

# **Mobile Communication and Computing Technological Convergence and the Rise of the Research in Motion BlackBerry**

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The adoption and evolution of technologies over the course of the recorded history of mankind has displayed how utilizing specific tools has fostered the ability for individuals and groups to communicate. These tools – such as the early crude instruments used by man in the Paleolithic Era to carve or paint murals onto the walls of caves, to the advent of paper, Johannes Gutenberg’s printing press, and to modern day blogging and pod casting – have created ever increasing efficiencies in asynchronous communication platforms. The ability for time-shifting and place-shafting born from these communication technologies offer agency to larger audiences and lower barriers to entry for education and business; such as the rurally disenfranchised public that historically were too isolated from the intellectualism that predominately congregated around cities, who were too far away from the supply chain to compete because of the lack of timely communication channels that were not cost prohibitive and the fixed costs of supplying products to distant markets, and the lower and middle class citizens who could not afford to buy books before Gutenberg’s mechanized press because of the cost of having them transcribed by hand.

Furthermore, innovations to travel such as automobiles and transoceanic airplanes have increased opportunities for face-to-face real-time communicating and advancements in virtual real-time communication tools such as via the public switched telephone network (PSTN), mobile telephony, geo-spatial low orbiting satellites, and the Internet have become the necessary network enablers to augment these tools to *make the world flat*.<sup>1</sup> Thomas L. Friedman, who coined this term, describes the scope of these advancements as being contingent on their adoption but believes, “there is absolutely no

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<sup>1</sup> Friedman, Thomas L. The World is Flat: A Brief History of The Twenty-First Century. New York: Farrar, Straus and Giroux: 2005.

guarantee that everyone will use these new technologies” as they are just new widgets and, “using them does not make you modern, smart, moral, wise, fair, or decent. It just makes you able to communicate, compete, and collaborate farther and faster.”<sup>2</sup> He continues by introducing the critical element of technological convergence, where previously disparate technologies are merged and operate as a single unit. “Every one of these technologies will become cheaper, lighter, smaller and more personal, mobile, digital, and virtual” over time, says Friedman.<sup>3</sup>

The symbol of technological convergence that epitomizes this miniaturization and converging of previously disparate technologies, since the dawning of the Internet age, is the Research in Motion (RIM) BlackBerry hand-held device. RIM, founded in 1984 in Waterloo, Ontario, Canada, as an electronics and computer consulting company introduced on January 19, 1999, this tool and service that gave, “the mobile professional instant access to e-mail arriving at his or her desktop” on a portable wireless handheld device.<sup>4</sup> RIM targeted corporate executives and sales teams that do not regularly work out of an office for their BlackBerry tool. Today this business solution has been extended past these mobile professionals because of the realized benefits to the broader businessperson.

The BlackBerry converged a laptop computer, Personal Digital Assistant (PDA), mobile telephone, and a pager into a single portable wireless communication device. It took several years for the adoption of the BlackBerry to reach a critical mass, but since it has revolutionized the cultural of business. The largest impact relates to the defacto

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<sup>2</sup> Friedman, pg 374.

<sup>3</sup> Ibid.

<sup>4</sup> Ryans, Adrian. “BLACKBERRY (A).” International Institute of Management Development (IMD). Lousanne, Switzerland: 2004. Pgs. 1-5. An IMD International case study on RIM.

capability of always being accessible and connected into work, thus the social shift of the blurring of the lines between man's professional and personal lives. A 2001 study conducted by Merrill Lynch and Credit Suisse First Boston found that over 90% of BlackBerry users claimed the tool, "converted downtime (traveling, waiting for meetings to begin, waiting at the airport, etc.) into productive time by giving them the ability to access their email. The typical user in the study reported recovering about 50 minutes of time per day in this way."<sup>5</sup> But after this converted times, the mobile professional remains connected at home. This has changed social norms over just a generation ago when bringing work to the dinner table was considered highly rude. But traditions are hard to be ignored and even Jim Balsillie, the President and Co-CEO of Research in Motion and the company's public face and spokesperson, must abide to a no BlackBerry tolerance policy set by his wife when he walks through his front door.<sup>6</sup>

