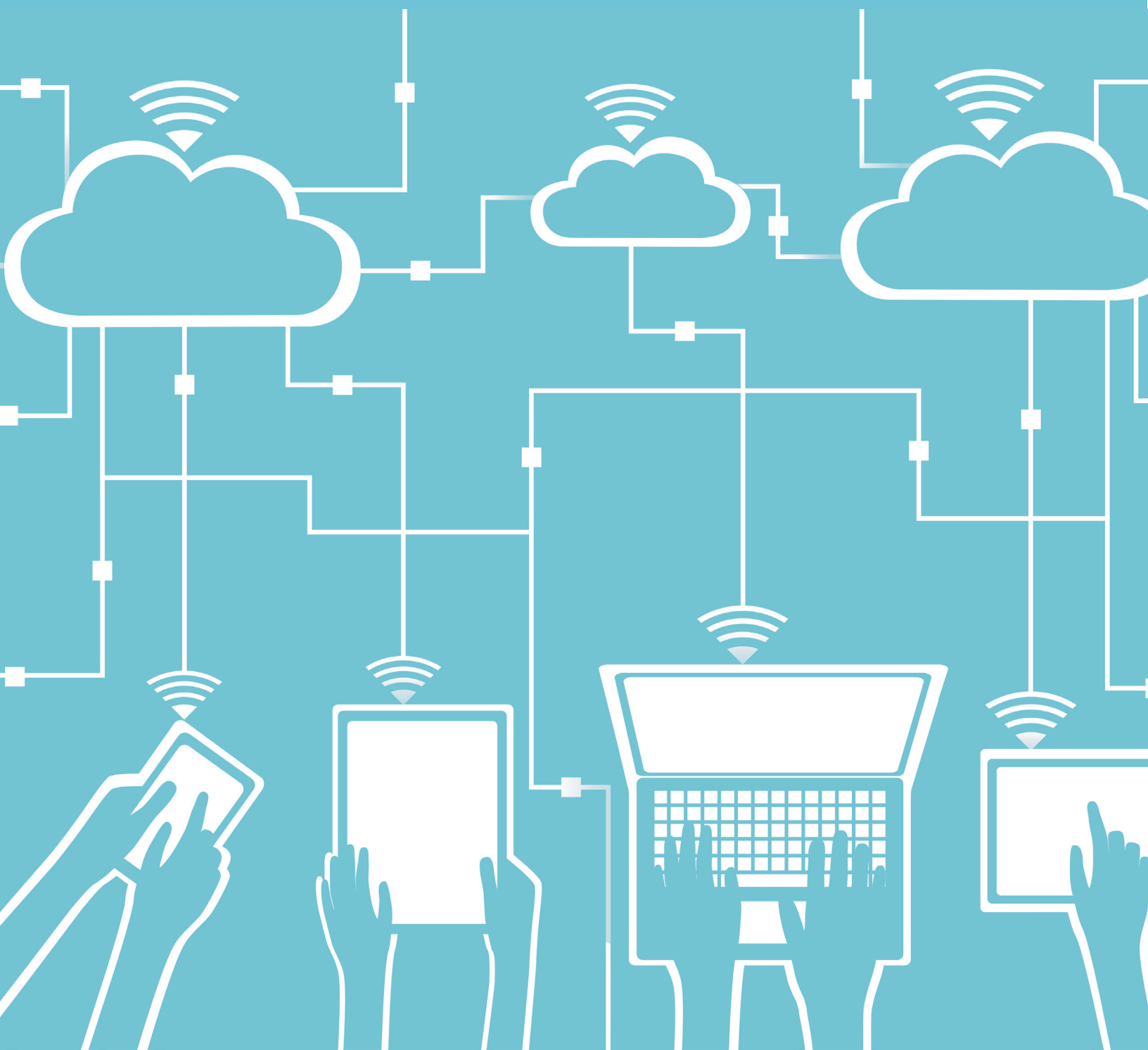


THE LEGACY OF INBLOOM

Working Paper 02.02.2017

Monica Bulger, Patrick McCormick, Mikaela Pitcan





The Legacy of inBloom

Working Paper 02.02.2017

Monica Bulger, Patrick McCormick, Mikaela Pitcan

Executive Summary

Why Do We Still Talk About InBloom?

Many people in the area of educational technology still discuss the story of inBloom. InBloom was an ambitious edtech initiative funded in 2011, launched in 2013, and ended in 2014. We asked ourselves why the story of inBloom is important, and conducted a year-long case study to find the answer. For some, inBloom's story is one of contradiction: the initiative began with unprecedented scope and resources. And yet, its decline was swift and public. What caused a \$100 million initiative with technical talent and political support to close in just one year? A key factor was the combination of the public's low tolerance for risk and uncertainty and the inBloom initiative's failure to communicate the benefits of its platform and achieve buy-in from key stakeholders. InBloom's public failure to achieve its ambitions catalyzed discussions of student data privacy across the education ecosystem, resulting in student data privacy legislation, an industry pledge, and improved analysis of the risks and opportunities of student data use. It also surfaced the public's low tolerance for risk and uncertainty, and the vulnerability of large-scale projects to public backlash. Any future U. S. edtech project will have to contend with the legacy of inBloom, and so this research begins to analyze exactly what that legacy is.

The inBloom Story

InBloom was a \$100 million educational technology initiative primarily funded by the Bill & Melinda Gates Foundation that aimed to improve American schools by providing a centralized platform for data sharing, learning apps, and curricula. In a manner that has become a hallmark of the Gates Foundation's large scale initiatives, inBloom was incredibly ambitious, well-funded, and expected to deliver high impact solutions in a short time frame. The initiative aimed to foster a multi-state consortium to co-develop the platform and share best practices. It intended to address the challenge of siloed data storage that prevented the interoperability of existing school datasets by introducing shared standards, an open source platform that would allow local iteration, and district-level user authentication to improve security. By providing a platform for learning applications, founders of inBloom set out to challenge the domination of major

education publishers in the education software market and allow smaller vendors to enter the space. Ultimately, the initiative planned to organize existing data into meaningful reporting for teachers and school administrators to inform personalized instruction and improve learning outcomes.

The initiative was initially funded in 2011 and publicly launched in February, 2013. What followed was a public backlash over inBloom's intended use of student data, surfacing concerns over privacy and protection. Barely a year later, inBloom announced its closure. Was this swift failure a result of flying too close to the sun, being too lofty in ambition, or were there deeper structural or external factors?

To examine the factors that contributed to inBloom's closure, we interviewed 18 key actors who were involved in the inBloom initiative, the Shared Learning Infrastructure (SLI) and the Shared Learning Collaborative (SLC), the latter of which were elements under the broader inBloom umbrella. Interview participants included administrators from school districts and state-level departments of education, major technology companies, former Gates Foundation and inBloom employees, parent advocates, parents, student data privacy experts, programmers, and engineers.

Co-occurring Events

The inBloom initiative occurred during a historically tumultuous time for the public understanding of data use. It coincided with Edward Snowden's revelations about the NSA collecting data on U.S. civilians sparking concerns about government overreach, the Occupy Wall Street protests surfacing anti-corporation sentiments, and data breaches reported by Target, Kmart, Staples, and other large retailers. The beginnings of a national awareness of the volume of personal data generated by everyday use of credit cards, digital devices, and the internet were coupled with emerging fears and uncertainty. The inBloom initiative also contended with a history of school data used as punitive measures of education reform rather than constructive resources for teachers and students. InBloom therefore served as an unfortunate test case for emerging concerns about data privacy coupled with entrenched suspicion of education data and reform.

What Went Wrong?

InBloom did not lack talent, resources, or great ideas, but throughout its brief history, the organization and the product seemed to embody contradictory business models, software development approaches, philosophies, and cultures. There was a clash between Silicon Valley-style agile software development methods and the slower moving, more risk-averse approaches of states and school districts. At times, it was as though a team of brilliant thinkers had harvested every "best practice" or innovative idea in technology, business, and education—but failed to whittle them down to a manageable and cohesive strategy. Despite the Gates Foundation's ongoing national involvement with schools, the inBloom initiative seemed to not anticipate the multiple layers of politics and bureaucracy within the school system. Instead there were expectations that educational reform would be easily accomplished, with immediate results, or that – worst case – there would be an opportunity to simply fail fast and iterate.

However, the development of inBloom was large-scale and public, leaving little room to iterate or quietly build a base of case studies to communicate its value and vision. Thus, when vocal opposition raised concerns about student data use potentially harming children's future prospects or being sold to third parties for targeted advertising, the initiative was caught without a strong counter-position. As opposition

mounted, participating states succumbed to pressure from advocacy groups and parents and, one by one, dropped out of the consortium.

The Legacy of InBloom

Although inBloom closed in 2014, it ignited a public discussion of student data privacy that resulted in the introduction of over 400 pieces of state-level legislation. The fervor over inBloom showed that policies and procedures were not yet where they needed to be for schools to engage in data-informed instruction. Industry members responded with a student data privacy pledge that detailed responsible practice. A strengthened awareness of the need for transparent data practices among nearly all of the involved actors is one of inBloom's most obvious legacies.

Instead of a large-scale, open source platform that was a multi-state collaboration, the trend in data-driven educational technologies since inBloom's closure has been toward closed, proprietary systems, adopted piecemeal. To date, no large-scale educational technology initiative has succeeded in American K-12 schools. This study explores several factors that contributed to the demise of inBloom and a number of important questions: What were the values and plans that drove inBloom to be designed the way it was? What were the concerns and movements that caused inBloom to run into resistance? How has the entire inBloom development impacted the future of edtech and student data?

1.0 Introduction

In August 2011, Vicki Phillips, Director of the College-Ready Education Unit for the Bill and Melinda Gates Foundation, published an upbeat blog post titled "Shared Tools for Teachers? There's an App for That!"¹ In it, she introduces the Shared Learning Collaborative, a newly established consortium of nine states exploring potentials for a platform that would standardize data collection and storage, share links to instructional resources, and develop an API for shared standards across open educational software. Phillips describes it as a "huge app store—just for teachers—with the Netflix and Facebook capabilities we love the most." The brief blog post contains terms that would become increasingly contentious as the platform moved forward—open source software, a shared platform of applications and tools, Wireless Generation, differentiated instruction, and teacher support. Notably absent were the terms "data" or "privacy." One paragraph ends with "Pretty cool, huh?" and another with "...right now, we're watching the magic happen."

