

## **Integrated Education Systems (IES) Investor Pitch**

### **I. General Description**

At Integrated Education Systems, our mission is to provide free education to the masses by utilizing the latest learning technologies at scale. Our business model is to partner with school administrations and provide underserved students with free electronic tablets that will serve as an integrated environment for learning both inside and outside the classroom. By utilizing user-generated data, we aim to constantly improve our educational modules based on real-time feedback. We plan to generate bulk of our revenues by upselling and cross-selling various products and services to students, parents, school administrations, and companies. We also plan to generate a small part of our revenue by selling anonymized aggregated data to trusted third-parties under a 50-50 revenue sharing model with students.

### **II. Disrupting the Education Market**

We believe that the current education infrastructure is broken across majority of the world. Over the past three decades, technology has drastically altered the way people interact with and consume information but our systems of education have stagnated. While IES abides by the principle “don’t fix what’s not broken”, we have identified significant areas of improvement in the current system that can yield significant social and monetary returns for the rightly positioned company.

Our intention is to first prove our concept and become cash flow positive in the United States, and then expand our product into developing countries, where the demand for free, quality education

is high. Low-income countries in particular struggle with underfunded schools and a scarcity of qualified instructors, which consequently deprives students of the individualized attention that would maximize their academic potential. Our product would allow governments to save money on educational materials and instructors, while also increasing the reach of education into remote or rural regions. Beyond the human value of improving education, there is also a clear economic argument for creating a more educated population with a higher capacity to productively contribute to the economy: by giving basic reading skills to all students in low-income countries, 171 million people could be lifted out of poverty, saving the global economy approximately \$1.19 trillion a year.<sup>1 2</sup>

The current market for online education is primarily comprised of Massive Open Online Courses (MOOCs) such as Coursera. Unfortunately, given the lack of authority figures, deadlines, and community that encourage students in a classroom setting, MOOCs and other online educational programs have a staggering dropout rate. According to research conducted by the International Review of Research in Open and Distributed Learning, only approximately 12% of those who enroll in MOOCs complete the courses.<sup>3</sup> While the high-quality instruction by professors at top-rate institutions is scalable through MOOCs and other e-learning systems, the classroom environment and its role in encouraging learning is not. Although MOOCs and other e-learning apps have had a positive impact, we believe their potential has been drastically diluted by the missing “community” aspect, or classroom learning.

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<sup>1</sup> <https://www.children.org/global-poverty/global-poverty-facts/facts-about-world-poverty-and-education>

<sup>2</sup> Lutz, Wolfgang & Scherbov, Sergei, 2006

<sup>3</sup> <http://www.irrodl.org/index.php/irrodl/article/view/2112/3394>

Furthermore, the processes through which children learn and their responsiveness to different academic approaches are all data that could be employed productively, but that is wasted in the current system. Through their participation in educational games and activities, children can also serve the role of data laborers. By harnessing that potential in a revenue-sharing model, students could earn credits to purchase educational materials and supplement their academic development.

### **III. The Product**

Our differentiating edge lies not in creating the best educational content, but in distributing it an efficient and sticky manner. Our approach combines the most desirable qualities of both MOOCs and traditional classroom teaching by disseminating world-class instruction to all students while maintaining a local classroom environment and in incrementally improving our system based on real-time data-generated feedback. We envision a classroom scenario where each student can watch tutorials and read course books on their tablets in the presence of a teacher inside the classroom. This ensures not only that every student is provided the same high-quality instruction, but also allows fosters a healthy community environment where peers can socialize, discuss academic and non-academic topics, and engage in healthy competition that will be cultivated through regular assessments and quizzes on their tablets.

In this scenario, the role of the existing classroom teachers hired by schools would be transformed from that of a primary educator to that of a facilitator. The facilitator's job will be to maintain classroom decorum and to individually answer any lingering questions from students, two important aspects of learning that cannot be replicated by MOOCs or e-learning apps. Moreover,

these facilitators would be provided with regular classroom progress reports, highlighting each student's strengths, weaknesses, and the topics that they are struggling with, allowing them to use some of the class time to clear up relevant doubts individually and identify early students who are lagging behind. These facilitators would also be able to identify "slump points" – the timestamp of the video or the page number where most students become disengaged, lose focus, or switch to other activities – and counter these slumps with in-class discussions about the topics in question. As our data repository will grow over time, we will also be able to incrementally edit our content to minimize these slump points and create the most engaging academic content. Given that our initial focus is to partner with underfunded schools that often lack Advanced Placement or equivalent advancement tracks for gifted students, our digital system would be adept at identifying high-performing/under-stimulated students in real time and offering them more advanced material to cover at their own pace.