Before launching the BlackBerry, RIM was a small company with US\$20.9 million in sales in 1998. They offered several products but were not a household name. Their most notable and profitable offering was one of the first two way pager systems, where a user could effectively respond directly from one pager to another...similar to a modern day short message service (SMS) text from one cellular phone to another.<sup>7</sup> Instead of selling directly to the consumer, RIM licensed this two way pager system to BellSouth and Motient, the U.S. companies that owned the two U.S. data telephony networks whom integrated it into their solutions.<sup>8</sup> When BellSouth customers sought after a means for their emails to be forwarded to their pagers, RIM took the opportunity

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<sup>5</sup> Ryans, pg. 7.

<sup>6</sup> Balsillie, Jim. Address. 6 June 2006. AeA Technology for Government Dinner. Grand Hyatt Washington, Washington, DC.

<sup>7</sup> Ibid.

to develop a new solution, which became the BlackBerry. In 2006, just eight years since they operated on US\$20.9 million in gross sales revenue and right before launching the BlackBerry solution, Research in Motion closed the year with US\$2 billion in sales.<sup>9</sup>

RIM was not the first company to develop a mobile phone converged with email capability. Between 1999 and 2001, they faced strong competition by many trusted name brands that were first movers in the convergence. PDA, two-way pager, and phone manufacturers such as Ericsson, Motorola, Nokia, Palm, and Skytel competed in the market; as well as the software giants Microsoft and Qualcomm who partnering to create a 50/50 joint venture called Wireless Knowledge.<sup>10</sup> RIM as a former leader in mobile data transmission through their two-way pager business, had a competitive advantage against these companies at this early stage of the technology due to their prior experience and predominance in the transmission of data via their two-way paging solution. Email was a logical next step for RIM. Contrarily, many of these other companies primary business was in the hardware or software related to the transmission of voice and not data, therefore they were trying to enter into a new market against a smaller but established brand in that space. Also, Palm's technology was inferior to RIM's as it was a pull system where the user would have to log-in to access his/her email, compared to the BlackBerry's always-on and push system.<sup>11</sup>

It was unknown how large of a market there would be for such a solution as previous attempts in the mid-1990s failed to be profitable. Motorola's earlier attempt at being a first-mover through the software application "RadioMail" was perhaps the most

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<sup>8</sup> Ibid.

<sup>9</sup> Lower, Josh. "Research in Motion Ltd." Hoovers Online. 29 April 2007.  
<[http://www.hoovers.com/rim/--ID\\_\\_59141--/free-co-factsheet.xhtml](http://www.hoovers.com/rim/--ID__59141--/free-co-factsheet.xhtml)>.

<sup>10</sup> Ryans, pg. 8.

costly failure, as it cost the company over \$100 million.<sup>12</sup> Users of this Motorola product found the solution to be too heavy, bulky, expensive, and inadequate; as well as too difficult to install as it required in addition to the software, a hardware installation of a PCMCIA adapter card into a PDA. Contrarily the BlackBerry's users found the tool to have a strong return on investment because of the efficient use of down-time and the ease of portability and interoperability with their company's Microsoft Exchange or Lotus Notes systems. And compared to the late 1990s and early 2000s, with the increased global development of 2G and 2.5G cellular network infrastructures, Research in Motion was able to expand globally and offer their solution beyond the U.S. and Canadian markets.

Due to the success of the BlackBerry, as the market has clearly proven to be lucrative, the company faces stiffer competition today than they did back in 1999. RIM is in a strong position as they currently have a vast global subscription base and nearly cornered the market because they were early adopters and innovators, but their product offering has become stagnant compared to their competitors who are trying to take some of their market share by offering improved innovative products that further converge technologies. RIM's external competition is rivaled only by its internal competition for their unwillingness to diversify their product line, re-innovate their current technologies, legal issues, and technology/management problems.

In 2006, Research in Motion settled a patent infringement case that lasted for six years with Virginia based NTP, Inc. This settlement came at the lofty price tag for RIM of over US\$600 million, which does not include the untold millions spent on legal fees

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<sup>11</sup> Ibid.