The enthusiasm of Phillips' blog post did not end up being an accurate predictor of the project's future. Although now synonymous with failure in the educational technology world, inBloom began as an ambitious vision by the Bill & Melinda Gates Foundation to improve the U.S. education system. During a CNN interview in November 2011, Bill Gates described a "crisis in education," citing low scores on international tests, high dropout rates in inner city schools, and a mismatch between schooling and employer expectations. Gates shared his vision for a "system that spreads the best ways that teaching gets done" and asserted that "one on one teaching is kind of the ideal that you'd like to achieve, where you see

1. "Shared Tools for Teachers? There's an App for That!", Impatient Optimists, accessed January 26, 2017, <http://www.impatientoptimists.org/Posts/2011/08/Shared-Tools-for-Teachers>.

where they're confused, you see where they're bored and you're tuning to that."² Earlier that year, the Gates Foundation had invested \$83.3 million into the Shared Learning Collaborative for a one-year term to support the development of the platform that would become inBloom.³

1.1 What was inBloom?

It's difficult to understand what inBloom was and was planned to be. InBloom was the name of a technical infrastructure, a non-profit in charge of developing that infrastructure, and a public initiative aimed to fund and connect it all. Early discussions described a centralized data platform, a tool for teachers, improved security and standards for student data, a state-level consortium, and disruptive educational reform. When it was first funded, the core vision was an educational data platform that could harmonize student data already stored by schools and school districts in a multitude of formats (e.g., paper files, various software programs) across multiple locations (e.g., computers that were not connected to each other, offices, storage units). The aim was to provide a platform that would support the standardization of data storage and enable more productive use of student data by educators and administrators. It would also serve as a platform for learning apps and a space to organize and link to learning resources.

However, the timing of the launch of inBloom in spring 2013 coincided with the beginnings of sustained national attention on the volume of personal data generated by the everyday use of credit cards, digital devices, and the internet. In the summer of 2013, Edward Snowden disclosed evidence that the U.S. National Security Agency had accessed phone records and internet communication data for millions of Americans.⁴ Later that year, Target, a major retail company, suffered a data breach of credit card information affecting an estimated 70 million customers.⁵ These and other events stirred concerns and uncertainty around data, a seeming black box of personal information with opaque uses that could be damaging or dangerous. This new mistrust of data, combined with historical anxieties about national testing regimes, mobilized a vocal group of advocates who suspected large philanthropies, such as the Bill and Melinda Gates Foundation, of attempting to privatize education.⁶

Especially well-resourced for an educational initiative⁷ and supported by what has been described as a "dream team" of programmers and engineers, inBloom started with commitments from 9 states, including major school districts such as New York City. Yet barely over a year after its public launch, in April 2014, inBloom announced its closure. The question of "what went wrong" has been endlessly discussed in news articles, blogs, conferences, and post-mortems. The goal of this report is to deepen such discussions through new research and analysis. Examined in this report are several reasons for inBloom's failure and what key factors may have led to its demise. As poet Jack Gilbert notes "Everyone forgets that Icarus

2. See transcript of Bill Gates interviewed by Fareed Zakaria, CNN, November 6, 2011, <http://www.cnn.com/TRANSCRIPTS/1111/06/fzgps.01.html>.

3. "How We Work Grant," Bill & Melinda Gates Foundation, accessed January 26, 2017, <http://www.gatesfoundation.org/How-We-Work/Quick-Links/Grants-Database/Grants/2011/07/OPP1041367>.

4. Mirren Gidda, "Edward Snowden and the NSA files-timeline," *The Guardian*, August 21, 2013, <https://www.theguardian.com/world/2013/jun/23/edward-snowden-nsa-files-timeline>.

5. Maggie McGrath, "Target Data Breach Spilled Info On As Many As 70 Million Customers," *Forbes*, January 10, 2014, <http://www.forbes.com/sites/maggiemcgrath/2014/01/10/target-data-breach-spilled-info-on-as-many-as-70-million-customers/#21193f856bd1>.

6. Diane Ravitch, "I Am Puzzled by the Gates Foundation," Diane Ravitch's Blog, accessed January 26, 2017, <https://dianeravitch.net/2012/07/05/i-am-puzzled-by-the-gates-foundation/>.

7. InBloom received \$100 million in combined funding from the Bill & Melinda Gates Foundation and Carnegie Corporation.

also flew,” and with that sentiment, this study also explores inBloom’s positive legacy—what it got right in exploring the potential for disruptive change in education and catalyzing a necessary discussion of student data use.

1.2 Methods

Between October 2015 and December 2016, researchers interviewed 18 key actors who were involved in the Shared Learning Infrastructure (SLI)/ Shared Learning Collaborative (SLC)/ inBloom initiative during the period from March 2010 to June 2014. Interview participants included administrators from school districts and state-level departments of education, major technology companies, former Gates Foundation and inBloom employees, parent advocates, parents, student data privacy experts, programmers, and engineers. Participants were selected for interviews based on snowball sampling of experts known to the research team, or identified via literature review or recommendations from external experts and interview participants. Interviews lasted between one and two hours and followed a 12-item semi-structured interview protocol that was adapted to address key areas of expertise, for example extensive policy or technical knowledge. Participants were invited to the study via email or face-to-face and interviews were conducted by Skype or phone.

2.0 inBloom’s Story

The decision for inBloom to be designed as centralized, open source, and national in scale was influenced by several factors. For one, Bill Gates’ attitudes toward an American educational crisis matched with existing worries about the condition of U.S. school systems, and renewed public excitement about the powerful abilities of new technologies. InBloom’s release also coincided with the availability of federal Race To The Top (RTTT) funding. Lastly, the inBloom platform inherited both staff and concepts from previous platforms—most notably, the Achievement Reporting and Innovation System (ARIS), created for New York City schools in partnership with IBM and edtech company Wireless Generation. The result of these influences was that inBloom was a platform with an identity crisis. The internal culture clash between agile start-up, established enterprise software vendor, and shared community-driven platform laid the groundwork for a number of conflicts and discrepancies.

2.1 Edtech Evangelists

Bill Gates’ statements about education in 2011 reflected a broader public attitude about the relationship between education and technology. And as American schools were being criticized, new technologies and techniques were being proposed as potential saviors. Such attitudes are illustrated in the findings of a 2009 report by McKinsey & Company.⁸ The report identifies a “persistent gap in academic achievement,” reportedly “depriving the U.S. economy of as much as \$2.3 trillion in economic output in 2008.”⁹ The

8. McKinsey & Company “The Economic Impact of the Achievement Gap in America’s Schools,” April, 2009, http://mckinseysociety.com/downloads/reports/Education/achievement_gap_report.pdf.

9. Byron G. Auguste, Bryan Hancock, and Martha Laboissiere, “The economic cost of the U.S. education gap,” McKinsey Quarterly, June 2009, <http://www.mckinsey.com/industries/social-sector/our-insights/the-economic-cost-of-the-us-education-gap>.

report concluded that children were not meeting their full potential and that investment in high-quality teaching could improve academic achievement outcomes. The authors of the report advocated for strong metrics, in the form of testing, and aggressive interventions based on data analysis, to turn around the failing education system.

Writing in 2012 for the Harvard Business Review, Stacy Childress, then Deputy Director of Education for the Gates Foundation, connects the dots between McKinsey's report and Gates-funded educational reform initiatives. Childress points out the "dismal" performance of U.S. high school seniors on the National Assessment of Educational Progress (NAEP), reporting that at least 70% of students scored below proficient in mathematics, reading or science.¹⁰ She details the negative impacts these scores have on students' career and self-sufficiency prospects, as well as the decline of U.S. international rankings in student achievement. Childress urges for a combined focus on improving teacher quality and accelerating adoption of technologies in the classroom—specifically data-driven personalized learning.¹¹ For Childress and other advocates of data-driven learning, the focus was on the importance of collecting and tracking granular data about student performance. This wasn't an initiative to simply create better lessons, it was a system to dynamically respond to the individual needs of each student using it. Therefore, the goal of personalization was coupled with the method of data collection.

Childress also points to the success of several Gates-supported initiatives, including: Khan Academy (which at the time had 2,700 tutorial video lessons and 3 million unique users each month), Dreambox Learning (a personalized math program), School of One in New York (in which students received a personalized schedule each day according to their needs), and Rocketship Education in California (offering a hybrid of digital and teacher-facilitated instruction in math and reading).

For many education technology evangelists, the early 2010's felt like their time had come. Ideas for transforming teaching and learning, such as flipped classrooms, content recommendation engines, and personalized learning, had been percolating for years, but now, given more computing power and connectivity at lower costs, edtech at last seemed up to the task. As Aimee Guidera, President and CEO, Data Quality Campaign observes:

The storyline had not gotten to what we all had thought was going to be the game-changer, which is how do you actually use individual student information to guide teaching and learning and to really leverage the power of this information to help teachers tailor learning to every single child in their class. That's what made inBloom revolutionary.

The 2012 Global Silicon Valley (GSV) report *American Revolution 2.0* described several catalysts in technology market dynamics that were poised to revolutionize education: the scalability of cloud computing and other technologies, cost reductions of open source software and content, high bandwidth and ubiquitous connectivity of wired classrooms, affordable hardware and software, mobile devices, and increasing signs of network effects. An October 2012 *Forbes* article¹² cited their own list of innovations

10. Stacy Childress, "Rethinking School," Harvard Business Review, March, 2012, <https://hbr.org/2012/03/rethinking-school>.

11. The core of Childress' argument, and that of the 2009 McKinsey report is that: a) schools are failing American students by not offering a high quality education that fosters their potential, and b) a combination of testing, technology (with a focus on data-driven personalized learning), and infrastructural change (e.g., charter schools) promise an improved future. This perspective surfaced frequently in interviews, particularly the expectation that student data could drive improvements in instruction and that more personalized learning experiences could improve academic achievement.

12. Eric Savitz, "5 School Technologies To Watch: Personalized Learning Is Here," *Forbes*, October 22, 2012, <http://www.forbes.com/sites/ciocentral/2012/10/22/5-school-technologies-to-watch-personalized-learning-is-here/#12d717996c8c>.

in personalized learning: moving to the cloud and collaborative environments, cross-platform integration, vendor collaboration and the rise of the marketplace, the explosion of all things mobile, an emphasis on adaptive learning, and gamification. Technology proponents characterized the education sector as a last frontier, both for innovative change and as an enormous business opportunity. The *American Revolution 2.0* report estimated the value of the K-12 education market to be over \$2.2 trillion¹³ and described it as largely untapped by technology-enabled innovation. As *Forbes* put it, “The 2012-2013 school year is certain to usher in new digital tools and different teaching approaches. Only time will tell which technologies will have the greatest impact on education and the learning lives of students, but one thing is certain – the path to personalized learning begins now.” This was the market context in which inBloom seemed both perfectly timed and well placed within a constellation of maturing and ever more affordable technologies, education policy objectives, budgetary pressures, and funding opportunities.

