Date: 20 February, 2017

Tunapanda Institute[1]

Tunapanda Institute (TI) is a social enterprise based in Nairobi, Kenya. The organization provides free computer technology training and resources to individuals living in marginalized communities in East Africa. Jay Larson founded Tunapanda in 2012 with his brother Mick. The two brothers were inspired by the increasing amount of free learning materials available online and saw these materials as a revolutionary tool to bring education and computer skills to emerging markets that were previously excluded. They were also interested in testing a new self-sustaining model of learning/training. This brought them to Kibera, a neighborhood in Nairobi that has been labeled "Africa's largest urban slum." Jay explains the location decision: "it helps to be clearly far superior to existing options and be able to develop prototype solutions and iterate at low cost. Nairobi had a well-developed mobile payments system, strong English, and a large number of motivated young people willing to try something new. It was the perfect place to develop and iterate a model for more widespread replication down the road."

Through technology they hoped to creatively and radically bridge the digital divide. Working in Kenya they quickly learned that while people can access online education for free, they face a huge barrier when it comes to actually downloading the material. The two brothers found that by downloading and repackaging the material, they made it more affordable and accessible for locals to use. They started out by downloading free content from the web, saving this content on hard drives, and then distributing it to local schools and education centers. From those early beginnings, Tunapanda has today grown into a multi-purpose institute. However, they remain focused on developing digital skills and, through the institute, run a number of educational programs. TI's

[1] Kislaya Prasad, Research Professor and Academic Director of the Center for Global Business, Robert H. Smith School of Business, University of Maryland, prepared this case in collaboration with Jay Larson of Tunapanda Institute. The case is designed solely for the purposes of discussion and learning.

primary target population is youth who lack the opportunity to continue their studies in school or whose learning styles do not favor rote memorization. The institute's largest program is a three-month educational course that is designed to give trainees a strong introduction to computer and technology skills with a focus on web design and editing. Students at the institute are trained in new technology-centric fields, work to develop new technologies themselves and then work with TI to find a job that is a fit for their new skill set. Others stay to on to become part of the institute – teaching, working on projects for external clients and helping sustain the community. Even as TI teaches "hard" skills in tech, design, and business (e.g. coding, graphics, financial modeling) they also attempt to build a foundation for well-rounded professionals, and not just teach coding as other places do.

The broader goal, Jay explains, is to spread dignity, respect and freedom through learning for creative problem solving. "Tunapanda is a Swahili word that means we are planting, we are growing and we are climbing." The brothers see this as central to their mission. Together they are working with the community to see what sticks when it comes to their educational programming, how they can make it better, and how they can expand to increase their impact. By a number of metrics, TI has been a success. They have graduated more than 250 young people and over 85% of graduates have found meaningful employment. Reflecting on its short history, Jay notes how seeing people get jobs and find their passions makes him proud. How graduates, who are now several years into tech careers that TI helped them get started in, regularly write or visit and express their appreciation. "We created the pathway for a couple of young women on our team, both of them from Kibera, to get into Africa's top entrepreneurship accelerator. After the one-year program, both women competed in the final contest. One of them was the leader/CEO of one of the winning teams. She called me to share her joy as well as the pressure she felt. She is now the CEO of a funded IoT[2] company solving livestock/agriculture problems for real customers. It is also amazing to see how the team members who remain come alive teaching what they've learned to the next group."

But now, Jay feels, TI is at a crossroads. It is currently funded through a pay for service model. Trainees do not pay to enroll in the program. TI's staff performs digital services for external clients and then uses the revenue generated to support free educational programs. Once students attain basic proficiency they are able to make meaningful contributions to projects for external clients. Additionally, many trainees who complete the training program transition into productive roles within the organization, helping to sustain the community. In this way, TI is able to provide training and can still be self-sustaining. However, as TI's programs grow this model becomes more and more challenging. The founders also understand that the organization's long-term viability depends on its becoming less reliant on them. Jay wonders if TI can continue to grow given their

[2] Abbreviation of "Internet of Things."

current model? Or has the organization reached a critical inflection point, requiring them to step back and reevaluate their model?