<sup>12</sup> Ryans, pg. 6.

over the six years in the legal system. This settlement was essentially reached, when a fear that the patent case would force RIM to cease operations of its BlackBerry tool in the United States. Instead of gambling on the courts decision, RIM caved to the patent trolls claim of IP infringement.

Since settling, RIM has bounced back and has quadrupled its subscriber base from two million to eight million.<sup>13</sup> Whether it is a clear example of the old adage that no publicity is bad publicity – even if negative – or just market forces, the success over the last year has been uncanny and unpredicted. But with this unexpected success came the unintended consequence of a critical crash due to an overloaded network when on Tuesday, April 17, 2007, to Wednesday, April 18, 2007, one of the two Research in Motion’s Network Operation Centers (NOC) – the hardware device that routes all incoming and outgoing email from the corporate servers of consumers’ companies through RIM and to the hand held device – crashed and was down for 10 hours, thus paralyzing the system through-out all of North America.<sup>14</sup>

The emails were not lost, they were delivered once the NOC was brought back online but with only two systems managing eight million subscribers or six million more than the same infrastructure was managing just the year before the 300% increase and without a dependable back-up system to route the email depending on workflow, RIM’s management let their success fall under two overwhelming critical potential points of failure rather than diffusing them with multiple NOCs or a decentralized system. This, like Palm’s pull system from 1999, is a critical flaw that must be addressed by RIM

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<sup>13</sup> Reardon, Marguerite. “BlackBerry outage: RIM a victim of its own success?” CNet News. 19 April 2007. <[http://news.com.com/BlackBerry+outage+RIM+a+victim+of+its+own+success/2100-1039\\_3-6177349.html](http://news.com.com/BlackBerry+outage+RIM+a+victim+of+its+own+success/2100-1039_3-6177349.html)>.

<sup>14</sup> Ibid.

management or after the next NOC failure, their will be a lowering of the trusted brand name of BlackBerry. Several of RIM's competitors – including Microsoft and Nokia – do not “route emails through a centralized data center and are thus immune to this kind of outage.”<sup>15</sup> And with Nokia leveraging its recent exclusive rights contract with the Chinese government to serve the largest untapped market in the world, this non-rivalrous network topology will allow them to contract with millions of new clients; thus quickly usurping RIM in global customers.<sup>16</sup>

This technical flaw of RIM that doesn't inflict Nokia, Microsoft, and others and the increased competition from many companies has changed the expectations from users and has begot greater capabilities in the various brands. The highest expectation is the improved convergence of voice service on the BlackBerry. When RIM entered the industry in 1999, the ability to send emails via the mobile device was the only requirement, thus expectations were low for voice service. RIM had never been in the voice business and purchased wholesale airtime from its partner BellSouth to source their technological convergence.<sup>17</sup>

Today, RIM has partnered with many of the leading carriers but is still infamously known for having poor voice quality. Thus, many consumers are forced to carry both a BlackBerry and a mobile telephone with them. This is counter-intuitive for the application of convergence and offers Samsung and other smart-phone manufacturers' greater opportunity to not just compete against RIM but steal their market share and become the dominant player in the industry. And as only one SIM card exists in U.S. based phones, consumers are plagued further in needing to carry a business and personal

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<sup>15</sup> Ibid.

<sup>16</sup> Mossberg, Walt. Address. 30 April 2007. Georgetown University. Washington, DC.



mobile phone – even when individuals like Balsillie have been inflicted with the BlackBerry syndrome of using their business smart phone at home – instead of having one phone with multiple SIM cards.

Recently in Japan, these updated converged phones with two SIM cards that can be switched via software and not physically by removing the hardware were brought to market and as Japanese mobile technology is usually two to three years ahead of that of the United States; Americans can soon be seeing a start in the deduction in the number of mobile devices that they'll need to carry.<sup>18</sup> And this bolsters Microsoft's additional claims that the future of an individual's computing needs will be focused around a smart phone or computer that doubles as a phone. The later is more likely as telephony is just a service that a computer affords and not the other way around. Yes a phone can offer computing capabilities, but at what point does the phone lose its inherent phone stature and become a computer? Time and innovation will tell.