InBloom would eventually be designed to incorporate many of the technological innovations cited in the *Forbes* article and *American Revolution 2.0* report. InBloom was developed with open source software, used cloud computing, relied on ubiquitous connectivity and device interoperability, enabled cross-platform integration and collaboration, intended to spark vendor competition through an app-store marketplace, and above all, aimed to open the door to personalized learning, which would “bring educational materials directly to teachers’ fingertips so that they can quickly find the materials, tools and strategies to help them meet students’ individual learning needs.”¹⁴ Assistant Superintendent James Yap, of New York’s Warwick Valley Central School District, explained, “The promise was that it was supposed to be adaptive differentiated instruction for individual students, based on test results and other data that the states had. InBloom was going to provide different resources based on those results.” Greg Mortimer, former Chief Information Officer of Jefferson County School District, a Phase 1 participant in the inBloom pilot, outlined the value proposition as one of bridging systems and presenting relevant information in the right context at the right time, “The classic challenge everybody in K-12 talks about is we have data from all these disparate systems. How do we grab that data in a timely fashion and use it to inform instruction and hope we move the needle with student achievement?” However, despite the enthusiasm for the new possibilities of data, inBloom would also have to grapple with the complexities of existing infrastructures of education and edtech.

2.2 Platform in Search of Disruption

InBloom was not the first attempt to use technology and data techniques to connect and improve educational settings. In particular, inBloom’s design inherited much from earlier work on and individuals involved with the ARIS platform in New York City, and the edtech firm Wireless Generation. These influences informed the adoption of a *centralized* platform model, where inBloom attempted to serve as a clearing house for educational data across a consortium of states.

In 2007, the New York City school district worked with IBM and Wireless Generation to develop and adopt a system to collect student data. The system, funded for \$80 million, was titled Achievement Reporting and Innovation System (ARIS). In a 2007 case study¹⁵ published by Stacy Childress, then lecturer at Harvard Business School, ARIS was described as a key mechanism to drive transparency and accountability. Yet

13. This estimated value encompasses the market as a whole and includes expenditures such as salaries and facilities.

14. Accessed via the Wayback Machine on December 15, 2016: <http://slcedu.org/instructional-impact/personalized-learning>.

15. Stacey Childress, *Focusing on Results at the New York City Department of Education*, Harvard Business School, 2007, PEL-054.

much controversy eventually engulfed ARIS. The system's high cost, difficulty of use, redundancy with other systems, and low number of active users were factors cited by ARIS critics and in a January 2012 audit by New York City Comptroller John Liu:

The audit despite spending more than \$80 million on system design and development, DOE lacks effective measurements for gauging whether ARIS is an effective tool for enhancing and improving student performance. In addition, educators are not using ARIS to the extent for which it was intended. According to our survey of teachers and principals, many educators are not using the ARIS system to collaborate with other teachers as was intended, are using alternative computer systems to obtain information in place of, or in conjunction with, ARIS, and are not utilizing the system to its fullest extent. Therefore, we believe that DOE is not completely attaining all the benefits for which the ARIS system was intended.¹⁶

By July 2012, documents from the New York City Department of Education (NYCDOE) and New York State Education Department (NYSED) suggested that ARIS would be replaced by a new statewide database being developed with federal education funding.¹⁷ ARIS survived until November 2014 when, under a different administration, NYCDOE announced that ARIS would be replaced by a home-grown data management system under development.

After the initial development of ARIS (but before its eventual closure), the CEO and VP of Wireless Generation were continuing to develop their ideas about the role of technology in education. In 2008, Larry Berger (CEO) and David Stevenson (VP) co-authored *Slow Entry, Distant Exit*, a paper describing eleven barriers to entry (and innovation) in the K-12 education market. Among the barriers Berger and Stevenson cited were, "oligopoly and decentralization." With so many school districts spread across the U.S., few companies had the workforce required to connect with disparate decision-makers, which contributed to "three major publishers controlling almost 85 percent of the K-12 textbook market." Berger and Stevenson criticized technology philanthropists as being part of the problem: "One irony of the current fashion in K-12 philanthropy is that the same entrepreneurs who made fortunes...through highly centralized systems that crushed local variation...have tended to focus on educational entrepreneurship in the form of local, decentralized, often boutique entities."

Berger and Stevenson recommended that the education market could "achieve scale and collaboration by forming consortia." The authors suggested that a "consortium model not only pools resources, but it signals to the entrepreneur that this is a problem for which many customers beyond the consortium may be seeking a solution..." The paper also described how savings in the shared adoption of open source software and materials might free up scarce resources for other services and purposes. These values shaped the development of the technology that would become the base of inBloom.

By 2010, Wireless Generation was developing the concept of a technology platform to share with the Gates Foundation. According to a former Wireless Generation employee interviewed for this study,¹⁸ the initial concept envisioned a services layer integrating and encapsulating four core components: a data

16. City of New York Office of the Comptroller, "Audit Report on the Performance of the New York City Department of Education's Achievement Reporting and Innovation System," January 23, 2012, https://comptroller.nyc.gov/wp-content/uploads/documents/7111_118A.pdf.

17. Jill Colvin and Amy Zimmer, "City's \$80M Student Data System To Be Replaced by State Portal," DNAINFO, July 30, 2012, <https://www.dnainfo.com/new-york/20120730/new-york-city/citys-80m-student-data-system-be-replaced-by-state-portal>.

18. A former Wireless Generation employee requested anonymity as condition of interview.

warehouse, a universal lesson bank, a universal item bank, and a learning trajectory map. The codename for this big idea, designed to dislodge barriers to innovation in education, was “Baselayer”—and would go on to be renamed the Shared Learning Infrastructure (SLI). By this point, Stacey Childress had moved from Harvard Business School to lead the education initiative at the Gates Foundation, and was exchanging ideas with Larry Berger and colleagues at Wireless Generation in preparation for a meeting with a select group of technologists, education experts, and power brokers, including Bill Gates.

According to a former Wireless Generation employee, even as these earliest seeds for inBloom were being planted, many concerns and risks were identified.¹⁹ It was during this same period that a strategy was discussed for how to extend a foundation investment with the expectation that Race To The Top federal funds for Instructional Improvement Systems could be leveraged. Thus, Baselayer, and then SLI, was saddled with many known risks, borrowed elements from ARIS, aligned to RTTT funding, and remained in search of a consortium to champion a platform solution.

2.3 An Uneasy Alliance: Race to the Top and Consortium of States

From 2010 through 2015, \$4.35 billion in federal grant funding was available to states via the Race to the Top program. There were various program criteria aligned to key policy objectives but among the most relevant to education technology vendors and products were awards for “data systems to support instruction,” including “fully implementing statewide longitudinal data systems, using data to improve instruction, and accessing and using state data.” Inevitably, this infusion of funding influenced the demand, direction, and scope of large education technology projects across the U.S., including projects involving and systems linking to inBloom. As Sharren Bates, a developer of the ARIS system while at the NYDOE, a former Senior Program Officer at the Gates Foundation, and Product Manager for inBloom described it, “If you were to ask me if I were to do it again, to try to work with states and districts together, if I would do it the same way, I would say with Race to the Top funding on the table, yes. If Race to the Top hadn’t been on the table, then no. But it would have been irresponsible to have a data infrastructure conversation with hundreds of millions of dollars going to states without talking to them.”

The vision of inBloom and RTTT objectives were not entirely out of sync, but the nature of complex government procurement entangling federal, state, and local agencies, competing priorities, and layers of public sector oversight and accountability²⁰ often chafed against inBloom’s preferred methodologies of software development. Ideally inBloom might have had a chance to quietly prototype, test, and pilot components or stripped down versions of the datastore, but instead the trajectory veered toward a very visible, big bang launch within a highly compressed timeline. As Iwan Streichenberger, former CEO of inBloom recalled the strategy of the Gates Foundation:

inBloom has to scale fast. It’s a big, heavy, large-scale project, with a large initial investment. It builds on the promises and commitments made by inBloom predecessor, the SLC, to early adopting states such as New York, guaranteeing them very high security and profound changes in data management in a compressed timeframe. The belief is that it can’t be designed small so we

19. Questions about reducing integration costs, achieving data interoperability, state participation in open systems, the choice of a platform vs. mere standards or toolkits, how to minimize the scope of a platform, should a system be centralized, and expectations for personalized learning were raised from the start.

20. For a detailed analysis of the complexity of the procurement process in education, see: Steven Hodas, Redesigning the District Operating System, CRPE, May, 2015, <http://www.crpe.org/sites/default/files/crpe-report-redesigning-dos.pdf>.

have to go big. A big visible launch is planned to solidify the commitments previously made and send messages to the industry players that things are changing and exciting times are ahead. It is also a way for the project sponsors to demonstrate their commitment to the long term ambitious vision and their large investment in better data interoperability across the industry.

Streichenberger reflected that, “Interestingly, this goes against most modern product and company launch concepts such as ‘test and learn’ or in more simple terms ‘walk before you run.’ As a CEO and entrepreneur, I was more used to and comfortable with the ideas of coming up with a Minimum Viable Product and scaling up. But inBloom was a different beast with a legacy and a somewhat unique positioning.”

There were multiple factors driving inBloom’s go big approach. Above all, inBloom needed to be an enterprise scale system in order to process the volume of data anticipated across the country from state and district partners with an expectation of continued growth. And as Streichenberger said, it needed to offer high security at scale on day one, adding to the development complexity. InBloom had also become interdependent with state and district projects and timelines, many driven by federal RTTT funding with strings attached. Lastly, inBloom raised expectations with a highly visible launch featuring Bill Gates at the South By Southwest Education Conference in March 2013.

In addition to developing, scaling, and rolling out the massive, built from scratch cloud-based data store, inBloom faced the challenge of convincing other software companies to change course and join their revolution. Many vendors were already dominant or successful in the existing education technology market and faced substantial costs and risks investing in new or modified products that could interoperate with inBloom’s data store. As Sharren Bates described it, “We needed to prove the utility could exist in order to have vendors buy into it. So I’m not suggesting that the size of our build was wrong. I mean it’s wrong around the edges, we could have done a little bit less. But to prove that we were a utility that could work at scale, we needed to build the whole thing. You can’t build half a boat. You’ll sink.”

As partners, software vendors were not only concerned about whether inBloom would succeed, but also how the cloud-based data store could threaten existing business relationships and revenue in the event of such a paradigm shift. Student Information System (SIS) vendors generally exercised control over student data for their school district clients. Managing, processing, and safeguarding student data was part of the SIS vendor value proposition to schools. But inBloom’s model shifted and blurred the boundaries of data “ownership” and management. A senior technical expert who has closely examined the history of inBloom characterized the vendor perspective: “Right now the SIS’s are owned by us and you’re going to disintermediate us from our own SIS’s and start trying to charge rent on that? Before inBloom was killed, they were already dying on the buy-in because the vendor community was not interested in a disintermediated relationship with their data.”

Proposed benefits of the centralized model included ease of aggregate data analysis across district and state boundaries to inform research, teaching, and learning, to the extent that a bigger data set provided correspondingly greater value. But district and school level priorities, aside from federal and state reporting, did not typically align with a top down approach. School district and regional CIOs and executives were accustomed to having a high degree of hands-on control, albeit often through their chosen vendors, over student data. As James Peterson, Chief Technology Officer for the Bloomington School District in Illinois, recalled of exchanges with inBloom, “The number one thing was we were trying

to encourage them to make this available to people to be able to stand up in their own stacks. I think their response was ‘We’re not going to have 50 instances of inBloom around the country.’ And we were just kind of like ‘Well, you’re probably not going to have one.’ Because this thing’s not going to get far.” A senior technical expert who has closely examined the history of inBloom recalled receiving conflicting directions about the architecture, “We’re not federating yet,” referring to allowing independently hosted iterations of the system, “That’s for the future. We’re not sure if we’ll ever do it, but it’s central data.”