1. Background: Kenya[3]

East Africa has been the most dynamic and fast growing region of Africa and Kenya has performed well recently. The real GDP growth rate in Kenya has mostly been between 5- 6% since 2010. A disputed election with surrounding political uncertainty, as well as a drought, have taken their toll on the economy in 2017. The GDP per capita in current US dollars was $1,455 in 2016 ($3,161 PPP adjusted)[4], placing it among lower middle-income countries. With a major Indian Ocean port, Kenya is a logistics and communication hub. It has a formal manufacturing sector, although the recent growth has been powered by the advance of the services sector.[5] Innovative mobile services, such as M-Pesa (a mobile payment system), have played an important role in stimulating other services. In contrast, manufacturing has stagnated. The Kenyan economy has traditionally relied heavily on agriculture where 80% of population works at least part time, even though agriculture accounts for only 25% of GDP. Agricultural output has grown slowly in the last decade.

About a quarter of the population lives in urban areas, and this number is growing fast. Nairobi (3.9 million) and the port city of Mombasa (1.1 million) are the most important urban centers. The country has a young population, and over 40% of the Kenyan population is under age 15. Unemployment has remained high, especially among youth. Many of the jobs that are created are in the informal (*jua kali*) sector where productivity and wages are low. Approximately 43% of the population lives below the poverty line (approximately $3/day). While there are pockets of wealth and prosperity, there is also much poverty. In combination with the rapidly growing younger population, this extreme inequality is a potential source of conflict for Kenyan society. In particular, there is a desperate need for high quality employment opportunities – now and in the future. The literacy rate is 78% but, on average, students complete only 11 years of education (see Appendix A for further details on education). A challenge for higher education has been in providing skills for students that are relevant for labor markets. As things now stand, employers are unable to fill skilled jobs even as unemployment is widespread.

A recent shift has begun towards a more diversified economy based in part around information and communication technology. By 2030, the government plans to have modern ICT skills standardized across all public Kenyan learning centers. Some emerging industries include construction, information and communication technology, and energy industries. A substantial demand for consulting and computer/internet services exists in the major urban centers.

[3] Statistics are drawn from CIA's *The World Factbook* unless otherwise noted.
[4] IMF, World Economic Outlook Database.
[5] See "Kenya Country Economic Memorandum: From Economic Growth to Jobs and Shared Productivity, World Bank Group, March 2016." This report is the basis for much of this section.

Corruption has remained an issue in Kenya. The economic development trajectory has been threatened by weak governance, corruption (bribes are often required when working with government), political strife and security concerns. While these are important challenges, there has been a general trend in Kenya (and East Africa) towards an environment more conducive to business, innovation, and entrepreneurship. While policy reforms have fallen short of what is needed, they have made a difference. Kenya's rank in the Ease of Doing Business rankings is much improved (from 129 in 2014 to 80 in 2017).[6] This improved business environment has contributed, in a significant way, to the good growth performance of Kenya.

2. Tunapanda Model

TI offers a number of educational programs for students/trainees. The trainees do not themselves pay for the education. Instead, TI is sustained by providing services for external clients. Once they have acquired relevant skills, trainees contribute to the project. Additionally, many of them transition to apprentices, working as part of the Tunapanda community, providing instruction, working on projects, and possibly bringing in new clients.

The focus of the institution is *Trained by Tunapanda*, which is comprised of in-house technical, professional, and business training services.[7]

1. **Basic Tracks:** These are three-month intensive learning experiences in technology, design, and business. There is no cost to the trainees to learn. These tracks provide basic familiarity and build the foundation for learning. The program emphasizes project-based learning, peer-to-peer instruction, and "learning by tinkering." Soft skills, professional attitudes, and the cultivation of a growth mindset are emphasized. (See Appendix B for the curriculum).
2. **Apprenticeship:** This is an eight-month work-teach-study program based on "learning by doing" as well as "learning by teaching." *Tunapanda Apprentices* learn the crafts of coaching, teaching, lesson planning, and administering a learning community. They contribute to the teaching of basic tracks, and also help bring in revenue from external clients of TI services. Additionally, apprentices are engaging in further practical learning in the "advanced track" areas of choice. They deepen their own knowledge, for instance by taking online courses.
3. **Employment:** Through established relationships with local organizations and through interview, business pitching, and CV coaching, TI helps its students transition into employment in their chosen fields. At one point, over 85% of TI graduates had gained meaningful employment, though the latest numbers are not known.