#### **IV. Business Model**

##### ***Market Positioning***

We have positioned our product optimally to make its use attractive to all three stakeholders – school administrators, students, and parents.

- 1) School administrators: Our initial focus is to partner with underfunded schools by providing them with an instant value add: a free tablet for each student, a turnkey software for watching pre-loaded course tutorials and reading public domain e-books, real-time data analysis for tracking student progress, statistics for comparing efficiency of different modules, and free training for teachers over summer/winter vacations to efficiently incorporate classroom instruction along with pre-loaded video tutorials. Schools in our

target tier, often publicly funded ones, struggle with problems such as teacher absenteeism, poor quality of instruction, large class sizes – all of which can be mitigated by our solution which aims to provide the same high-quality instruction to every student and allowing stakeholders such as teachers and parents to track and compare progress and nudge certain students in the required direction. Furthermore, schools would be empowered to adapt the curriculum of our program to fit with school objectives or with national standards.

- 2) Students: The current education system applies a one-size-fits-all approach for teaching which can often lead to students becoming either overwhelmed and giving up or being under-stimulated and bored of classroom material. Our learning tablet not only allows students to go through the material at their own pace, but also allows parents and teachers to identify and aid students who are lagging or leading their class. Students would also be free to review tutorials multiple times, never miss an important piece of instruction due to sickness or absence, and would welcome a more sense of ownership into their learning process. Although we do not pitch ourselves as an education company that wants to “gamify” learning and replace traditional reading, our growing data repositories will allow us to develop certain gamified modules that can perhaps be more effective for teaching certain topics to a certain type of learner.
- 3) Parents: Given the abovementioned benefits to both parents and schools, we believe parents would welcome the promises of our integrated learning tablet. They would also receive real-time reports on their ward’s performance, and would be able to identify and address issues that cause sudden slumps in performance. Moreover, they would also be able to control what information their child is given access to and modify this access in accordance

to their values (eg. at what age a child receives sexual health education or whether a child receives a religious education).

### ***Revenue Generation***

Our customers can be broken into the following cohorts:

- 1) Parents/students: Our tablet would be manufactured under our brand and will operate our proprietary operating system. Since we will be giving these away for free to students in underserved schools, only the IES learning application and a standard web browser would be “unlocked” on our tablet. For parents and students who wish to unlock the ability to download third party applications and use it as a regular full-fledged tablet, they would be able to do so by purchasing the tablet for the market price (25-30% markup over manufacturing price)<sup>4</sup>. Since this “unlocking” would be done virtually, we would face no additional distribution costs or marketing costs that often eat up 20-30% of margins for traditional hardware companies. We further anticipate that many students would prefer to have higher-end tablets or laptops for convenience, and we would offer our brand laptops and higher-end versions with larger screens for sale online at standard markups of 25-30%.

As explained in our timeline below, we will only expand to private/prep schools once the proof-of-concept has been met at underserved schools; this would enable us to instantly demonstrate the value add for our product and sell it at market prices to students at these schools who can afford these devices, rather than giving it away for free.

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<sup>4</sup> Based on gross margins calculated from Apple and HP’s 10-K filings

- 2) Universities: Top-tier universities already have demonstrated affinity to paying for performance data for underserved students<sup>5</sup>, and ongoing efforts to increase socio-economic diversity will further as tailwinds for us. IES is likely to be able to position itself as the best provider of the most comprehensive data on student performance not on one standardized test, but provide deep insights into students' progress over their entire academic career.
- 3) Companies: Top-tier companies spend a significant amount in recruiting the best talent, and we see considerable opportunity to sell performance data to companies to identify, for example, the most consistent performers, the most improved achievers, and the naturally gifted.
- 4) Other third-parties: Our motivation behind creating a tablet instead of just an application is twofold – mere applications would require students to already own compatible devices and they do not open opportunities for upselling/cross-selling. Our approach of integrating youngsters within our hardware/software ecosystem at a young age would give us considerable quasi-monopolistic powers in acting as arbiters of what information is disseminated or advertised to them. In the same way that Apple has vitalized its app store as one of its fastest growing sources of income, we similarly aim to develop a dynamic app store of third party applications wherein developers pay a standard 30% fee (same as charged by AppStore and Play Store) of the subscription revenue generated from their downloaded applications. In essence, if a student chooses to use his tablet/laptop as his primary device for recreational activities such as playing games or watching Netflix, IES

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<sup>5</sup> <https://www.theatlantic.com/education/archive/2017/04/how-colleges-find-their-students/522516/>

would be able to charge a fee equivalent to 30% of the subscription value generated by each user.

We also plan on selling anonymized aggregated data to trusted third parties (conglomerates, advertising companies, etc.) with an opt-in revenue-sharing model. Students would be able to opt-into this agreement, and would receive 50% of all revenues generated by us via this medium in the form of credits that can be used to purchase applications from our own application store.