Yet another aspect of inBloom reflective of an internal culture clash would be the technology choices made. While inBloom aspired to tap into many innovative technologies, some observers felt that early choices in software architecture undermined the chances of delivering a robust, secure, enterprise-scaled system on an aggressive development timeline. Choosing Mongo DB for development fulfilled inBloom’s promise of an open source software based system, but the choice also required stretching the relatively new, “NoSQL” database software to an unprecedented level of complexity, functionality, and scale.²¹

It wasn’t only the technologies inBloom was using, but also the monetization scheme that felt more like a start-up than an established educational consortium. In response to questions about pricing, news accounts and findings from our interviews indicated that inBloom representatives cited a range of \$2 to \$5 per student, sometimes suggesting the final number would depend on the overall number of users. While it is normal for start-ups to iterate a business model as they better understand the market, stakeholders reported that doing so in public only exacerbated doubts about the viability and transparency of their market strategy.

3.0 Changing Perspectives of Data

As inBloom was developed and deployed, it came into conflict with a new public focus on the vulnerability of data systems and trustworthiness of corporations and government. A steady stream of news reports on large scale hacking, leaking, and theft of data, including personally identifiable information or “PII,” fueled a growing public anxiety about privacy and security in an ever more online, interconnected, and digitized world. Coupled with the concerted efforts of a number of vocal opponents, this general mistrust of data set the stage for inBloom losing the support of its consortium of member states.

3.1 Growing Mistrust of Data Use and Government

The WikiLeaks saga of 2010 was one of the first global news stories about hacking sensitive information that captured the public imagination. The volume of information and major foreign policy issues ensured ongoing coverage, but that story was about government documents or “cables,” senior officials, and statecraft, not about how big data affected ordinary people. In 2013, NSA contractor and self-professed

21. A senior technical expert who has closely examined the history of inBloom recalled, “They chose to implement a Mongo DB database for this thing. And that was ridiculous. It was ridiculous. That was a technology architect who’s ‘Uh, sure we haven’t done one of those before. Let’s try that.’ Literally they’d never done one before, so they didn’t know how it worked and they didn’t know what was happening so that was not wise.” Reflecting on these choices, the same expert said “We often get involved in new technology because if you’re not involved in new tech, you’re not in the game, but this was ...a massive build on technology that was not proven. They should have been building off of a platform that was known and boring and uninteresting.”

whistleblower Edward Snowden sparked another storm of media reports and public debates by revealing how government and corporate data tracking and aggregation made the surveillance and investigation of the general public possible.

Over the next few months, the public underwent a crash course on how online and mobile computing, from texts, email, and web surfing to clicks, swipes, and likes, left a trail of personal metadata available to harvest and analyze. The public was suddenly more aware and ready to have an extended conversation about appropriate access to and use of big data and PII. Aimee Guidera, CEO of the Data Quality Campaign described the emerging public conversation and concerns about data:

...the issue is inBloom and education data collection became nuclear and it became synonymous with Big Brother, Edward Snowden, Target, making teachers into robots, putting teachers out of business, social engineering, lack of parent control. They were all fearful words, and once that genie was out of the bottle, you couldn't bring the conversation back. By the time the powerful stories that should have been how they introduced the story started getting out, it was too far gone in the public awareness, and the public opinion battles had already been lost.

As public awareness about data and privacy grew, so too did concerns about overreach by the private sector. In 2013 the U.S. Federal Trade Commission announced an inquiry into whether Facebook's new privacy policies were in violation of a 2011 agreement. Under the prior agreement with regulators, Facebook needed to get explicit user consent before exposing private information to new audiences. Such negotiations between users, regulators, and companies trying to monetize user data, were becoming more common and more complicated, albeit with little consistency or clarity across different services.

During the 2013 holiday shopping season, Target revealed that 40 million customer accounts had been breached, including names, card numbers, expiration dates, and card verification values. To make matters worse, Target later revised the number up to about 70 million, raising doubts about the company's level of awareness, control, and candidness. Soon the theme of data insecurity had become embedded into the news cycle. In early 2014, Neiman Marcus announced that as many as 1.1 million of their cardholders may have had data compromised before revising the number down to 350,000. In July 2014, New York Attorney General Eric Schneiderman issued a report stating that 22.8 million private records of New Yorkers had been exposed to data breaches over eight years, including over 3,000 businesses, nonprofits, and government organizations. In September, Home Depot disclosed that hackers had accessed 56 million credit and debit cards, stolen 53 million email addresses, and installed malware on in store self-checkout systems. Throughout 2014, Kmart, Staples, Dairy Queen, UPS, JPMorgan Chase, Sony, Jimmy John's, Michaels, and many other companies also reported significant data security failures with the potential to impact customer security and privacy.

Following the great recession and the rise of the Tea Party and Occupy Wall Street, public trust in government and corporations was already in decline. Former Jefferson County Colorado Public Schools CIO Greg Mortimer described how their inBloom pilot project became subsumed in an ever more contentious political environment:

InBloom was one of a couple items that were used as a political tool by the Tea Party to try to take control of the school board. Even during that time, we had teachers – including teachers who were officers in the union – presenting with us, and in fact being the key presenters to the board,

making passionate, really kind of poignant requests to say “Please help. Please support our efforts to move this forward.”

In 2010, Rupert Murdoch’s News Corp had paid \$360 million for 90% of Wireless Generation—during the same period when it was developing the Baselayer designs. The acquisition came on the heels of News Corp’s hiring of former New York City Schools Chancellor Joel Klein to oversee their education initiatives. In November 2010, Murdoch had described the American education sector as a \$500 billion market that was largely untapped. Meanwhile, across the pond, News Corp was engulfed in a phone hacking scandal culminating in Rupert and James Murdoch testifying before the British Parliament in July 2011 amidst mounting fines, arrests, and apologies. Given this backdrop of scandal and spin, critics questioning News Corp’s intentions for the U.S. education market found an ever more attentive and concerned audience. As Rob Curtin, Director of Higher Education for Microsoft, observed:

In my opinion, they were accused and tried in the court of public opinion. Claiming that inBloom was a shell for corporations – notably Bill Gates’ Microsoft and Rupert Murdoch’s News Corp, to mine student data for some corporate benefit – made for shocking headlines. The reality, however, couldn’t have been further from the truth. InBloom was a non-profit funded by philanthropy at the request of the CCSSO. Ironically it offered greater security and more data-access controls than most school districts had at that time.

Former Jefferson County Schools Superintendent Cynthia Stevenson recalls, “I was shocked at all the people who hated the Gates Foundation. I mean they saw Bill Gates as right up there with Lucifer.” Sharren Bates describes an opposition member showing a presentation slide in which devil horns were drawn on Bill Gates.

The public messages of corporate actors like Gates did not always help the growing critiques. In 2013, Gates was the keynote speaker at South By Southwest in Austin, Texas following the announcement that the Gates Foundation had invested \$100 million in a freshly rebranded inBloom. Gates pointed to a picture of Luke Skywalker under the tutelage of Yoda in the film *Star Wars*. Gates explained that Yoda was a great teacher because the Jedi master understood when Skywalker was losing interest: “The most evocative way to think about personalization is to conjure the image of Yoda giving Luke Skywalker one-on-one, Jedi-style attention for days on end in the swamps of Dagobah. When Luke gets confused, Yoda goes back and covers the material in a different way. When Luke gets bored, Yoda gives an example to make the lesson relevant. Yoda keeps Luke at the very edge of his learning curve, constantly.”²² Meeting the needs of real students proved more challenging than the idealized Jedi relationship and this pitch would ultimately be more attractive to technologists than parents and teachers.

In conjunction with negative press about corporate and government malfeasance and questionable use of data, inBloom was caught in a rip tide of criticism about a wide range of education reform initiatives. Starting in 2010, over 40 states had begun adopting the Common Core curriculum standards with broad bipartisan support, but by 2014 the effort was under fire from political factions on both the left and the right across the country. Race to the Top funded programs, including student testing, teacher and school evaluation, and other measures, were attacked with similar themes of resisting big government and

22. Bill Gates, “SXSW: Innovation and Technology in Education,” Gates Notes, March 7, 2013, <https://www.gatesnotes.com/Education/SXSW-Innovation-and-Technology-in-Education>.

retaining local control of schools emerging. Together, these interlocking story lines about the threat of big data to privacy and security and the specter of centralized authority created a rocky landscape for inBloom and its allies to navigate.

3.2 Dedicated Opposition

However one might characterize the people, organizations, issues, and tactics that collectively made up the coalition raising questions about inBloom, two things are clear: the opposition began early, and the central message that student data would be vulnerable and could be sold to third parties and could be used to inhibit kids' future prospects was largely unchanged. The general atmosphere of data mistrust combined with earlier education reform movements that already characterized educational data as a means of harsh accountability.

A leading opponent of inBloom, Leonie Haimson, founder of Class Size Matters, had previously critiqued the implementation of ARIS in New York. She recalls finding Phillips' 2011 blog post description that an educational platform would function like Facebook deeply concerning. In October 2011, the *Huffington Post* published a blog post by Haimson, titled "Gates, In Alliance with Murdoch's News Corp, Builds a New App for Corporate Education Reform?"²³ Haimson's post made a case for public skepticism and suspicion about the organizations, individuals, and motives driving the Shared Learning Collaborative. Haimson linked the newly announced Gates Foundation funded project to several recent controversies, including a failed New York State Education Department software procurement, an expensive and little used New York City Department of Education student data system, and the News Corp phone hacking scandal in the UK. In closing, she called for public vigilance framing the debate with themes that endured over the next two and half years:

Watch out for these data platforms and "collaborative" app stores. Watch out for the unholy alliance between Bill Gates, Rupert Murdoch and Joel Klein, ceaselessly devoted to expanding the educational-industrial-technological complex at the cost of real support to teachers and children. Watch out for more wasted money being spent on data systems that don't help differentiate instruction, but that have huge potentials for abuse.

For Haimson and other activists, opposition to inBloom proceeded alongside resistance to other education reform policy debates. Diane Ravitch, an education historian and author of the 2010 book, *The Death and Life of the Great American School System: How Testing and Choice Undermine Education*, had become a national voice questioning corporate interests and their roles in education reform. Ravitch had served in the Clinton and George HW Bush administrations, and had gone from Common Core advocate to one of the fiercest critics of the proposed national curriculum standards. Ravitch said, "with the No Child Left Behind Act, schools became data-driven, not mission driven,"²⁴ recommending instead an approach by Deborah Meier, that schools be "data-informed, not data-driven."²⁵ In many states and school districts, opponents of high stakes testing, Common Core standards, and teacher and school evaluation, found common ground with people concerned about student data privacy and security risks. Both groups expressed concerns about

23. Leonie Haimson, "Gates, In Alliance with Murdoch's News Corp, Builds a New App for Corporate Education Reform?" *The Huffington Post*, August 9, 2011, http://www.huffingtonpost.com/leonie-haimson/bill-gates-rupert-murdoch-impatient-optimists_b_920000.html.

