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Performing Invention: On the Revelation of Technology

James Croft

Introduction

Soothing blue lights illuminate a large stage. The stage is bare except for a large leather chair and a glass table, set off to the left side. Behind this furniture hangs a vast screen emblazoned with the logo of one of the world's foremost technology companies. Bloggers in attendance have already remarked upon the arrangement, saying, "The setup on stage is really interesting. There's a chair with a table next to it... very unusual for an Apple event."[1]

Figure 1 - Apple iPad Reveal Event Staging, from engadget.com

Unusual the staging might be, but purposeless it is not – the choice of stage-furniture is calculated to demonstrate the virtues of the new device that is about to be

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[1] Joshua Topolsky, "Live From the Apple 'Latest Creation' Event." *Engaget*., accessed 15 September 2010, http://www.engadget.com/2010/01/27/live-from-the-apple-tablet-latest-creation-event/

revealed: the Apple iPad. Jobs and others at the press conference repeatedly demonstrate key features of the device while seated comfortable in the chair, resting the iPad on nonchalantly crossed legs, making it clear that this is the sort of ease the customer, too, can expect. The design of the chair – large and luxurious but, in black leather, understated rather than ornate – matches design elements of the device, with its clean black and silver lines. The message seems to be "This is a product for a person who has style and who appreciates comfort – and it's so easy to use!" – a message reinforced in print and television advertising campaigns, which feature prominently images of people reclining in various positions while enjoying their "magical" new toy.

Figure 2 - Jobs using iPad during reveal event, from engadget.com

In short, the chair and glass table are props in a performance – a performance of technology. Just as sets in the theatre are designed to convey symbolic messages to an audience, so the articles of furniture at Apple's press conference are chosen to reveal elements of a new technology to an eager public. In order to be successful, both the inventor and the technology must "perform", displaying themselves to the world in a way that educates, reassures and excites, and it is the purpose of this paper to explore how this occurs. Steve Jobs is a master of such performances, but he is by no means the first – there are many historical precedents.

Edison and Tesla: Lighting the World

On May 20, 1891, Nikola Tesla gave a lecture to the American Institute of Electrical Engineers. According to Joseph Wetzler, writing in *Harper's Weekly*, and quoted in Jill Jonnes' *Empires of Light*, "Mr. Tesla held his audience in complete captivity of attention and admiration for over three hours" (Jonnes, 2004, p.230). Early the

following year he performed a similar feat, as recorded in *Electrical Review*: "For a full two hours, Mr. Tesla kept his audience spellbound" (Electrical Review, 1892, quoted in Seifer, 1996, p.85). Clearly, Tesla had fascinating new discoveries to reveal related to his experiments with Alternating Current (AC). But Tesla was also a supreme showman, a performer with a knack for the dramatic and the ability to engage the audience's imaginations as well as their minds.

To illustrate the point, an exploration of Tesla's demonstrations that day, drawn from Jonnes' book. Starting with a bang, he showed "numerous different electrostatic machines and explained the specific kinds of light produced" (Jonnes, 2004, p.231). From there, he moved to bulbs with a single, spinning filament. A filament-less bulb was his grand finale, "declaring Edison's technology [the incandescent bulb] passé" (Jonnes, 2004, p.231). Jonnes describes the performance of this technology as follows: "The tall, pale Mr. Tesla in his slender swallowtail coat held them [bulbs without any filament] aloft in his hand, somewhat like the Stature of Liberty, and they shone" (Jonnes, 2004, p.231). The choice of formal attire, and dramatic raising of the bulbs aloft, making it seem almost as if he himself were giving them their glow, appears too well-judged to be accidental.

It is likely that Tesla judged the content, structure and delivery of his "lecture" that day to dazzle and inspire his audience. Indeed, Tesla himself proclaimed "I have selected only those [inventions] I thought most likely to interest you" (Jonnes, 2004, p.231). And Tesla is not alone in his creation of meticulously crafted dramatic occasions to reveal new technology to the world. His arch-rival, Thomas Edison, could also put on a show. Jonnes describes how he entertained an important group of potential backers (the Tammany aldermen of New York) first by demonstrating a single bamboo-filament light bulb, then by switching rows of lamps on and off, and finally amazing his audience when "with one turn of a wheel he put out all the 290 outdoor lights aglow in the snowy streets and pastures. Then, with a turn of the handle, Edison brought those 290 globes back to life" (Jonnes, 2004, p.74). Jonnes notes, rightly, that this mass-resurrection was impressive indeed when compared with the available light-sources of the time: gaslights which needed to be lit and snuffed one-by-one!

