaturated the film's colours, to the point that it nearly resembles a black-and-white movie, yet the blacks and shadows have a high contrast like a film noir picture. The colour was reduced by "about 40%" to achieve the "washed-out" appearance.