If RIM does not continue to innovate to become more like a computer, while also improving their voice service and other 3G capabilities, its only competitive advantage will be that users are engrained in the BlackBerry and it is a legacy system that may be cost prohibitive to replace or to retrain staff in using a new medium. Also as the churn rate of standard mobile carriers remains low, such as Verizon and Cingular's claim of having a 1.2% customer churn – when consumers are further engrained into a particular product with exclusive rights to a carrier by the convergence of their personal and professional lives into one device, the brand is able to further lock in its customers.<sup>19</sup>

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<sup>17</sup> Ryans, pg. 5.

<sup>18</sup> Mossberg.

<sup>19</sup> Busk, Doug. Address. 5 February 2007. Georgetown University. Washington, DC.

Doug Busk, of Single Point, exclaims that even with the advancements in mobile telephony voice service is still “the killer app” and companies try to differentiate themselves more with voice than anything else.<sup>20</sup> The smart-phone industry is highly competitive and the life-span of a champion phone holding the reigns at the top of the mountain are becoming shorter and shorter, therefore all companies that want to remain competitive must offer optimum voice and data services. The Motorola Q was heralded as the premier smart-phone when it was released on July 25, 2006, but within a year and without a successor Motorola’s product fell to more innovative phones.

The technology news online publication CNet, fitted several smart-phones against one in another in head-to-head “prize fights” to see which devices were superior. They ranked phones by five categories including: sexiness, navigation, connectivity, multimedia, and call quality. The Motorola Q was unseated by the T-Mobile Dash and the Samsung Blackjack in the first two comparisons and in the most recent “prize fight” the Blackjack also beat out the RIM BlackBerry 8800.<sup>21</sup> The BlackBerry 8800, received the lowest scores out of any smart-phones and appealed more for its form than for its function...especially regarding voice quality. If RIM continues to be known as a manufacturer of technology that doesn’t serve the needs of the “killer app” of voice best, it will become obsolete like the Motorola Q.

Mobile telephony will continue to be blessed by the benefits of Moore’s Law until the industry will change its understanding and adopt the more universal mobile computing industry moniker. Telephony will be one feature of the mobile device, but there will be many more that can attract new customers. With Apple’s recent

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<sup>20</sup> Ibid.

announcement to enter the space with its iPhone product, this evolution will begin. The Apple iPhone will bring in the popularity and brand of the iPod and offer telephony capabilities. Other mobile phones had adopted the iTunes software and already many others can play media files, but they were still telephones that had a media feature. The iPhone will be the reverse – a media center that can make mobile telephone calls.

Future convergence will also include the adoption of higher resolution digital video cameras that will automatically be able to share content to a YouTube-esque video file sharing site. Currently the megapixel and resolution of camera phones is very low, but as 3G allows for increased faster send and receive speeds the ability to transmit the higher quality video while coupled with Kryder's Law will offer roughly the same computing power of a PC, thus the mobile smart phone can also become a mobile streaming video conferencing tool.

There are endless applications that can be adopted for a mobile computer. Whether it be voice telephony, video conferencing, the ability to play live television or downloaded media, or anything else that can be digitized the future convergence of the industry will continue, just as Thomas Friedman anticipates. And if Research in Motion does not begin to innovate their products now, then they will be left behind or acquired by a more innovate company that would want access to their customer base. As the industry continues to consolidate; and Microsoft and other historically non-telephony companies enter the market with the buying power of an 800 lb. gorilla, RIM and the other mobile companies must take notice and act...otherwise all they will have left to sell is their diminishing trusted brand name and customer list.

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<sup>21</sup> CNet Presidents Prize Fights. CNet Networks. 29 April 2007. <[http://reviews.cnet.com/4520-11396\\_7-6716710-7.html?tag=lnav](http://reviews.cnet.com/4520-11396_7-6716710-7.html?tag=lnav)>.

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