These vignettes from history raise generative questions about the relationship between technology and performance. Why is it that great inventors such as Tesla and Edison (and many others besides) seem to have a propensity to "perform" their new technologies in such a way, live in front of an audience, and what separates successful from unsuccessful performances? How do such historical activities relate to the modern world, like the iPad reveal explored above, and who are the finest performers of technology at work today? These are the questions that will be explored below.

Storied Spectaculars

The first set of questions, regarding the purpose and effectiveness of performances of new technologies, can be tackled through a more in-depth analysis of each of the

events described briefly above. Clearly, one reason why inventors choose to demonstrate their new technologies in front of a live audience is to garner publicity. Both Tesla and Edison hoped to capitalize on their inventions to finance further discoveries, and thus needed to spread the word about their efforts. In a time before the instantaneous communication of information afforded by television and the Web, newspaper articles were gold-dust to those with a new product to sell, and live demonstrations were an excellent way to draw reporters.

In order to reap favorable headlines, the prime criteria for such technological performances would seem to be a measure of spectacle: the more amazing and novel your technology seems, the more the public is likely to be interested in it. Both Tesla's and Edison's presentations, as described above, organize their material into a crescendo, leaving their most extraordinary demonstrations for last. One can imagine watching in awe as Edison, working his way up from a single electric lamp, with one twist of a wheel darkened and then re-illuminated hundreds of bulbs.

Likewise, contemporary descriptions of Tesla's lectures testify to the awe, bordering on reverence, that they produced in members of the audience. Seifer, referring to Tesla's 1891 lecture, notes "It is difficult to calculate the enormous impact that this lecture had on the engineers of the day". He details an event which included "a remarkable display of electrical phantasmagoria" which ended with an amazing finale: "for a conclusion, Tesla passed tens of thousands of volts of AC through his body to light up lightbulbs and shoot sparks off his fingertips" (Seifer, 1996, p.71) Similarly, the 1892 lecture began with Tesla "[f]iring up his great [Tesla] coil, [standing] amid erupting thunderbolts" (Seifer, 1996, p.85). Such antics, seemingly threatening the wellbeing of the presenter who appears to be controlling the forces of Nature herself, could not help but generate copy. Indeed, Seifer records a particularly star-struck reporter likening Tesla, holding glowing tubes aloft, to "an archangel representing justice" (Seifer, 1996, p.71).

In addition to such extraordinary demonstrations, the language of these inventors also seems calculated to create a stir and generate interest in their technologies. Tesla apparently "spoke as if a sorcerer" (Seifer, 1996, p.85), using poetic phrases ("All around us everything is spinning, everything is moving, everywhere is energy" (Seifer, 1996, p.71)) and making grand, visionary claims: "with every form of energy obtained without effort, from stores forever inexhaustible, humanity will advance with giant strides. The mere contemplation of these magnificent possibilities expands our minds, strengthens our hopes and fills our hearts with supreme delight" (Seifer, 1996, p.71). The claim Tesla makes (which turns out not to be entirely unjustified) is that his technology will revolutionize the world, lavishing great benefits on humankind – these are not merely pretty lights, but heralds of a New World in which people manipulate light itself!

Edison, too, was prone to grandiloquence when it came to his inventions (and much else besides). Jonnes recounts how he "pronounced with characteristic hubris …that *he*, Edison, would be the one to succeed with the electric light (and more – far more!) where all others had failed" (2004, p.55). The technology is not the only thing

on display in these performances: the inventors themselves must perform the role of technological visionary and advocate, building their image so their next invention might be greeted even more enthusiastically.

Finally, there seems to have been some consideration of "costume" in relation to these performances. Robert Lomas, revisiting Tesla's performance at the 1893 World Fair in *The Man Who Invented the Twentieth Century*, reports how "[t]he crowds flocked to see him in his top hat and tails and high rubber boots" (1999, p.123). Both Seifer and Jonnes also remark on his fondness for formal dress. Whether this was a considered part of the performance, or simply a personal preference, it certainly served to fix a strong image of Tesla in the public mind: depictions of Tesla in newspapers, such as Figure 3 (below), showed him in his distinctive swallowtail coat. His immaculate presentation, akin to the formal garb of magicians, gives the impression of a meticulous and sharp individual, in command of every detail.

Edison, too, had a "costume": he "shunned the sartorial conventions of his day… preferring to wear a shabby workman's smock and a little cap" (Jonnes, p.421). Again, this can be seen as an act of image-creation on the part of a skilled inventor, since it emphasizes Edison's notorious ethic of hard-work, and suggests he is a man of the people, not given to airs or graces.