### ***Projected Timeline***

We have divided our envisioned growth from a startup to a mature, cash flow generating company into three phases:

Phase One (1 year): Within this period, we aim to develop our application software, manufacture the first iteration of our tablet, and create a semester's worth of course work for *one* grade<sup>6</sup>. We'll also spend time speaking with various school administrators and teachers across the United States to gain insight on demand for our product and recalibrate it based on feedback from these parties. Although the first iteration of our tablet will be manufactured under our brand, we will use an open source Android operating system to minimize expenses, and only begin developing our own OS once proof-of-concept has been rigorously tested.

Phase Two (2-3 years): Within this period, we aim to partner with ~10-15 geographically diverse underfunded schools to test our integrated learning tablets for two grades (ideally fourth-grade and ninth-grade) to stress test the efficiency of our solution across geographies and student ages. Based

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<sup>6</sup> We believe ninth-graders would be the most appropriate target for our phase one test run as a lot of higher-level mathematics and science at a significant step up from middle school curriculum is introduced at this stage.

on student, parent, and teacher feedback during this period, we will recalibrate our software and hardware before we expand further. Over the same period, we will continue to develop course work for the remaining grades so that we are ready with a tested turnkey solution to enter phase three. In year two of this phase, we will also begin approaching private schools and prep schools to test our product in better funded schools, and potentially further recalibrate or differentiate it for schools in this tier.

Phase Three: During this phase, we will hire a significant salesforce to pitch our product to all schools across the country. We will also focus on developing our other products, such as our IES laptops, to begin cross-selling and upselling once our tablet gains widespread traction. Once we become cash flow positive domestically, we aim to expand into international markets to fulfil our core vision. We anticipate no significant pivots post this period, and entering this phase will mark our transition from a startup to a cash flow generating company.

### ***Stress-Testing Unit Economics***

The standard version of the tablet that we will be giving away for free to underserved schools would be a 16GB iPad 2-like device<sup>7</sup> that will cost us ~\$250 to manufacture. In essence, while we will lose \$250 per underserved student, we will make a ~23% return, or \$92 on higher-end tablets priced at ~\$400 for each middle/upper-middle/upper class student. Therefore, in order to stay profitable at the gross level, we would need to maintain a ratio of  $(250/92 =) \sim 2.72$  middle/upper-middle/upper class students per low-income student we include in our program. This does not include the additional revenue we would generate from upselling our laptops, other higher end tablets, the “unlocking” feature for underserved students, and our data products for universities,

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<sup>7</sup> See Appendix for detailed breakdown

companies, and third-parties, most of which should flow into our bottom-line. While we would prefer this ratio to be more skewed in favor of the underserved, maintaining a 2.72:1 ratio initially would allow us to create a self-sustaining business model that doesn't need a constant influx of cash to just survive. This luxury would allow us to constantly recalibrate and experiment with small pivots to our business model. Once we reach Phase Three and are able to calculate the lifetime value cash generated per underserved student, we would be able to improve this ratio in favor of the underserved.

Assuming we breakeven with the above mix of students, and assuming 50,000 students under our program by end of first year into Phase Three, we impart our company a current valuation of \$1.6 million. This has been calculated based on \$3 of annual revenue per student<sup>8</sup> (implying \$150,000 annual revenue in that year), and taking a 10.7x revenue multiple. \$3/student is a conservative estimate and can be met even if every student uses a \$10 Netflix subscription for a month over the entire year on their tablet<sup>9</sup>, generating us (30% of \$10 =) \$3.33 per student. Given difficulties in accurate estimation, this does not include additional revenues to be generated by selling our insights to universities, companies, and trusted third-parties.

## **Our Proposal**

We are currently seeking an investment of \$800,000 for a 50% equity stake in our company based on a 10.7x revenue multiple for end of year one in Phase Three sales. We are open to offering pro-

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<sup>8</sup> <https://www.forbes.com/sites/tristanlouis/2013/08/31/how-much-is-a-user-worth/#6f5538301c51>

<sup>9</sup> Or if 1/12 students purchase a year's worth of Netflix subscription, or equivalent

rata rights and negotiating on the valuation with investors who can offer significant support and guidance through their experience and/or industry connections.

### **Use of Funds**

We plan on using our seed funding of \$800,000 to fund the entirety of Phase One:

- 1) \$30,000 to manufacture 100 devices with Android OS to test with various focus groups (assuming a cost of net ~\$250 per tablet as described in unit economics above, plus a \$50 margin-of-safety).
- 2) \$200,000 to hire two high-quality instructors at \$100,000 each to create world-class online tutorials and course work for a full semester for ninth graders.
- 3) \$450,000 to hire two computer programmers at \$225,000 each to develop the first iteration of our main application and progress tracking portals for students, teachers and parents.