24. Diane Ravitch, "Redefining Accountability, BookTalk event at Columbia University Teacher's College, July 18, 2010, <http://www.tc.columbia.edu/articles/2010/july/redefining-accountability/>.

25. Diane Ravitch, *The Death and Life of the Great American School System* (New York: Basic Books, 2010), 244.

the experimental nature of these reforms and potential profit motives. In Jefferson County, Colorado, parent Rachel Stickland was quoted in the *New York Times* as saying, "It's a new experiment in centralizing massive metadata on children to share with vendors and then the vendors will profit by marketing their learning products, their apps, their curriculum materials, their video games, back to our kids." ²⁶

Initially, Jefferson County stood apart from other inBloom pilot districts, demonstrating relatively unified support by school district officials and educators and developing widely shared explanatory materials about their inBloom project approach and objectives. But over time, a handful of parents mounted a strong show of local opposition. Former Jefferson County Schools Superintendent Cynthia Stevenson recalled:

It started with this one mother and it spread to a couple of our schools and they were schools with parents who were very active in ensuring that this stopped. And they were convinced that we were selling the data on their children and we would give it to all kinds of large organizations and their children would be ruined. I mean, I don't know how else to put it. It was not rational.

Parents were not unanimously opposed to inBloom, though few parent advocates were as visible or as organized in their support as others were in opposition. Olga Garcia-Kaplan, a New York parent and blogger working in data science, initially had concerns about inBloom but as she came to understand the purpose and data security safeguards, she viewed inBloom as a "great opportunity." Garcia-Kaplan felt that the information available to her about her children was limited and that inBloom would allow her to access pertinent information that the school held that would be useful for her and other parents to access and understand:

When inBloom said we're connecting all of that so that you can see it, to me that was a great opportunity to have more insight into my kids' school life and what their academic history was or where I could help or where the school was having successes with my kids and all these things and we just didn't have that at all. There was nothing.

Meanwhile, opponents were increasingly concerned that the lack of answers could mean that their fears about the corporatization of education were founded. The lack of information coming from official channels likely increased skepticism. In trying to fill in the blanks based on the limited information available, some opponents came to the conclusion that powerful players, like Bill Gates, were intentionally obfuscating.

Both Haimson and Ravitch were already involved in the sphere of educational technology, but the arguments they picked, the targets they chose, and the support that they mobilized in response to inBloom honed in on the changing public data atmosphere. In April 2013, Haimson organized a Town Hall meeting for parents to discuss concerns about inBloom. The invitation, as posted on Diane Ravitch's website, reflects fears about student data use and the corporatization of education:

Parents, do you know your child's confidential, personal school records are going to be shared with a corporation called inBloom Inc?

This highly sensitive information will be stored on a data cloud and disclosed to for-profit corporations to help them develop and market their "learning products"

26. Natasha Singer, "Deciding Who Sees Students' Data." *New York Times*, October 5, 2013, <http://www.nytimes.com/2013/10/06/business/deciding-who-sees-students-data.html>

The data will include your child's names, address, photo, email, test scores, grades, economic and racial status, and detailed disciplinary, health and special education records.²⁷

An article in EdSurge²⁸ reported that while around 150 people attended, representatives from the Gates Foundation and inBloom were absent. Reporting of the meeting is consistent with observations expressed in our interviews.

Across the states, opponents felt that education officials as well as inBloom representatives and partners repeatedly failed to address questions and concerns about student data privacy and security. When present at meetings, references to brief, often legalistic, statements and assurances about FERPA compliance only hardened opponents' view that inBloom and their partners were aloof, secretive, and condescending.

In April 2013, Audrey Watters, an educational technology blogger, posted a series of questions to inBloom and their responses on her blog "in an attempt to get some clarity over what inBloom will gather, how long it will store it, and what recourse parents have who want to opt out."²⁹ Responses from an inBloom spokesperson did clarify some misconceptions, e.g., "inBloom is not creating a national database," "inBloom discourages using social security numbers as student IDs," "there is no public or third-party access to data unless it is authorized by a school district or state educational agency," but also reflected that policies around student data use were still nascent and under development.

Aimee Guidera describes the context of communicating the value of student data to teachers and parents at the time of inBloom: "If people don't have access to information and they've never gotten information in a timely way, in a context that answers their questions and tailors to their needs, then they've never really gotten any value out of data and as a result, if you don't get value out of it and then on top of it you don't trust it to not be used to hurt you, you're not going to use it." Several of our interviews echoed this lack of positive experience and understanding.

As a harbinger of a broader issue of distrust of experts and top-down interventions, a few interview participants likened the backlash and distrust of inBloom to the anti-vaccination movement. Steven Hodas, Executive Director of the Office of Innovation for the New York City Department of Education 2012-2014 summarizes this approach as a misunderstanding of risk, "where risk is perceived to be all negative, and not as uncertainty, but as a minefield." Another interview participant explained "once you scare them they say, well anything that sounds scary, the opposite should be safe. When in fact that's not how it works." Another participant described "The activism around inBloom felt like anti-vaccination activism. Just fear. So friends of mine went to their first back to school night for their then kindergarten son in New York and were greeted at the door by anti-inBloom flyers."

Ultimately, there were never adequate assurances as to the safety of these data practices. In addition, inBloom representatives had difficulty in articulating what the concrete value would be for individual students. With public doubts about safety, and no clear success case to show, proponents of inBloom lost

27. Diane Ravitch, "NYC Parent Meeting on inBloom and Student Privacy Tomorrow," Diane Ravitch's Blog, April 28, 2013, <https://dianeravitch.net/2013/04/28/nyc-parent-meeting-on-inbloom-and-student-privacy-tomorrow/>.

28. Elizabeth Woyke, "NYC Parents Raise Questions About InBloom," EdSurge News, April 30, 2013, <https://www.edsurge.com/news/2013-04-30-nyc-parents-raise-questions-about-inbloom>.

29. Audrey Watters, "More details on inBloom's plans for student data," Hack Education blog, April, 2013, <http://hackededucation.com/2013/04/04/inbloom-more-details>.

control of the narrative. Regardless of whether inBloom could have fulfilled its promise, without a clear narrative of its potential benefits for education, it failed.

4.0 The Trajectory of inBloom's Decline

The inBloom initiative occurred during a historically tumultuous time for public understanding of data use. Developed in the midst of national and international struggles over the unexpected sharing of what was considered sensitive information, the inBloom initiative also contended with a history of data used in schools as punitive rather than constructive. Examining the rollout in 2013, we can see how this unfolded in the progressive loss of participating states from the Shared Learning Collaborative. As local individuals put pressure on politicians, states introduced legislation and made political commitments that progressively blocked inBloom's adoption. And as inBloom's prospects dwindled, New York City became a battleground for inBloom's future. The progressive dropping away of participating states and the passage of the NYSED budget in March of 2014 effectively foreclosed the project for good.

4.1 From Many to Few

InBloom's rollout in 2013 was characterized as a coalition of supportive, participating states. Following initial funding from the Gates Foundation, the Shared Learning Collaborative (SLC) and Shared Learning Initiative (SLI) were made credible and real through support of the Council of Chief State School Officers (CCSSO). Backing by the CCSSO was considered indicative of demand by their broad national member base of elementary school administrators and provided the scale and numbers necessary to make the inBloom concept viable. The CCSSO was an independent, non-partisan, member-based organization representing state educational leadership, not the federal government, providing what became a familiar, albeit ultimately ineffective, retort to criticisms about inBloom representing a top down approach imposed on states, districts, and schools.

By January 2013, the SLC counted nine states – Colorado, Delaware, Georgia, Illinois, Kentucky, Louisiana, Massachusetts, New York, and North Carolina – representing over 11 million students. By February, five states had identified districts for pilot projects and one state, New York, had developed a substantial Race to the Top funded program, putting inBloom at the center of its conceptual and technical design. Even as many states were participating through one or a small number of pilot districts, the tally of supporting states increasingly became part of the narrative measuring inBloom's progress and success.

Within months, the initial coalition of nine states began to shrink rather than grow.³⁰ In Louisiana, there were conflicting reports about districts using social security numbers to identify students and that this data was being sent through inBloom. In April 2013, following controversy and parent protests, State Superintendent John White announced that Louisiana would pull out of the inBloom project.³¹ Initially, inBloom cited the need for further community engagement, rather than any data security issues, suggesting that

30. Ben Kamisar, "InBloom Sputters Amid Concerns About Privacy of Student Data," Education Week, January 7, 2014, http://www.edweek.org/ew/articles/2014/01/08/15inbloom_ep.h33.html.

31. Andrew Ujifusa, "John White Withdraws Louisiana Student Data from inBloom," Education Week, April 26, 2013, http://blogs.edweek.org/edweek/state_edwatch/2013/04/john_white_backtracks_on_controversial_inbloom_deal_in_louisiana.html.

Louisiana might rejoin the coalition at a later date to be determined. But soon other states, under pressure from their own constituents and political dynamics, began to distance themselves from inBloom.

In May 2013, Georgia schools Superintendent, Dr. John Barge, assured parents in a town hall meeting that he would not share student data with inBloom. Later in May, Reuters reporter Stephanie Simon revealed that many more states were distancing themselves from inBloom. First on May 11th, Simon tweeted that Delaware, Georgia, and Kentucky had no plans to share confidential, personally identifiable student data with inBloom. On May 29th, Simons confirmed in an article that Kentucky, Georgia, and Delaware had no intention of working with inBloom, while officials in Massachusetts and North Carolina were reportedly still evaluating the project and may never upload student data.³² On August 1st, Guilford County, the single pilot district in North Carolina, announced, without specifying reasons for their decision, that they would not proceed with inBloom.

The shrinking coalition of states tarnished inBloom's reputation and undermined an already challenging go-to-market strategy. A senior technical expert who has closely examined the history of inBloom noted a mismatch between the states, which were slow and bureaucratic versus the start-up mindset of inBloom's teams:

The state partnership strategy was one that emerged. My opinion is, it was a huge mistake. Basically there was an impedence mismatch between the kind of company [inBloom] were trying to run which was an agile, small, fast start-up, and the kind of partners they had, which were state partners who would mediate and negotiate down into their institutions. So, they have enterprise partnership with an agile start-up, which is a bad idea. One group has extremely long timelines, very fixed, limited ability to adapt changes, lots of lead time. And then the other group launched to just sort of figure it out as they go along, adjust, make changes to meet the customer's needs as they arise. You can't run a company like that.

Former inBloom CEO, Iwan Streichenberger recalls that inBloom inherited the SLC early mandate to work first and foremost at the state level, which he believes was a determining factor of the demise of the project. He observed that districts and schools leaders, as well as parents, have often had a trust deficit in state actors perceived as being too far from reality and sometimes influenced by political considerations.