Figure 3 - Nikola Tesla, *New York Sunday World*, 1894

The headline of a New York Times profile of Tesla, published September 30th 1894, amply demonstrates the fruits of such performative efforts. It acclaims the inventor for "ADVANCING WITH CERTAINTY TO GREATEST TRIUMPHS", and goes on to dedicate a whole page (four columns of tiny font with a large, hand-drawn picture) to his work (The New York Times, 1894). Similarly, Jonnes (2004)

records that Tesla's demonstration of bulbs with no filament led to articles in *Harper's Weekly* and *Electrical World*, showing how these technological performances could resonate both with specialist and more general audiences and get the inventor's name in print. Likewise, Figure 3 shows how inventors can be portrayed if they succeed in capturing the imagination of the public with a particularly fine performance.

It seems, then, that the central concerns for a performance of new technology designed to create publicity are a flair for dramatic demonstrations, perhaps with a hint of danger and emphasizing the control and power the inventions offer, allied to facility with language to "amp-up" the revelation, stressing its monumental significance for humankind. Add in a striking costume and the performance is bound to strike a chord.

Gathering Lucre

As has already been noted in passing, the need to secure funds to ensure further development of an idea or product is another significant driving-force behind these live performances of technology – both Tesla and Edison frequently performed for potential investors. Clearly, some of the techniques described above will continue to be crucial in this context. However, other considerations now enter the fray, as the following cautionary tale suggests.

Tesla once orchestrated what he must have felt was a marvelous display, showing a group of wealthy investors a large remote-controlled boat. Despite the then extraordinarily advanced technology required ("a multi-channel broadcasting system and remote-control electronics" (Jonnes, 2004, p.355)), the money-men saw only a worthless toy and refused to invest.

Why was this performance, despite the undoubted newness of the technology, unsuccessful in encouraging the generation of finances? Jonnes points the way when she suggests that "this display thoroughly obscured the two major scientific advances" (2004, p.355). Patently, the job of the performer in such a situation is to convince backers that they have something commercially viable. To do so, they need to make explicit what their technological advances are, and how they can be used to make money. The "performance of the boat", while it may have delighted lay-audiences and gathered positive headlines, did not foreground the technological innovations that made it possible nor present them in an obviously profitable manner.

In order to be successful with this audience, then, the performance must *reveal* something about the technology: what the central innovations are, and how they can be used to make money. Two additional facets of successful performances of new technology – clarity of technological advance and clear commercial viability – have thus been identified, but one key purpose of these performances is yet to be explored: the education of the public.

Educating the Public

Beyond simply informing the public that their new technology *exists*, inventors such as Edison and Tesla also used live performance to *educate* the public about the potential benefits (and, in Edison's case, the dangers) of their creations. Indeed, our two inventors offer an excellent case study of performances designed with opposite educative purposes in mind. Edison, who favored the use of his Direct Current energy-transmission systems, was facing a war with Tesla, who was at pains to promote his (far more efficient) Alternating Current alternative. In order to convince the public to side with him, Edison staged a series of public performances in which he electrocuted live animals, viscerally demonstrating the supposed dangers of AC – the film of his workers' electrocution of Topsy the Elephant can still be seen online[2]. So great was his desire to defeat AC, this "War of Currents" culminated in Edison's backing of the use of the electric chair as a means of execution, despite his publicly-stated abhorrence of the death penalty (Jonnes, 2004). He hoped that, by associating the Alternating Current with the electric chair in the mind of the public that he would be able to scare them into using the competing technology he had developed and controlled.

Tesla's performance at the 1893 World Fair, alluded to briefly above, was an exemplary counterattack: "At the fair, Tesla exhibited and demonstrated a metal egg on a velvet platform. When he turned on the electric current, the egg stood on end and rotated rapidly, powered by the magic of AC" (Lomas, 1999, p.123). Note the trappings of an expert showman: the platform must perforce be *velvet*, and the metal object not a simple sphere but an *egg*, better to display the rotation.

But such parlor tricks were not all that Tesla had to show that day: he also reprieved his much-loved trick of lighting lamps with sparks which leapt from his fingertips. Thus, "Edison's lie about the inherent danger of AC power was finally dispelled" (Lomas, 1999, p.123). In this context, Tesla's willingness to frequently display himself in public close to his Tesla coils sending out huge bolts of what seemed to be lightning takes on greater significance. As well as putting on a good show, Tesla was attempting to teach the public that his technology was safe. In addition, in his more successful performances, the pyrotechnics that he often seemed to open with soon gave way to more practical concerns such as the lighting of lamps or bulbs.