[6] See https://tradingeconomics.com/kenya/ease-of-doing-business.
[7] See the Tunapanda Institute website at https://www.tunapanda.org/ and the *Medium* article "Tunapanda's 2017 in a nutshell," by John Gitonga (https://medium.com/tunapanda-institute/tunapandas-2017-in-a-nutshell-94c21a69ffea). All data about Tunapanda is either from this website, or from communication with Jay Larson.

4. **Journeymanship:** Tunapanda Journeymen bear full responsibility for all areas of administering the learning community, earn income to sustain the community, continue learning through practical projects, conduct research, and replicate our model with partners in other locations.

To date, TI has graduated over 250 young people in the basic tracks in Kibera and Turkana. They don't screen for income or education, but draw mostly from low-income populations. They scout/recruit through other organizations who serve low-income populations in places like Kibera and other rural areas. Approximately 80-85% have finished secondary school, and 5-10% have done some university, and 5-10% have completed primary but not secondary school. The completion rate has been around 90%, but went down significantly in the last cohort due to insecurity around the election (TI's facility is in ground zero for the opposition party protests, and there are frequent tear-gassings and even gunshots during election-related protests).

TI offers services to their business clients as part of the *Produced by Tunapanda* program. They are currently offering the following services.

1. **E-learning:** TI develops and deploys eLearning platforms based on the needs of their clients. It provides clients with content as well as a custom build website, which the client will manage once built. For example, TI provided content for Argon Telecom to provide training to their newly hired employees. Other products TI has developed include an e-learning Mobile App for Certell, and an e-learning website for Learning Lions.
2. **Software & Web Development:** In addition to providing websites as a learning platform, TI also develops websites for local business and professional. TI has worked with lawyers and baseball enthusiasts to create an informational website with Wordpress CRM.
3. **Creative Media:** Tunapanda Institute offers video and sound editing for films, presentations, music videos and songs. Their videos and production have been used to support clients with their SEO and SEM. Educational videos, short films, DVDs, and training in videography are some of the media TI has produced.
4. **Market Research:** Provide a human-centered design-based (HCD) approach to assist organizations create, market and sell their products to the East African market.
5. **Training:** Provide training services on behalf of other organizations, ranging from workshops to setting up a full white-labeled training facility.

In terms of client services, TI does a lot of web design, and has some repeat customers. However, most people/organizations only need one website, but they do make referrals. Thus business is generated through word of mouth. TI also helps perform research for clients by organizing focus groups and delivering surveys, and then processes the information and provides recommendations. Projects tend to range from $1,000 to $10,000. The latter would be a fairly complex HCD style research project involving quite a bit of field work. The former would be a fairly basic WordPress

site. TI also generates revenue for job placements (typically one to two month's salary, anywhere from $200-$750). Additionally, they receive sporadic donations.

Finally, TI enables low-cost replicability under the *Powered by Tunapanda* umbrella. Here they offer turnkey solutions for learning, open source tools, offline educational networks, a community mesh network, etc. to enable anyone to open schools and create learning experiences in their communities using TI's unique operating pedagogy.

TI's Organization

Jay described TI's operational system as a modified version of Holacracy, a decentralized management system designed for self-governance where decision making and authority are vested in self-organizing teams (examples of well-known companies using some version of Holacracy include Zappos and ConsenSys). There are four "departments" (these are called "circles" in Holacracy) which were described above: *Trained by Tunapanda* (training), *Produced by Tunapanda* (client work), *Powered by Tunapanda* (FOSS/OER development and partnerships e.g. with schools), and *Tunapanda Team* (core operations, brand, finance). Jay adds that "due to the early stages of people's careers, we have to add a bit more traditional management than Holacracy normally calls for." As founders, Jay and Mick remain central to guiding the organization. However, they are in the process of handing over all operations to the local team, all of whom are former graduates of their 3-month program and have gone through their 8-month apprenticeship (see email in Appendix C). The idea of taking a step back is to focus on the technology aspects of scaling while also discovering weaknesses in their model.