By November 2013, Colorado's Jefferson County, previously one of inBloom's most enthusiastic pilot districts, announced that they too were severing ties with inBloom. Following a contentious election that featured student data privacy and security, and in the midst of an angry reaction to a statewide tax increase, three new school board members swept in as a new majority bloc opposed to the inBloom pilot.

Over a period of only seven months, from April to November 2013, the inBloom coalition of states had shrunk from nine to three with one of the three, Massachusetts, still "evaluating" the project. Meanwhile, Illinois remained active but had already shifted efforts and resources toward a homegrown federated model. New York remained publicly committed to inBloom, with the cloud-based datastore at the center of various statewide projects, but growing opposition was evident through vocal activist groups, uncooperative districts, and accumulating political alliances.

32. Stephanie Simon, "School database loses backers as parents balk over privacy," Reuters, May 29, 2013, <http://www.reuters.com/article/us-usa-education-database-idUSBRE94S0YU20130529>.

4.2 Last Stand in New York

InBloom projects within different states and districts varied widely in scope, scale, and level of commitment, but inBloom's collaboration with the State of New York was unusual in several key ways. The New York State Department of Education (NYSED) partnership included a service level agreement (SLA) with inBloom and contracts binding vendors responsible for developing student data dashboards, an education data portal, and a content management system, to work with inBloom and to develop systems interoperable with the still under development inBloom datastore. This arrangement effectively led to stronger inBloom vendor partnerships. Lastly, NYSED's inBloom projects relied on participation by all or most school districts across the state by design, tying eligibility for RTTT funding to participation in inBloom projects. But New York was also home to the most vocal and organized opposition to inBloom, including Leonie Haimson, Diane Ravitch, parent activists, and over time, an increasing number of educators and school district officials, including the United Federation of Teachers (UFT), a union representing most non-supervisory New York City teachers.

Here, Haimson and her allies were willing to sacrifice time and energy to battle inBloom, as she recalled the results, "it really was a testament to what parents can do with no resources, no funding, no organized support, and very little information." Over time, more New York parents became aware of and concerned about inBloom and they expressed their fears to elected officials, school boards, teachers, and administrators. Pleasantville School District Superintendent Mary Fox Alter recalled how multiple education reform initiatives came to intersect in NYSED's use of inBloom but did not add up for her at the local level, stating that an initial factor that led to inBloom's demise was a "flawed implementation model for the Common Core in New York":

The Common Core in New York involved a teacher evaluation system, Common Core curriculum materials that were being built as the plane flew in the sky and a data dashboard system that was supposed to track all of this, and new tests that were data dark to us. So the implementation plan for all of this in New York contained those four elements. The data dashboard was one of the four, the other three were fatally flawed.

By the fall of 2013, inBloom had become a political flashpoint on several fronts in New York. In September, two of three leading Democratic candidates for Mayor, including eventual winner Bill de Blasio, weighed in against the student data sharing scheme.³³ De Blasio stated that, "As mayor, I will protect students' privacy and stop this needless invasion of privacy." As the largest school district in the U.S., NYC schools is comprised of 1.1 million of New York State's 2.7 million students. Without NYC, inBloom faced a dramatic decrease in project scale. And throughout the fall of 2013, other school districts across the state began making requests to NYSED to opt out of the inBloom project even if it meant sacrificing their district's RTTT funding. By the end of the year, approximately 40 districts had formally submitted opt-out requests.

The New York State legislature was also feeling pressure from parents, activists, educators, and school district officials concerned about or opposed to inBloom. In December 2013, NYSED Commissioner John King received a letter from New York Assembly Speaker Sheldon Silver and New York Assembly Education Chair Catherine Nolan signed by 50 Assembly Democrats requesting that NYSED withhold sharing student

33. Rachel Monahan, "Two of the three democratic candidates would fight against giving kids' records to private companies," NY Daily News, September 4, 2013, <http://www.nydailynews.com/new-york/mayoral-hopefuls-fight-kids-records-reaching-companies-article-1.1445025>.

data with inBloom. During the same month UFT called upon the state to terminate their contract with inBloom. UFT Vice President Catalina Fortino testified before the state Assembly Education Committee stating, “the UFT is not opposed to gathering data on public school students; in fact, it’s a valuable tool,” but added that “releasing sensitive, student-identifying data points in 400 categories...” and “share[ing] some or all of that information with private companies” was problematic, concluding with, “how can we possibly countenance that?”

Meanwhile, earlier in November, a group of New York City parents had filed a lawsuit against NYSED sharing student data with inBloom that was dismissed by the New York Supreme Court in early February. However, the court victory was only a brief respite for NYSED and inBloom as the final blow came just weeks later in March when the state legislature approved a 2014-2015 state budget with some unusual fine print. The budget included a clause making it illegal for the state to share personally identifiable student data with any shared learning infrastructure service provider via a private, cloud-based, or state operated student datastore. With a strict barrier between inBloom and state participation from its largest coalition member, the future of the platform was effectively sealed. It would announce its closure just one month later.

5.0 Diagnosis of inBloom’s Closure

5.1 The Communication Response: An Argument Lacking a Vision

Despite the Gates Foundation’s ongoing national involvement with schools as part of its support for the Common Core, it seems unlikely that they anticipated the multi-layered, complex, often fraught relationships involved in the inBloom implementation. The large resource investments made by the Gates Foundation failed to build sufficient trust with the networks and actors involved. Trust was one of the most frequently used words in our interviews, reflecting a core need that many felt was absent. Trust between states and districts, between districts and teachers, between parents and states, and teachers and technology was not adequately addressed by inBloom’s communication strategy. Pleasantville School District Superintendent Mary Fox Alter describes the layers of trust needed to foster support and buy-in for the idea of inBloom:

They have to build trust with the public school districts that are responsible for educating the children in the state of New York. The original Race to the Top model here in New York was created without one ounce of input from the public school districts so if you’re going to build whatever the initiative is, you have to build trust.

Fox Alter further addressed the need to build trust with families: “You have to put up a real argument, a convincing argument for change and why this is good for children and families. And that was missing.”

Sharren Bates reflects that “inBloom did not have a privacy problem, inBloom did not have a parent problem. InBloom had an advocacy and perception problem.” Instead of seeking to build trust at the district level with teachers and parents, many interview participants observed that inBloom and the Gates Foundation responded to what were very emotional concerns with complex technical descriptions or legal defenses. Jeff Alderson, former Lead Architect at Houghton Mifflin Harcourt (formerly Choice Solutions) and the technical architect for the New York implementation of inBloom observed:

Parents don't want to hear from the technologist about data privacy and security, ironically. If you look at the transcripts of every time that inBloom was in front of legislature or in front of a PTA meeting or something like that, they always tried to answer an emotionally charged question with a non-emotional technical answer. That is the worst thing you could possibly do. All that did was just stir the pot and alienate the parent community.

Tom Dunn, New York State Education Department Communications Director from the summer of 2009 to the winter of 2016, further described: "Even the people that districts sent to this were their data people. They weren't their instructional people, they weren't their curriculum people. It operated strictly in the data world."

Part of this response seemed a valid approach to dispel misunderstandings where parents were not aware of existing student data practices and representatives of inBloom and the school districts sought to clarify where they were introducing new practice. Sharren Bates says that when she tried to "describe what FERPA protects, what the law protects, and what school districts already do with student data to support education and decision-making," the response she received was that opponents were not aware of these legal and administrative practices. Bates further describes: "The law's very clear and we were actually implementing software to support those needs probably stronger than anywhere else than any school district in the country." But for the most part, the technical and legal response exacerbated suspicion around inBloom and failed to communicate its value.

One interview participant who worked with the New York State implementation of inBloom described that inBloom staff who attended school district meetings seemed unapproachable: "They would just show up right when the event started in black suits, sit in the back and they'd be on their laptops, or headphones in, not really engaging in the conversations." The participant further recalls that "they were very hesitant to proactively put any content or information out," which contributed to a reactive stance, rather than better controlling the narrative.

InBloom's communication materials and messaging were developed by consultants rather than in-house experts and explained the technology solution without conveying any useful purpose, thus failing to communicate a compelling value proposition to teachers, parents, and students. This approach led to conversations and questions about how the technology worked instead of big picture discussions about how inBloom could help students. Without compelling use cases, or user stories, supporters were left to create their own, or rely on communication materials describing concepts that were difficult to understand. Jeff Alderson felt that the perspective of parents had been neglected from the very start of inBloom's product development. He felt that if inBloom had considered parents' views, they would have built in talking points about privacy and security as they began their marketing campaigns. Tom Dunn reflects that he was asked to advance the adoption and development of a system without ever sufficiently being told what the utility of the product was. He recalled requesting examples of use cases to more clearly communicate the value proposition and purpose to educators and parents:

I kept going to meetings and saying what does this do? What is this capable of? What are the examples that I can talk about? I need narratives. I need to be able to tell people what it will mean for classroom teacher A and for classroom teacher B and a small school principal and a large school principal, and the parents.

Greg Mortimer, Chief Technology Officer of Jefferson County Schools in Colorado also found communicating the value proposition of inBloom to be extremely difficult given an absence of use cases to share with parents and teachers. Jefferson County engaged in a proactive campaign of engaging teachers in the training process and producing videos to communicate the purpose and plans for their inBloom implementation. Many participants recalled the strong materials developed by Jefferson County, in fact James Peterson, Chief Technology Officer for the Bloomington School District in Illinois, said “I still use all their videos to talk about the problem I’m solving. I absolutely think that they were extremely visionary, extremely, in tying all the different pieces together that needed to happen.”

5.2 Was a Different Outcome Possible?

The inBloom initiative faced a perfect storm of problematic contexts and decisions, yet could any one factor, if changed, have resulted in a different outcome? A senior technical expert who examined the history of inBloom concluded that a lack of consistent leadership doomed the project from the start: “leadership discontinuity starting from the inception of the project is the single biggest reason the project wasn’t able to cope with the challenges it encountered.” A dedicated champion from the outset may have improved inBloom’s chance of success. Instead, leadership was handed off from Wireless Generation, to the SLC, to the Gates Foundation, and finally to inBloom. Perhaps with consistent leadership, better communication decisions may have been made, or inBloom would have started small, at the district level and grown more purposefully, outside of the public eye. Yet it seems no matter how strong the leadership or strategy, the visceral, fervently negative response to student data collection would likely have blindsided the project.