A third and final set of considerations can now be added to the mix: inventors perform their new technologies partly to *reveal the benefits they offer* to the public, as well

[2] "Topsy the Elephant," accessed 5 May 2008, http://www.youtube.com/watch?v=RkBU3aYsf0Q

as (in the case of possibly dangerous technologies) to convince them they're safe. Performances of the kind explored here have the potential to be extremely effective in educating the public in this way, as they allow the inventor to demonstrate, in real time, how the invention might be used by an actual human being to achieve a desired end.

Furthermore, performances of new technologies can show clearly the improvement the new innovation offers when compared, right in front of the audience's eyes, with a last-generation device. For example, Tesla stressed that his polyphase induction motor was far more efficient than Edison's alternative, and was able to demonstrate this in a powerfully visual manner: his motor lacked the sparking commutator brushes that wasted so much energy in DC motors, and therefore *looked* startlingly more efficient as no errant sparks were flying off into the air (Jonnes, 2004). A successful educative performance, then, will leave the public cognizant of the beneficial uses of the new technology and confident in its safety.

Inventor-Performers Today

So, inventors use public performances of their technology to publicize, to help fund and to educate the public about their new technologies. But what relevance does this have in today's world of instant communication to millions over the internet, and direct marketing via TV and email? Surely the live performance of technology is a thing of the past? Perhaps surprisingly, this seems not to be the case. Significant new technologies are *very frequently* performed in public before a live audience – consider the Microsoft Kinect or the Segway. What follows is an in-depth analysis, using the framework developed above, of one such performance: the unveiling of the iPhone.

The Performance of the Original iPhone

Creating Excitement

First presented to the public at the 2007 Macworld convention, the unveiling of the iPhone is a textbook case of new technology in performance. Steve Jobs, Apple Inc.'s CEO, chairman and co-founder, is renowned for his charismatic ability to sell his ideas (a characteristic dubbed the "reality distortion field"[3]), and the performance in question is no exception. All of the techniques that have been investigated above are evident, from the use of a distinctive costume, harnessing emotive language, demonstrating potential usefulness, and making explicit the technological advances inherent in the device.[4]

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[3] Andy Hertzfeld, "Reality Distortion Field." *Folklore*, accessed 6 May 2008, http://folklore.org/StoryView.py?project=Macintosh&story=Reality_Distortion_Field.txt.

[4] All quotes and images from the following section, unless otherwise referenced, are from a transcript of Steve Jobs' keynote address to the Macworld convention on 9 January 2007,

The convention keynote (or "Stevenote"), of which the "Performance of the iPhone" is a part, opens with some typically bombastic language: "We're going to make some history together today." Such hyperbole continues throughout the presentation, with the iPhone termed variously as "a leapfrog product", "revolutionary", "unbelievable", and "the ultimate digital device". Clearly, Jobs is a master in the art of speaking like a technological visionary that we have seen so assisted Tesla. Furthermore, he is wearing his trademark "costume" – blue jeans and a black mock-turtleneck – which, according to Tobias Buckell of bloggingstocks.com, is an effective one:

> The turtleneck works. It works because Jobs isn't trying hard to be hip; it works because he's being comfortable and having fun. The infectious grin, the "one more thing," and the emphasis on design -- the package is very different from other companies. And people respond to it. Other companies front expensive suits as spokespeople, but Jobs is not a suit -- he's a jeans and sweater guy.[5]

In Jobs' characteristic attire (and it truly does serve to create a character, as the quote above attests) we see clear echoes of Edison's "shabby workman's smock and a little cap". He too, we might confidently predict would be a "jeans and sweater guy" were he alive today.

In addition, Jobs plays a similar trick on the audience to the one Edison used when he ramped up the excitement by sequentially illuminating more and more lamps. When first introducing the iPhone, instead of referring to it by name right away, Jobs announces that "today, we're introducing THREE revolutionary new products. The first one is a widescreen iPod with touch controls. The second is a revolutionary mobile phone. And the third is a breakthrough internet communications device." While speaking he paces the stage with confident strides, clearly enjoying the attention. An icon appears on the screen behind Jobs to represent each device, and the crowd's reaction for each is enthusiastic, to say the least.