For instruction, TI operates on a coach/trainer model. After you graduate, if you get into the apprenticeship program, you coach the same classes you just took part in. There will be a trainer who delivers lectures and 2-3 coaches who support the learners. Since everything is project-based (no exams) the coaches/trainers also have to learn/review quite a bit of material while developing skills in team/class management.

Projects for business clients (or "gigs") are the principal source of revenue and central to the financing model. TI's 25 team members, who are paid a lot like an on-demand workforce, get a percent of jobs they do and/or bring in. Additionally, some revenues are retained for core roles like training and finance. These are also marked against deliverables and KPIs rather than a traditional salary. The way people earn revenues is exactly the same for the founders as it is for many of the team members. For gigs TI does,

- There is a percentage that goes to "gig-finders" (i.e. sales, proposal-writing, dealing with clients, etc.);
- There is a percentage that goes to "gig-doers" (i.e. building a website, delivering training, etc.);
- A percentage goes to TI, some of which pays trainers, the finance team, and overall expenses.

It's currently a 25-25-50 model. So 25% to gig-finder, 25% to gig-doers, 50% to TI (this is all after gig expenses, taxes, etc.).[8] TI is very likely to move to a 30-30-40 model pretty soon. In Jay's estimation, with an easier sales funnel and higher volume of sales, 20% could cover TI's operations. In which case, an equilibrium around 30-50-20 could possibly be achieved at scale.

Jay and Mick currently do a lot of the gig-finding. They also do some of the more complex work around some of the bigger clients, like writing research reports. These are often higher-ticket deliverables (complex gigs are generally priced around deliverables). One of the complexities of the model, Jay observes, is that there is a negotiation of sorts around pretty much all the work. "So, when we 'gig-find' a website, we try not to write the proposal – we'll send out an email and make an offer to the team. Something like, 'Hey, I've got a very strong lead on a client. I don't have time to write this, but I'll proofread, advise, handle the negotiations, sanity-check, and put my reputation with this person/company on the line. I'm offering 40-60% of the gig-finding fee as well as first claim in gig-doing for 2-3 people to write the proposal and do basic client relations and project management. Send me a link to relevant work you've done at Tunapanda, including recent publications on our Medium publication,[9] and an example of recent gigs you've done to show you know web dev.' Then we get some replies and choose a gig-finding team to support."

When a paid project comes in, the "gig-finding" team has to clearly define the project and ensure that TI has the capacity to execute well and within budget. At this time, they also begin recruiting a "gig-doing" team. Some team members choose to focus more on gigs, others do a mix of gigs and training, and apprentices mostly do training and focus on their own advanced studies in the career areas of their choice (e.g. coding, designing, sales/marketing/branding, etc.). Apprentices can join projects from the beginning of their apprenticeships, under the guidance of more experienced team members. This way apprentices learn on the job, and also start to contribute to projects.

3. Coding Schools in Kenya

Coding schools are common in Kenya and popular with students. They teach a range of ICT skills to people interested in digital services careers, and entrepreneurs and employers regularly recruit from these schools. While outside the traditional formal education sector, they make up for deficiencies in the sector. This is a point noted in the Republic of Kenya Education Sector Report: "There is also inadequate industry participation in the formulation of the University curriculum. The universities therefore train graduates who are deemed not relevant to the labor market. This mismatch between demand and supply of labor has led to unemployment and low productivity." This is a point made as well by the World Bank Country Report on Kenya, which points to the

[8] Jay and Mick currently get paid the same way the majority of the team does. Except, they don't get paid for their engagement in non-gig-related roles they take part in, such as finance or training. They often end up doing a bunch of "gig-doing" when they're only paid for "gig-finding" to make sure the gigs get done to a high enough quality.
[9] https://medium.com/tunapanda-institute

"skills gap between market requirements and the education curriculum" as a problem requiring immediate attention. The World Bank Group Country Memorandum on Kenya cited above also notes: "Key components of skill building include acquiring job-relevant technical skills (for example, through technical and vocational education, higher education, pre-employment, and on-the-job training), along with other skills that are valued by employers, such as accessing information, using computers, knowing how to interact professionally with clients, solving complex problems, and learning new skills while on the job." Private industry and NGO's fill some of the gap present in the educational system.