A key takeaway from this study is the critical importance of achieving buy-in with the population served. It is evident from the interviews that although teachers and students were mentioned in discussions during inBloom’s brief tenure, only the Colorado and Illinois schools seemed to directly engage them and achieve buy-in. Cynthia Stevenson, former Superintendent of Jefferson County Schools, saw the promise of inBloom as, “Pretty revolutionary in being able to give teachers information instead of data... what I believed they were offering us was the ability to have assessment data synthesized and pulled together so that we had really good knowledge about groups of kids.” She and colleague Greg Mortimer both described the videos and training materials they prepared for teachers as they tried to show the value of data at the classroom level. Even so, in hindsight, Stevenson says, “We should have spent probably a year – before we ever started working on this – setting the stage. And when I say that what I mean is holding community meetings, helping parents understand it. You know, ‘what’s coming, why are we doing it,’ and lots of small group meetings where people could really look at it.” James Peterson, Chief Technology Officer for the Bloomington School District in Illinois said, “If you want to change your data culture and using data to inform instruction, it’s got to be rich, real time, because things change all the time in our schools. We know how schools work really well because we are schools.”

Yet in New York, concerned parents Olga Garcia-Kaplan and Leonie Haimson both said that at the school, district, and state level, it was difficult to get answers to their questions about what inBloom did. Garcia-Kaplan works in data science and wanted to better understand the value proposition and security dimensions, but felt it took an effort for her concerns to not be ignored. A few respondents mentioned the mismatch at PTA meetings of professionals in suits using legal or technical jargon rather than engaging with parents and

teachers, though other participants say that representatives from inBloom rarely (or never) attended public meetings with parents and teachers. Aimee Guidera, President of the Data Quality Campaign advises: “We’re never going to be done with changing that conversation and continuing to have parents and teachers and policymakers and students themselves understand the value proposition of why data matters.”

Most interview participants saw great promise in inBloom’s standardizing of student data and streamlining the process of sharing data and providing learning apps. Yet many also voiced surprise that the resistance was so emphatic, at the same time acknowledging that communication was very poor. Along with Facebook founder Mark Zuckerberg’s \$100 million donation to Newark Schools³⁴ at the same time, both efforts seem to suffer from not understanding the schooling ecosystem, whether the multiple layers of politics and bureaucracy or a fundamental hubris that creating different conditions for learning is easily accomplished and with immediate results. Sharren Bates shared her surprise that opponents to inBloom did not understand “the idea that school districts already manage significant amounts of student data and that legally they’re actually required to,” that much of the fear around student data privacy stemmed from a lack of understanding the current data practices of schools.

The sheer number of actors at the state and district levels was overwhelming. From our interviews, it seemed that very few of those engaged with early stages of inBloom understood the multiple layers of negotiation occurring. Adoption of technology was obviously not a simple matter, nor was it straightforward, and politics, rather than learning science³⁵ seemed to dominate descriptions of the decision-making process.

6.0 Icarus also Flew³⁶ : The Legacy of inBloom

The story of inBloom is not one of straightforward failure, but rather of shooting for the sun and being scorched during the journey. It is unlikely that any team could have anticipated the combined historic and social factors around data use that surfaced during inBloom’s development and launch. Many interview participants felt that inBloom was doomed by its own ambitions. Perhaps if the Race to the Top Funding hadn’t provided a compelling incentive to start large, inBloom may have enjoyed the iterative growth of Khan Academy or Clever, rather than immediately engaging in a multi-state consortium and its attendant bureaucratic hurdles. Perhaps a progressive release would have allowed more dialogue with the public about the risks and opportunities of student data use. Or perhaps if visionary technologists better understood the education ecosystem, they would have waded in more carefully and better understood the mechanisms for sustainable and meaningful change. Undoubtedly, these were fatal missteps for the inBloom initiative. Yet, as David Graeber argued in 2012,³⁷ society needs visionaries to progress and grow. We need the risk takers who attempt to build flying cars or cure polio or land on the moon. Risk-taking

34. Dale Russakoff, *The Prize: Who’s in Charge of America’s Schools?* (New York: Houghton Mifflin Harcourt, 2015).

35. In terms of learning science, the now defunct SLC website had a page on personalized learning. It cited one study, by Benjamin Bloom, “The 2 Sigma Problem,” which reports more significant learning gains for students in a small tutoring group than those in a 30-person classroom. Throughout our interviews and literature reviews, this study seemed formative in shaping the value prospect for many involved with inBloom. Perhaps the name change was a nod to this work, a hope to accomplish the achievement gains that Bloom found in personalized instruction.

36. Quoted from Jack Gilbert’s poem “Failing and Falling,” in *Refusing Heaven* (New York: Alfred A. Knopf, 2005), available at: <https://www.poets.org/poetsorg/poem/failing-and-flying>.

37. David Graeber, “Of Flying Cars and the Declining Rate of Profit,” *The Baffler*, <https://thebaffler.com/salvos/of-flying-cars-and-the-declining-rate-of-profit>.

involves experimenting and failing and this is where the software development methods clashed with the responsibilities of schools to not fail, to approach experimenting with caution and care. Because of inBloom's transparency in its ambitions and its open framework, it was vulnerable to the kind of public scrutiny that led to its demise. Unlike opaque, private systems, the usual struggles and uncertainties of a new initiative were enacted in the public sphere.

No large-scale educational technology initiatives have ever succeeded in the U.S. K-12 space. Are large-scale educational technology efforts doomed to fail? Is there an argument for their success and if so, who could lead these initiatives to ensure success? Whatever answers are eventually found to these questions, one thing is clear—the activity organized by inBloom's development has caused them to be asked loud and clear across the boundaries of parents, technologists, and government officials alike. Yet one tragic lesson emerging from inBloom's story and the subsequent successes of private businesses in this space seems to incentivize keeping processes closed and private and not share the discovery process. InBloom catalyzed national discussions around student data use and perhaps another discussion should be about how transparent innovation processes can be supported rather than penalized.

6.1 Lessons learned

Interview participants reported the ripple effects of student data privacy conversations across government, school administrators, education technology vendors, philanthropy organizations, and local communities. Since 2013, over 400 pieces of legislation have been introduced across state legislatures. Mary Fox Alter reported that New York State now mandates a data privacy officer. Jat Pannu, Chief Operating Officer of the IlliniCloud and K-12 Federation believes that “inBloom was a great solution, but it also highlighted a policy and governance gap that was in K-12 and unfortunately that gap eroded the value proposition of inBloom,” because it showed that schools were not ready for it. He further reflected on the impacts for educational technology vendors:

I think inBloom was a quantum leap forward. It not only galvanized the marketplace towards a common area of opportunity for student achievement, but it also put a spotlight on an area where we should have been focusing a long time ago. And it caused vendors and other service providers to put resources towards this problem because what inBloom did was it left a very significant catalyst in the marketplace and created the activation energy for vendors to now work with different organizations to solve the student data privacy issue because now everyone realized what's the type of risk that's associated with the data that they're collecting and keeping and storing.

Streichenberger added, “inBloom led some companies, districts and states to take a deeper look at their data privacy and security. Until then, a very large percentage of the edtech companies and institutions had no or maybe a very vague privacy policy and at best a limited focus on security. As a consequence of the spotlight on inBloom under heavy fire despite its heavy investment in security and its robust and transparent privacy policy, a lot of soul searching happened, with healthy questions starting to be raised such as: are we doing everything we can to secure the data we collect and produce, do we need to collect every one of these pieces of data and for what purpose, what is our data retention policy, who do we share it with and maybe most importantly, how do we engage our constituents in that process?”

In the wake of inBloom, several data privacy advocacy groups built communities for dialogue, established best practices, and engaged in research projects around the benefits of data-driven instruction and also teacher and parent attitudes toward student data use. The Future of Privacy Forum and the Software & Information Industry Association introduced the Student Data Privacy Pledge,³⁸ which as of January 2017 had 323 signatories and is broadly endorsed by lawmakers, school districts, and data privacy advocates.³⁹ In the Fall of 2014, the Consortium for School Networking (CoSN) and the Data Quality Campaign convened a coalition of school administrators, parents, state education chiefs, and national education organizations to develop guidance on use of data in schools. They published ten student data principles recommended as a framework for educational institutions.⁴⁰ Also in 2014, Common Sense launched the Privacy Evaluation Initiative, a consortium of over 100 school districts to help schools navigate the varied privacy policies of edtech used in K-12 classrooms, and to work with the software industry to standardize and simplify their privacy policies.⁴¹

In the Fall of 2015, the Student Data Privacy Consortium (SDPC) was formed as a collaborative of schools, districts, regional and state agencies, policy makers, trade organizations and marketplace providers to address practical day to day data privacy concerns faced by on-the-ground practitioners. SDPC aims to act as a clearinghouse of student data privacy resources and develop new, shared tools and resources.⁴² Recently, the Data Quality Campaign published policy guidelines to create a culture of support for data in classrooms. The four priorities they outline are: measure what matters, make data use possible, be transparent and earn trust, guarantee access and protect privacy.⁴³ The Data Quality Campaign has additionally published state and national level studies of student data privacy policies and practices.

James Peterson believes that, “InBloom may have failed as a business, but as a movement they only lit a fire underneath.” As someone working daily with student data and collaborating across his own state and with other states, he says:

When it comes down to it, it really is a day to day function for school districts. Things that we have to do. Our kids show up at our doors every day and we have to take attendance, we have to gather all these kinds of things and then we want to take that information and be able to provide it out in different apps and make a richer environment.

We’re all doing the same thing. We all have the same problems to solve. And we’re not in competition with each other so us working together like that, if we could’ve done that a little bit better and really try to build out these toolsets for the operators themselves, this would have gone so much further.

The inBloom vision for collaboration across states around shared problems was seen by many as a strong practice. Jat Pannu describes it as “leveraging the great work that others are doing for your needs,” explaining:

38. See: <https://studentprivacypledge.org/>.

39. See Natasha Singer’s critique of the Student Data Privacy pledge, particularly that it has no enforcement mandate and that some signatories show security lapses: <http://bits.blogs.nytimes.com/2015/02/11/data-security-gaps-in-an-industry-student-privacy-pledge/>.

40. See: <http://studentdataprinciples.org/>.

41. See: <https://www.commonsense.org/education/privacy>.

42. A4L.org, “About the Consortium,” accessed January 26, 2017, <https://privacy.a4l.org/privacy-community/>.

43. Data Quality Campaign, Time to Act: Federal Actions to Make Data Work for Students, June, 2016, <http://2pido73em67o3ey-taq1cp8au.wpengine.netdna-cdn.com/wp-content/uploads/2016/06/Federal-Recommendations.pdf>.

There's trading experiences and there's also the sharing of subject matter expertise, as well as assets. There could be a particular technology or implementation asset that was created by one of the members that they found to be very effective for solving their problems and another member of the federation could say 'Hey, I have that same problem. Let me see if I can't leverage what you've done and apply that for myself.' Thus saving time, research, cost, etc.

The momentum toward data-driven instruction may have been slowed by the backlash against inBloom, but in the two years following inBloom's closure, several private companies have stepped into the space left open by the ambitious open source consortium. One participant commented, "they destroyed the brand, so it didn't matter if the technology worked. No one was going to touch it." Participants reflected on how, with a clear value proposition, users willingly engage in sharing personal data, citing Google Maps as a common example. Google Apps for Education, Edmodo, Clever, Class Dojo, Amplify, and Knewton were mentioned in interviews as engaging in differing levels of data use. Fox Alter reports that her district uses Microsoft Office 365 because: "they won't market to kids, they won't share it, they talk about how long they'll hold onto it, storage, the whole nine yards." Transparency remains a challenge in this space and discussions continue around privacy policies and practice.