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reported by Ryan Block, "Live from Macworld 2007: Steve Jobs Keynote." *Engaget*, accessed 8 May 2008, http://www.engadget.com/2007/01/09/live-from-macworld-2007-steve-jobs-keynote.

[5] Tobias Buckell, "Best & Worst: Steve Jobs' Mock Turtleneck an Image that Works." *BloggingStocks*, accessed 8 May 2008, http://www.bloggingstocks.com/2006/12/06/best-and-worst-steve-jobs-mock-turtleneck-an-image-that-works.

Figure 4 - The 'Three' "revolutionary" products

The best is yet to come, however: the three icons, after being displayed side-by-side as in Figure 4 (as Jobs again repeats the names of the "three things" being announced) combine to form a spinning cube. He repeats the names of the devices, almost like a mantra, until he can contain himself no longer: "Are you getting it?" he challenges the audience. "These are not three separate devices. These are one device. And we are calling it… iPhone!" The script, timing and delivery are impeccable, cementing Jobs as perhaps the finest contemporary performer of new technologies and effortlessly fulfilling the first requirement of a successful performance: to generate excitement and a sense of the spectacular. Later nuggets of excellence, with a similar aim in mind, include a voicemail from Al Gore and a visit, in real-time, to a website on which Apple's (astronomical) share price can be seen.

Reassuring Investors

The "Performance of the iPhone", although not necessarily designed or required to impress investors, nonetheless demonstrates powerfully the superiority of the new device when compared with others on the market, effortlessly fulfilling the second criterion of success identified above. Jobs begins by presenting a graph (Figure 5) plotting ease of use on the x-axis and "smartness" (how many features the phones offer) on the y-axis. Of course, the iPhone eclipses everything else by being both smart *and* easy to use, occupying a solitary, magisterial position on the top-right of the graph.

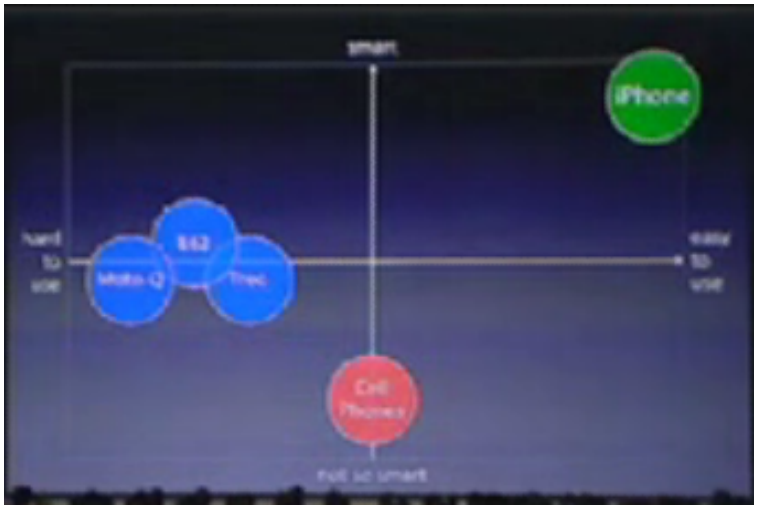

Figure 5 - Smart / Ease of Use Graph, Screen-Clipped by the Author

Jobs then rubs-in the comparison by showing four leading smartphones to illustrate how their "bottom 40%" (the section of those phones given over to buttons rather than screen) is unwieldy and ill-suited to all the functions they are required to perform. This point is itself reinforced with a series of clever graphics: first *only* the offending lower section of the four competing smartphones are shown; then a comparison is made with a clean, uncluttered computer screen; then one of the more cluttered smartphones reappears; and finally that image is swiftly replaced with the sleek, black face of the iPhone. The message, hammered in repeatedly, is "this will blow the competition away!" – and Apple's shareholders will surely have been overjoyed to read the following news later that day:

> Apple shares jumped more than 8 percent on the announcements, while the stock of rival smart-phone makers plunged. The run on Apple stock created about $6 billion in shareholder wealth.[6]

Educating the Public

Furthermore, the technological advances behind the iPhone are repeatedly made explicit, with multiple demonstrations of each aspect (multitouch technology, the accelerometer, full web browsing etc) throughout the performance. Tesla, remembering his competition-busting performance at the 1893 World Fair, would have approved.

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[6] "Apple Unveils Cell Phone, Apple TV." *MSNBC*, accessed 8 May 2008, http://www.msnbc.msn.com/id/16542805.