Among the more successful coding schools, operating in a similar space as TI, are Moringa, Nairobits, and Andela. Andela, which is based in New York City, seeks Kenya's top talent in programming and development. After an intensive six-month training period, they are placed with US companies as remote members of software teams (often for blue-chip companies such as MasterCard and Viacom). Recruits make a two-year contractual commitment, but are expected to stay for four years.[10] Moringa is based in Nairobi and targets high school and university graduates who are then placed primarily with local companies. Nairobits is a youth focused not-for-profit seeking to change lives by providing training in web and multimedia design. Both Moringa and Nairobits charge their students fees to attend (this is modest in the case of Nairobits), and also offer consultancy services to commercial clients. Course topics for these organizations include web design and development, programming, and professional development. Moringa offers several programs, including the Junior Moringa School, Moringa Prep, and Moringa Core. Junior Moringa School is a basic introduction to mobile and app development, while the more intensive Moringa Prep includes five weeks of coding language lessons. Moringa Core follows Moringa Prep, which not only hones students' development skills with group projects but also teaches professional development. Pricing is differentiated for East African versus international students, who pay roughly double the price tag for an East African student. However, a deferment program for payments exists. Nairobits offers a three-level ICT course that progresses from cursory material to computers and specialization in ICT web design and development. See the Appendix for details.

The Moringa School fees are considerable by Kenyan standards ($400 for Moringa Prep and $1600 for Moringa Core). Nairobits fees for a basic course are in the range of $35-$40. The Moringa School connects students to financing sources to pay for the education, and has a limited number of scholarships. Students choose to attend coding schools and directed education programs in the hope of finding employment. Since success in placement is what draws students to coding schools, relationships with hiring companies are vital. Technical schools have been successful in partnering with companies and maintain close links with employers. They develop a good sense of what skills are in demand in this fast changing field, and the relationships help their students secure full time jobs once they finish their programs.

[10] Start-Up Bets on Tech Talent Pipeline from Africa, by Steve Lohr, *New York Times*, Oct 10, 2017.

Some further details about the three peer schools are in Appendix D.

4. Challenges with the Financing Model

As successful as TI has been in making a meaningful difference in many young lives, it faces challenges on the path to becoming a growing, self-sustaining and self-propagating model of education. Some challenges flow from the fact that the primary customers (students) do not have the ability to pay for training. In the current financing model, with client projects financing TI's operations, students begin to make a productive contribution only when they transition to apprenticeship. For a variety of reasons, this number is not high. As Jay explains, they normally bring 20% into advanced/apprenticeship training for 8 months, and would like this number to be 100%. Some are placed in jobs. When TI successfully places them, it takes a placement fee (one to two month's salary, paid by the employer). Beyond that, the reasons people leave are diverse. Often it's because they need to work or take care of family emergencies (e.g. the head of household gets sick). Cohort 8 (late 2017) was a bit different since the elections and general societal disruption caused some additional issues.

TI's current model encourages "repayment" by staying with the organization after productive skills have been acquired. However, the problem is not so different from that of repayment of debt obligations for disadvantaged populations in other contexts. When borrowers do not have assets to place as collateral, alternative forms of incentives for repayment have worked in other contexts, such as microcredit. Enforcement of contracts, especially non-collateralized debt obligations, is not feasible in the setting TI is operating in. For this reason, Jay would prefer to find a solution that relies on social, rather than legal, incentives. He adds: "There are some ethical arguments about getting 19 year olds to take on a bunch of debt before their executive functioning is fully-developed. This issue is very much a global issue, with the US leading a sharp turn for the worse in the past couple of decades. The amount of debt we'd be talking about wouldn't be prohibitive, but we prefer finding a way to avoid it."