6.2 Conclusions

Whether data-driven instruction fulfills its promise remains an open question as practice and platforms continue to evolve. Is student data safer without inBloom? The legacy of inBloom seems evolutionary not revolutionary. While inBloom catalyzed a national discussion of student data privacy, resulting practice does not consistently reflect the values of transparency and grassroots engagement. The public response to inBloom has driven educational technology vendors toward closed systems, that tend to be independent and piecemeal, rather than part of larger, open consortiums. Current applications do not address all the aspirations a single set of standards could, nor do they reduce costs or complexity in the way a shared open source platform might have. Instead we're seeing baby steps that are proprietary and disconnected from each other (not unlike prior generations of edtech software). These systems are typically closed and lack the transparency advocated by inBloom's opponents.

The public rarely sees how companies experiment and iterate. Consumers often see only a finished product, rather than a process of discovery. They do not see how many times a software program crashes or how many tests are needed until it works smoothly. There can also be a sense that harm is a foregone conclusion of risk, rather than a possibility. In the case of inBloom, the public's fear of uncertainty, combined with a belief that potential risks were reality rather than possibility, were strong factors in the public backlash. InBloom's ambition to be open and transparent actually left it vulnerable to public attack. Unlike private companies whose discovery process is basically a black box, inBloom's processes were public, and thus open to scrutiny. Without widespread buy-in to the value of the initiative, inBloom did not have sufficient support to weather the public backlash. Large-scale, ambitious, public initiatives will continue to be slowed or meet a similar fate to inBloom if there is not a counter-narrative to the public's low tolerance for uncertainty and risk. As the process of discovery becomes more transparent due to digital media, there needs to be a shift in how we view risk and uncertainty, because depending on whether we see this as weakness or opportunity will determine the future of education and innovation more broadly.

Acknowledgements

This report is a product of the Enabling Connected Learning project at Data & Society. Enabling Connected Learning is generously supported by the John D. and Catherine T. MacArthur Foundation. The authors wish to thank interview participants in this study and also those who provided background information informally. We also wish to thank our reviewers danah boyd, Steven Hodas, Christopher Laubenthal, James Peterson, and Jim Siegl. Special thanks to our editor Patrick Davison, and to the Data & Society community for their intellectual and administrative support. Additional thanks to the bloggers, journalists, advocates, and academics who covered the inBloom story as it unfolded.

Data & Society currently receives support from organizations implicated in this report, including Microsoft and, in the past, the Bill and Melinda Gates Foundation. No funder played a role in the development, analysis, or production of this report.

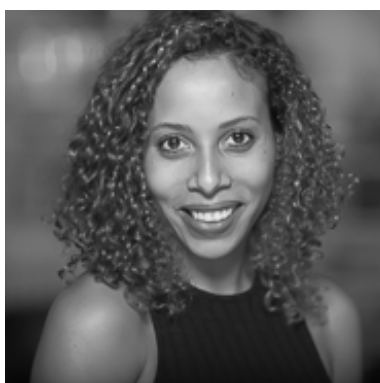
Authors



Monica Bulger, PhD is a Researcher in the Enabling Connected Learning initiative at the Data & Society Research Institute where she studies data use in education, focusing on personalized learning, privacy, equity, and digital literacy. She serves on the International Advisory Board for Global Kids Online, a collaboration between UNICEF, LSE, and international partners to study the risks and opportunities of children's use of the internet. Monica holds a PhD in Education with an emphasis in cognitive science and social dimensions of technology. Her recent work focuses on children's rights in digital and learning spaces.



Patrick McCormick is a manager and strategist working at the intersection of public policy, emerging technology, and innovation and has experience working in and consulting to government organizations in the U.S. and Australia. His areas of expertise include internet and broadband policy, civic tech and smart cities, co-production, organizational change, governance, and digital transformation. Patrick has an MPA from the Harvard Kennedy School and a BA from the University of California Berkeley. Patrick is a former employee of Public Consulting Group which had a \$31 million contract with the New York State Department of Education for the Education Data Portal project and served as a product manager.



Mikaela Pitcan is a social scientist and mental health clinician. Her areas of research include the impact of technology on behavior, and the intersection of race and gender within schooling and employment. She holds a BS in psychology from the University of Florida, a MS.Ed in Mental Health Counseling from Fordham University Graduate School of Education and is currently a doctoral candidate in Counseling Psychology at Fordham University.

Appendix 1: List of Participants

Name	Role during inBloom	Current position
Jeff Alderson	Chief Solutions Architect at ConnectEDU Lead Architect at Houghton Mifflin Harcourt (formerly Choice Solutions)	Principal Analyst of Enterprise Software, Eduventures
Sharren Bates	Senior Program Officer, Gates Foundation Chief Product Officer, inBloom	Principal Consultant, Product and Technology Strategy at ThoughtWorks
Rob Curtin	Chief Applications Officer, US Education, Microsoft	Director of Higher Education, Worldwide Public Sector, Microsoft
Tom Dunn	Communications Director, New York State Education Department	Principal, EdComm NY
Mary Fox Alter	Superintendent, Pleasantville School District, New York	Superintendent, Pleasantville School District, New York
Olga Garcia-Kaplan	Concerned parent	Student Privacy Advocate
Aimee Guidera	President and CEO, Data Quality Campaign	President and CEO, Data Quality Campaign
Leonie Haimson	Executive Director, Class Size Matters	Executive Director, Class Size Matters
Steven Hodas	Executive Director of the Office of Innovation, New York City Department of Education	Head of Product, Citymart
Greg Mortimer	CIO, Jefferson County School District	Executive Director of Administrative Data Services, Adams 12 Five Star Schools
Jat Pannu	Senior Vice President, Professional Services, inBloom	Chief Operating Officer, IlliniCloud and K12 Federation
James Peterson	Chief Technology Officer, Bloomington School District	Chief Technology Officer, Bloomington School District
Hope Reno	Consultant, Public Consulting Group	
Cynthia Stevenson, PhD	Superintendent, Jefferson County School District	Senior Consultant, PEBC Senior Instructor, University of Colorado, Denver
Iwan Streichenberger	CEO, inBloom	Consultant

continued on following page

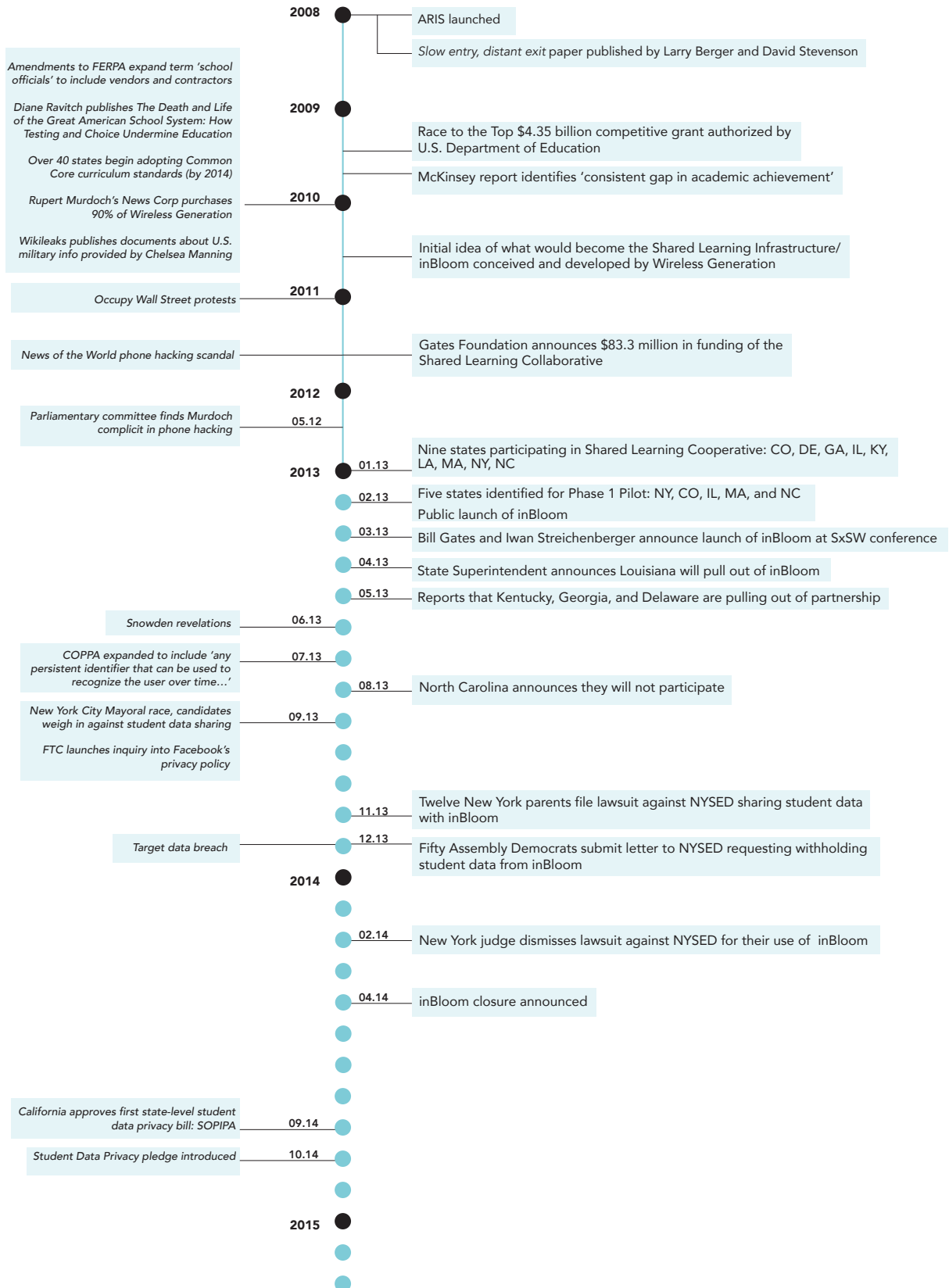
Name	Role during inBloom	Current position
------	---------------------	------------------

James Yap	US Advisory Board and Technical Board Member, SIF Association Director of Instructional Technology & Data Management, Ramapo Central School District, New York	Assistant Superintendent of Curriculum & Instructional Services, Warwick Valley Central School District, New York
-----------	---	---

A senior technical expert who has closely examined the history of inBloom

Former employee of Wireless Generation

Appendix 2: Timeline



Data&Society

Data & Society Research Institute
36 West 20th Street, 11th Floor
New York, NY 10011
Tel 646.832.2038
Fax 646.832.2048
info@datasociety.net
<http://www.datasociety.net>

Contact
Dr. Monica Bulger
monica@datasociety.net