Finally, Jobs also turns in a stunning performance in terms of educating the public about the benefits of his new product. Perhaps the most effective part of this aspect of the performance is Jobs' demonstration of how the iPhone deals with the most basic function of a phone: calling others. He starts by explicitly making a comparison between the new technology and older products of a similar type, just as Tesla did between his induction motor and earlier electric motors: the iPhone does "The kind of things that you would find on a typical phone, but in a very untypical way".

A demo then begins: Jobs, standing to the side of the huge screen that looms over him, manipulates the phone while the results of his actions are displayed on screen. In a small box on the side of the screen, Jobs himself is displayed, so that the whole audience can see how his finger movements relate directly to what the phone is doing. He then, with studied nonchalance, flicks his finger to scroll through his contacts, playing "casual" for all it's worth, giving an air of effortlessness to the proceedings that perfectly matches the point he is trying to convey: "With iPhone, everything's so *easy*!" he seems to say, putting the emphasis squarely on the sense of control users can expect to feel, just as in the earlier performances encountered above.

Jobs then goes on to call, live, Jonathan Ive (Senior Vice President of Industrial Design at Apple Inc.), with the sound of the call routed through the conference-hall's speakers – everyone can hear the very-first public call with an iPhone! This is not enough for Jobs, though: in a highly orchestrated maneuver, Jobs receives a call! He taps a button to put "Jonny" on hold, and then proceeds, with another single tap, to create a three-way conference call. It's an ingenious piece of stage-business, designed to educate the public as to what, precisely, the advantages of the iPhone are.

Burnt by the Sun – a Comparison with Kinect's Cirque du Soleil Event

Although these points may seem obvious, they are frequently lost on other technology manufacturers. A comparison with a recent event, hosted by Microsoft at the Electronic Entertainment Expo in 2010, to promote their new controller-free gaming technology "Kinect" (which enables you to play games by moving your body) shows how badly technologists can go wrong at such performances.

In what must have seemed at the time an inspired move, Microsoft decided to reveal the first true demonstration of their new system, and its official name, at an event created in collaboration with world-renowned circus troupe Cirque du Soleil. This certainly generated spectacle: the press, forced to dress in strange white ponchos with blinking shoulder pads, were treated to views of a huge animatronic elephant and a living room which could rotate 360 degrees, so that the inhabitants were sitting upside down on their coach, which seems to cling to the ceiling.

But when demonstrations of the actual technology began – the raison d'être of the entire event – the proceedings did not meet the success criteria I have outlined. The constantly shifting staging, the performers in strange jungle-garb, the massive

elephant, and the three screens used to display the action obscured, rather than revealed, the Kinect. As AJ Glasser for Gamepro.com reported:

> each of the three screens showed either the game being played or video of the family onstage doing the motion controls. The main stage, meanwhile, kept changing -- turning upside down, removing and adding rotating panels containing other suspended couches with actors. During the entire demo sequence, the Cirque du Soleil performers balanced on set pieces in front of the main stage, performing short skits or dance moves -- sometimes upstaging the Kinect demos on screen. On top of all that, the flared shoulder pads in the smocks would light up or strobe during certain parts of the performance.[7]

Due to the hyperactivity and sensory overload of the presentation, the benefits of the new technology were not conveyed effectively to the gathered press, and therefore not to the public who read their baffled reports. Rather like Tesla's demonstration of remote control technology using a toy boat, the details of the performance were not well-designed to reveal the particulars of the new technology.

Worse still, the games seemed to suffer from lag, with a distinct delay between the movements of the players and the response from the gaming system. This is a significant problem, since the feeling of connection between player and avatar can be seriously damaged if the lag between player input and on-screen response is too great.

Two findings emerge from this comparative analysis: first, that Jobs is a contemporary master of the performance of new technologies. His performances effortlessly fulfill the three criteria for success which have been identified: they create enormous excitement, reassure investors (and adds mightily to the value of their shares), and educate the public about the value of the new device.

Second, in order for the inventor or company to successfully perform their new technologies, it is essential that the *technology* perform as well as the inventor does – all of Jobs' charm, timing and casual costume would be for naught if the technology didn't play along. Likewise, even an excellent performance of the Microsoft Kinect will falter if the lag persists. How does this work? How can a technology itself "perform", and how can it aid or hinder the individual hoping to demonstrate it? Back to Jobs, then, to analyze how a technology can be made to perform in a way conducive to an inventor or company's goals.

Technology that Performs

The iPhone 4 Gyroscope

[7] AJ Glasser, "E3 2010: Lag, Skepticism Mar Cirque du Soleil/Project Natal Event." *Gamepro*, accessed 15 September 2010, http://www.gamepro.com/article/news/215435/e3-2010-lag-skepticism-mar-cirque-du-soleil-project-natal-event/.