A second challenge flows from TI's model of experiential learning or "learning by doing". This is the best way for students to learn, but it is hard to manage and secure clients. The process of securing and completing projects is effort intensive and, since many have been one-off, it requires constant effort devoted to marketing and sales. Any Member (apprentice, journeyman, or volunteer) can take part in the job of securing projects, but this is something TI is still figuring out. A large part of the "gig-finding" (including lead generating, sales, and negotiation) in 2016-2017 was performed by the founders, and they are trying to move away from that model. But Jay acknowledges this has been a challenge. "Sales is hard, and requires quite a bit of confidence. Society tends to knock the confidence out of people from extremely low-income backgrounds. Right now, though, our team all want to 'gig-do' but not take the (personal/emotional/time) risk of gig-finding." Jay wants to incentivize people to gig-find (so that Mick and he don't have to do so much of it, and so Tunapanda can do better). This has the potential to be contentious within the

community since the people who put in the effort to market and sell can see huge spikes in income *and* control who gets to do the gig (which means they can do it themselves). But it is possible that once they figure out the sales model, and train people to communicate well and sell, that the "market rate" of gig-finding might get lower relative to gig-doing. This relates back to the core issue of confidence – selling requires confidence and communication abilities. TI trains actively in these, but it's still easier to stay in your comfort zone.

Nairobi, with its vibrant business environment, has been a good place to start. So long as the organization was small, there was enough demand for their services. As TI expands, they need to start looking beyond Nairobi and Mombasa. There are successful examples of social businesses (e.g. Startup Lions; see startuplions.org) who outsource IT and media work to individuals in economically depressed regions in Africa. Overall, Jay is optimistic: "As the world rapidly grows more connected, physical geography will matter less, especially if we can develop the skills that enable us to mobilize human capital/potential." However, a physical separation of the training from clients would pose its own set of challenges.

5. The Path Forward

Jay wonders what is their best growth strategy going forward? Is the current financing model sustainable (and if so, what adjustments should TI make to it so as to increase the numbers progressing from basic training to apprenticeship)? Is there an alternative model for financing education that would work better as TI continues its growth? Alternatives would need, of course, to be compatible with the dual goals of (1) promoting the spread of digital knowledge to under-served populations; and (2) being self-sustaining? If TI elects to adopt a new fee for service model, how can this best be implemented given the inability of TI's primary consumers to pay? TI knows that to grow their impact they need to be willing to explore new financial models, but they are unsure of the best model to select moving forward.

Appendix A

EDUCATION IN KENYA	
Youth (15-24 years) literacy rate (%) 2008-2012*, male	83.2
Youth (15-24 years) literacy rate (%) 2008-2012*, female	81.6
Number per 100 population 2012, mobile phones	71.9
Number per 100 population 2012, Internet users	32.1
Pre-primary school participation, Gross enrolment ratio (%) 2008 -2012*, male	52.1
Pre-primary school participation, Gross enrolment ratio (%) 2008 -2012*, female	51.6
Primary school participation, Gross enrolment ratio (%) 2008-2012*, male	114.6
Primary school participation, Gross enrolment ratio (%) 2008-2012*, female	112
Primary school participation, Net enrolment ratio (%) 2008-2012*, male	83.5
Primary school participation, Net enrolment ratio (%) 2008-2012*, female	84.5
Primary school participation, Net attendance ratio (%) 2008-2012*, male	72.4
Primary school participation, Net attendance ratio (%) 2008-2012*, female	75
Primary school participation, Survival rate to last primary grade (%) , 2008-2012*, admin. data	–
Primary school participation, Survival rate to last primary grade (%) , 2008-2012*, survey data	96.1
Secondary school participation, Net enrolment ratio (%) 2008-2012*, male	51.6
Secondary school participation, Net enrolment ratio (%) 2008-2012*, female	48.4
Secondary school participation, Net attendance ratio (%) 2008-2012*, male	39.5
Secondary school participation, Net attendance ratio (%) 2008-2012*, female	41.6

Source: UNICEF (https://www.unicef.org/infobycountry/kenya_statistics.html#117)
(*) See source for definitions

Wage Employment by Industry in Kenya, 2014

Sector	Total sector employment	Sector employment share, %	Ratio of men in sector employment, %
Agriculture	333,300	14%	66%
Mining & quarrying	12,800	0.5%	84%
Manufacturing	287,400	12%	82%
Electricity, gas & water	25,700	1,1%	70%
Construction	143,700	6,1%	81%
Trade, Restaurants & Hotels	293,300	12%	73%
Transport, storage & communication	178,800	7.5%	67%
Finance, real estate & business services	71,400	3.0%	61%
Community, social and personal services	873,400	37%	53%
Other sources	150,400	6.3%	43%
Total	2,370,200	100%	63%

Source: Kenya National Bureau of Statistics, Economic Survey 2015.