The remaining \$120,000 will be made available from our limited partners in the form of a revolving credit line for minor day-to-day cash expenses, margin of safety for unanticipated expenses, and will serve as a cash cushion for continuing operations post-phase one as we raise capital for phase two.

### **Key Risks and Proposed Solutions**

While we believe this model has the potential of being profitable as a business model and also generate a beneficial societal impact, there are two main risks inherent in the model that we must address:

1. Adherence: Our business model is dependent on the “stickiness” of the product and our ability to eventually reach mass audiences. Given our limited experience in the educational

sector and that fact that we have limited evidence on the success of our product on educational attainment, governments and school administrations might be reluctant to partner with us. In order to address this, we will release our product in phases and recalibrate it based on feedback so that we can be prepared to meet the specific needs of all stakeholders before embarking on a large-scale implementation. This way, we hope to tackle most of the kinks before they have the potential of impacting our adoption momentum.

2. Privacy: Given that our model is based on accruing and sharing data of students, who are often vulnerable populations, there might be a backlash over the selling of data. In order to address that concern, we aim to be explicit about the use of data, empowering individual students and families to decide to what degree they are willing to anonymously share their data with vetted buyers and rewarding their data labor with credit points they can use to purchase media content on our devices. Furthermore, considering the costs imposed on families and the government for private or public education, by partaking in our services they are ultimately saving money that can be reinvested elsewhere. Unlike siren services which offer simple entertainment or daily conveniences, while employing data labor, our product is giving a valuable economic resource and also empowering individuals to share in the revenue accrued from their data.

*We pledge our honor that this represents our own work in accordance with University policies.*

*/s/ Gabriela Pitten /s/*

*/s/ Arnav Agarwal /s/*

## Appendix

Components / Hardware Elements	iPad 2		New iPad (3rd Generation)					
	WiFi	WiFi + 3G	WiFi			WiFi + 4G		
	16GB	16GB3	16GB6	32GB7	64GB8	16GB9	32GB10	64GB11
Retail Pricing (As of March 2012)	\$399.00	\$529.00	\$499.00	\$599.00	\$699.00	\$629.00	\$729.00	\$829.00
Total BOM Cost	\$236.95	\$262.55	\$306.05	\$322.85	\$356.45	\$347.55	\$364.35	\$397.95
Manufacturing Cost	\$8.15	\$8.45	\$10.00	\$10.00	\$10.00	\$10.75	\$10.75	\$10.75
BOM + Manufacturing	\$245.10	\$271.00	\$316.05	\$332.85	\$366.45	\$358.30	\$375.10	\$408.70
<b>Major Cost Drivers</b>								
<b>Memory</b>								
NAND Flash	\$16.80	\$16.80	\$16.80	\$33.60	\$67.20	\$16.80	\$33.60	\$67.20
DRAM	\$7.60	\$7.60	\$13.90	\$13.90	\$13.90	\$13.90	\$13.90	\$13.90
<b>Display &amp; Touchscreen</b>								
Display	\$57.00	\$57.00	\$87.00	\$87.00	\$87.00	\$87.00	\$87.00	\$87.00
Touchscreen	\$40.00	\$40.00	\$40.00	\$40.00	\$40.00	\$40.00	\$40.00	\$40.00
<b>Processor</b>								
Processor	\$14.20	\$14.20	\$23.00	\$23.00	\$23.00	\$23.00	\$23.00	\$23.00
<b>Camera(s)</b>								
Camera(s)	\$4.10	\$4.10	\$12.35	\$12.35	\$12.35	\$12.35	\$12.35	\$12.35
<b>Wireless Section - BB/RF/PA (Module)</b>								
Wireless Section - BB/RF/PA (Module)		\$25.60				\$41.50	\$41.50	\$41.50
<b>User Interface &amp; Sensors &amp; Combo Module (WLAN/BT/FM)</b>								
User Interface & Sensors & Combo Module (WLAN/BT/FM)	\$15.35	\$15.35	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00
<b>Power Management</b>								
Power Management	\$5.85	\$5.85	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00
<b>Battery</b>								
Battery	\$22.75	\$22.75	\$32.00	\$32.00	\$32.00	\$32.00	\$32.00	\$32.00
<b>Mechanical / Electro-Mechanical / Other</b>								
Mechanical / Electro-Mechanical / Other	\$47.80	\$47.80	\$50.50	\$50.50	\$50.50	\$50.50	\$50.50	\$50.50
<b>Box Contents</b>								
Box Contents	\$5.50	\$5.50	\$5.50	\$5.50	\$5.50	\$5.50	\$5.50	\$5.50

Source: IHS iSuppli Research, March 2012