Unveiled at the Wordwide Developers Conference on June 7th 2010, the iPhone 4 is the latest iteration of the extraordinarily successful Smartphone. One of many new features of this phone is the introduction of a gyroscope to replace the accelerometer in previous iPhone models, and the Performance of the Gyroscope is a classic example of how technology can be made to perform.

Jobs opens the section of the press conference dedicated to the gyroscope by demonstrating how he can manipulate a tower of wooden blocks, similar to the game Jenga, using the accelerometer – a function that already exists in older iPhone models. He tilts the phone from side to side, and backwards and forwards, while the results of his movements are projected onto a large screen – as he tilts the phone, the tower of blocks also tilts. Then Jobs spins in a half circle to the right, demonstrating that the tower "doesn't move when I rotate around gravity" – he cannot "spin" the tower by spinning around himself.

Then, with the simple tap of a finger, he engages the new Gyroscope feature, unique to the iPhone 4. He repeats the tilting motions, clearly showing the more precise movement tracking that the new model is capable of, then spins again, pointing out that, this time, the tower spins with him, which enables him to see the other sides of the tower more clearly. He is rewarded with cheers and applause.

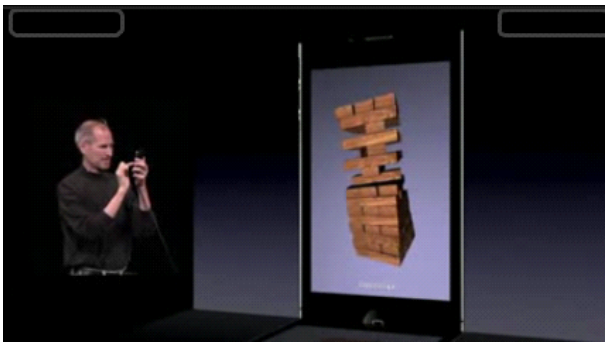

Figure 6 - Jobs demonstrating Gyroscope at WWDC 2010, Screen clipped by author

But Jobs isn't done. He continues by demonstrating that, by flicking your finger across the screen, the blocks which constitute the tower can be removed. He begins flicking a few away, making sure to spin himself around to see different parts of the tower (making clear the benefits of the new technology). Since everybody understands the purpose of the game – to remove blocks from the tower without making it topple – there is soon a palpable sense of tension (key to creating excitement in the audience around the new device). Jobs' movements become more precise and labored, as he slowly spins himself (and the tower) looking for safe blocks to remove.

As the task becomes harder, he uses smaller, more numerous flicks of his finger to gingerly remove blocks. This provokes laughter in the appreciative audience, since

the software is also "performing": as more blocks are removed, the animation for the removal of blocks slows down, slowing the block-removal process at precisely the point where it becomes most tense to do so, and matching the way in which people play the actual game of Jenga. As he rotates around, turning the tower, Jobs declares "I practiced this a little bit!", provoking more laughter – this is pure theatre. Soon, after removing a couple more blocks, the tower agonizingly teeters before collapsing to the ground

Here, the way the block tower game is programmed enables the iPhone itself to "perform". The game requires Jobs to be able to see all sides of the tower, something that is easily accomplished with the new gyroscope but impossible with the old accelerometer. Accuracy when removing blocks is essential, and thus the increased precision the gyroscope offers is not wasted.

Further, the phone performs a comic turn by making the blocks move more slowly as the game progresses. The audience laughs when the blocks start moving more slowly because they are aware that the program is, in a sense, colluding with Jobs to raise the tension of the situation. The program need not have been designed in such a way as to slow down the removal of the blocks as the game gets more difficult (they could, theoretically, just vanish if you tap them), but having been designed in such a way, it amplifies the tension of the scene, and draws the audience further into the presentation.

Rock Band doesn't Rock

In comparison, a demonstration of a version of popular music game *Rock Band* (which simulates the experience of playing rock music) for the iPhone does not perform so well. While the music for the demo is fittingly rousing (*Death by Diamonds and Pearls*, by Band of Skulls), the video feed of the demonstrator playing the game reveals an odd disjunction between tapping and sliding your fingers on a small Smartphone screen and the experience of actually playing a guitar.