Unemployment in Kenya, 2016

		Kenva	Eastern Africa
Unemployment	Total	9.2 %	6.8 %
	Men	7.9 %	5.3 %
	Women	11 %	8.2 %
Youth Unemployment (15-24 years old)	Total	18 %	11 %
	Men	17 %	10 %
	Women	18 %	12 %

Source: ILO, Key Indicators of the Labour Market, 9th Edition.

Appendix B
Curriculum for Basic Track

(Source: Tunapanda Institute)

Tunapanda Institute's curriculum is designed to provide an introduction to technology, design, and business. Many areas and topics are covered broadly, and the depth of instruction varies. The course is not designed to provide deep understanding in all of the topics, but to provide a level of familiarity that will allow graduates to work on their own or with employers in entry level positions. Human-centered design (HCD) methodologies are used to glean insights from graduates of the program, and after each cohort the curriculum is modified and updated to provide the most benefit for the incoming group of trainees. Soft skills and professional attitudes are emphasized throughout. We see great improvement in personal confidence as well as technical abilities in just 3 months.

Our principles of teaching and learning include:

- Strong emphasis on growth mindset training and cultivation
- Peer-to-peer instruction and learning by tinkering
- Project-based learning
- Frequent pitching and receiving public feedback from the peer group

Though there is a substantial overlap between many of the classes, the course can broadly be divided into the practical fields of **technology, design, and business**. Supplementary fields include **mind & body** (an exploration of topics ranging from psychology to yoga) as well as **culture** (history of various technologies over the past few thousand years).

Technology

Purpose: To familiarize trainees with computers, accustom them to using technology in a professional environment and introduce them to the basics of computer programming.

Primary topics:

- Computer hardware
- Networking
- Computer programming
  - Scratch
  - KTurtle
  - JavaScript (including the p5.js library)
  - Python
  - MIT App Inventor
- Command line interface
- MySQL databases

Project example: be creative and learn technical skills by programming a browser-based video game in a small team.

Design

Purpose: To provide trainees with experience in graphic design and publication methodologies and tools. To enhance creativity through various facets of design such as drawing, editing images/videos, writing scripts, and changing the world through the third eye of design.
Primary topics:

- Vector graphics with Inkscape
- Raster graphics with Gimp
- Web design and CMS management (WordPress)
- Storytelling, scripting and storyboarding
- Instructional design and content creation (H5P)
- 3D modeling
- Animation

Project example: design the visual branding materials for an imaginary business.

Digital Media

Purpose: To provide trainees with the tools to tell stories through digital media. To teach them how to create and edit media for maximal impact
Primary topics:

- Photography and photo editing
- Principles of filmography
- Film editing
- Audio recording and editing

Project examples: tell stories by creating a podcast and silent film.

Business and Communication

Purpose: To teach and facilitate adoption of business skills, help trainees understand and acknowledge the importance of good communication skills in business and technology.
Main topics:

- Introduction to finance
- Business model canvas
- Customer segmentation
- Pitching + pitch decks
- Body Language
- CV writing
- Google toolbox
- Design thinking
- Personal branding

Project example: find a problem, validate the product by talking to potential customers, and develop a technical solution to that problem. Pitch "investors" and demonstrate a prototype.

Culture

Purpose: Enable people to understand and develop human rights and take part in global tech/design/business history and culture.

Main topics:

- Open source software and creative commons
- Copyright and attribution
- History of knowledge transfer (libraries, printing press, communication technologies)
- History of money
- Cryptocurrency and Bitcoin

Mind & Body

Purpose: Enable trainees to better understand and utilize their minds and bodies to positively impact their lives and communities. To provide them with tools to improve personal and professional relationships.
Main topics:

- Growth mindset
- Creative problem solving
- Psychology
- Teamwork and conflict resolution
- Introspection
- Mindfulness
- Yoga
- Nutrition

Appendix C

Tunapanda

Dear Tunapanda Institute Friends and Supporters,

It's been nearly a year since we wrote, and we haven't forgotten about you! We've been working hard on refining our largely socially- and financially-sustaining model and handing over leadership to our local team members, who have a better understanding of the situation and culture on the ground. Since our first crowdfunding campaign nearly 5 years ago, we've been focused on local empowerment through training, open content, and open source software. That's why Mick and I (Jay) are proud to announce that we are moving to part-time roles focusing on special projects within Tunapanda. We are happy to provide more information about our next steps, but for now, just know that there is a great team of 4 young Kenyans taking over the helm (see the new team at the bottom of this page). They are all graduates of Tunapanda's flagship 3-month intensive training programs, which we began with the 2nd crowdfunding campaign in 2014 and have continued in Kibera and Turkana at no charge for 250 young people.

We have made a lot of progress this year. If you want to help out, the best way would be to reach out for any web development/SEO work and refer us to anyone you know trying to gather academic data or find product-market fit (web development globally, research here in East Africa). If you don't need a new website, but still want to support free tech/design/business training, feel free to contribute to our free training programs.

With that, I'll hand you off to one of the 4 new leaders of the organization, John Gitonga, who has been involved with Tunapanda's work since the beginning (5 years ago!) and will be handling much of the client engagement and revenue-generation going forward. That revenue and any other grant/support we receive will be what enables us to keep offering this training at zero cost to participants.

2018 will be an exciting year, and our team will endeavor to keep in better touch than we did in 2017!

With much love and gratitude,

Jay, Mick, and the Tunapanda Team

Appendix D

	Peer A	Peer B	Peer C
Mission, Purpose	Moringa	Andela	Nairobits
Geographic area	East Africa (and other international)	Global (HQ in NYC); primarily the US & Africa	Nairobi, Kenya
Beneficiaries (who is served and participating)	All who have graduated high school; highly potential individuals who are passionate about technology	The best 1% (fellowships highly competitive)	Out of high school disadvantaged youth from the urban settlements of Nairobi, 17-24 years old
Programs & Services (types, areas of core P&S and any ancillary ones)	**Mobile, web dev** ***Junior Moringa School*** - less class time, less depth - Six classes over 1-2 weeks ***Moringa Prep*** - 5 weeks FT or 10 weeks PT - Introduction to programming - HTML, CSS (web style/presentation), Git (code tracking), Command line (interacting with computers), Markdown (for documents), JavaScript (programming the web), JQuery (JS library for interactive webpages), Bootstrap (framework for websites) - Pre-req to Moringa Core course *Costs* - FT $400, PT $450 for East African students; $800 international students ***Moringa Core*** - 15 weeks of class, 4 weeks group projects + professional development - Ruby (startups), JavaScript, Rails (web apps) *Costs* - $1400 with a $200 discount if they went through Prep	*Developers spend six months with Andela before seeking job placement (organization is less similar)*	**Information Communication Technology (ICT)** - Multimedia, entrepreneurship and Sexual Reproductive Health - Empowering more girls through ICT ***3-level ICT course*** - Progressive courses, from intro to computers up to specialization in ICT Web design and development

	- $3200 for international students *While the cost of the programme US$2,000 per student, Moringa offers a **deferment programme**, whereby successful candidates can pay a portion of the fee up front according to their means, and repay the rest of the fee during or after the course (Source).*		
Funding Sources / Clients	- Student fees - Charge an average of $2000 for school fees which covers a period of 4 months (Source) - Consulting for companies (which also involves students)	- Primary revenue from fees earned by placing trained developers with clients (predominantly in North America, though there are now clients from Europe and one in Tanzania) - Goal: take advantage of the shortage of talented software developers globally and help provide a solution to the youth unemployment rate of more than 50% in African countries like Nigeria (Source)	***Revenue streams*** - Income Generation Department (IGA) - gets web client assignments from both local and international market - Goal → sustainable business model that will support the organization in raising funds while also offering job opportunities for Nairobits graduates *1. Consultancy Services* - Setting up Bits school in partnership with other like – minded local and international institutions - Onsite training for any Community Based Organization, schools, companies etc. - Web design / development and print design services, Graphic design and full branding *2. Master Classes* - Training in short courses in web design, graphic design, and Creative Entrepreneurship course and web development

Source: Consulting report presented to Tunapanda by student group, R.H. Smith School of Business, Center for Social Value Creation, 2016.