While playing *Rock Band* at home involves hitting buttons on plastic guitars, whacking electric drum sets and wailing into microphones, the gameplay on iPhone comes across as muted and uninteresting in comparison to the bombastic music and visuals the game offers. Tapping your fingers in rhythm on a small screen simply does not look very exciting. Thus, the game's design does not assist the demonstrator in exciting the audience, nor does it reveal anything new about the technology. *Rock Band*, then, doesn't perform well on the stage of the Word Wide Developers' Conference.

The Extended Performance – Launch Day Events

One final consideration remains for those interested in how new technologies are revealed to the public through performance: how have performances of new technology expanded beyond the bounds of the stage to encompass a wider variety of

performative elements? Again, Apple is a leader in this regard. Here I will consider just one form of the "extended performance": the launch-day event and its surrounding coverage.

Now common for many major consumer technologies, Apple holds events at their stores to celebrate the release of new products. Frequently huge lines of eager consumers gather hours before the stores open, setting up chairs (and sometimes even tents) to wait for the doors to open. This offers another performance opportunity for canny technology developers: a captive audience of already-enthusiastic early adopters. Apple makes the most of this opportunity, as is made obvious in a video reel displayed at the Worldwide Developers Conference (WWDC) in 2010, and the ways they make use of this audience serve to reinforce the three purposes of technological performance outlined above.

Outside one store shown on the video reel, blue-shirted Apple Store employees can be seen revving-up excited customers, clapping their hands overhead, counting down the seconds to the opening, flailing wildly in the air, and lining up beside the door to provide a "gauntlet" through which the first customers are required to move. Clearly this is a highly choreographed theatrical ploy intended to generate excitement for the product which, through displaying film of the event through the press and at their own events, Apple can transfer to a wider population.

Figure 7 - Apple Employees Rev Up the Crowd at iPad Launch Event

At another point in the reel a sprightly 84-year-old Frenchwoman is shown talking emphatically about her new purchase, as are young children – even a babe in arms is shown holding one for a moment. This reinforces the ease-of-use of the device, making clear that everyone can use the iPad – similar to how the images of people sitting on couches using the iPad function to convey a similar message.

Finally, in the video reel selected by Jobs for display at the WWDC, there are multiple examples of news outlets reporting on the launch of the iPad. Reporters from the BBC are shown reverently holding the tablet, their eyes wide with astonishment, while TV channels from around the world report the iPad's remarkable

sales. All this can be seen as part of the performance of a new technology: us consumers and the press, if sufficiently enamored, act out our excitement at launch day events and in news reports, and this is then fed back into the official narrative when displayed back to us at events like Jobs' Conference. We become part of the show.

Concluding Remarks

My intent here has been to outline the main purposes, features and success-criteria for performances of new technology. Drawn from an investigation of the great inventors Nikola Tesla and Thomas Edison, it has been suggested that such performances have three primary purposes: to create positive publicity for the product, to encourage investment or reassure investors, and to educate the public. I have argued that modern inventors use similar techniques in live performances of their own: Steve Jobs has been our guiding example, with comparisons to Microsoft's Kinect highlighting potential dangers.

I have further suggested that, in addition to the inventor performing, the technology itself must "perform", and that in modern times these performances of technology extend far beyond initial demonstrations. It is clear that the performance of new technologies is a time-honored tradition – and, with such great benefits to be had from an exceptional performance, there's no reason to believe they should stop any time soon.

Works Cited

Block, R. (2007, January 09). *Live from Macworld 2007: Steve Jobs keynote*. Retrieved May 08, 2008, from engadget: http://www.engadget.com/2007/01/09/live-from-macworld-2007-steve-jobs-keynote/

Buckell, T. (2006, December 06). *Best&Worst: Steve Jobs' mock turtleneck an image that works*. Retrieved May 08, 2008, from BloggingStocks: http://www.bloggingstocks.com/2006/12/06/best-and-worst-steve-jobs-mock-turtleneck-an-image-that-works

Electrical Review. (1892, March 19). Mr. Tesla Before the Royal Institution, London. *Electrical Review* , p. 57.

Jonnes, J. (2004). *Empires of Light*. New York: Random House.

Lomas, R. (1999). *The Man Who Invented the Twentieth Century*. London: Headline Book Publishing.

Seifer, M. (1996). *Wizard: The Life and Times of Nicola Tesla.* Birch Lane Press.
The Associated Press. (2007, January 09). *Apple unveils cell phone, Apple TV*. Retrieved May 08, 2008, from msnbc News: http://www.msnbc.msn.com/id/16542805/
The New York Times. (1894, September 30). Nikola Tesla and His Work.. *The New York Times*. New York, New York, USA.