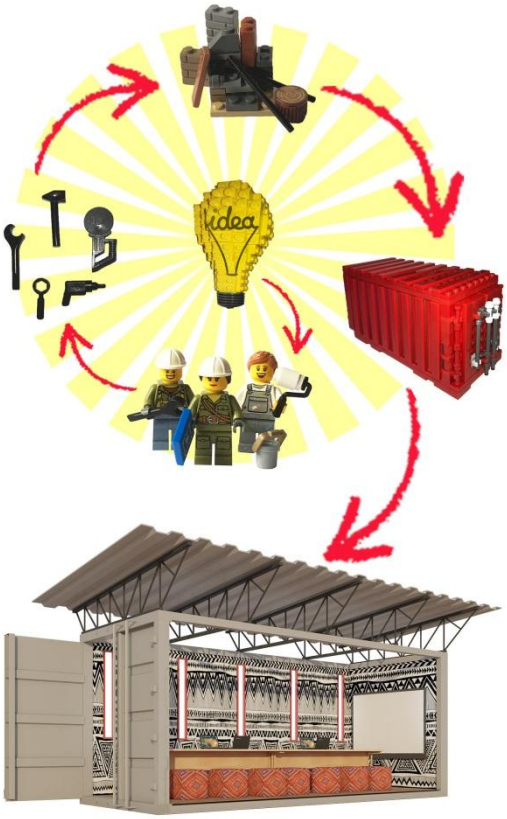


Make entrepreneurship child's play!

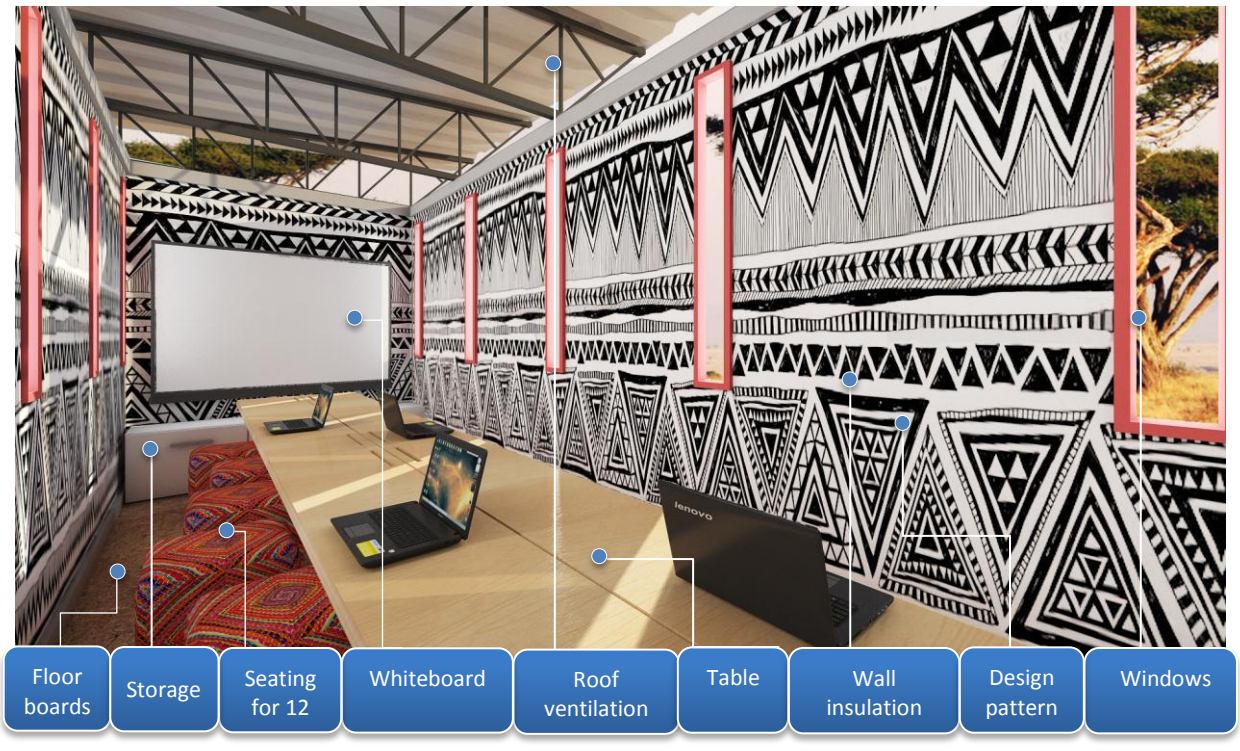
Sticks in a bundle cannot be broken goes the age-old Kenyan proverb. As a place meant to empower, inspire and bring together new generations of digital entrepreneurs over the next 30 years, a Promise Hub is not only a place to learn code, tools and processes it will be the environment that provides these future entrepreneurs a glimpse into how they will learn alongside, collaborate with and sometimes lead their peers.
With all this in mind we decided to find the right balance between what needs to be supplied, what can be locally sourced and what can be created locally in order to achieve a welcoming, well-equipped learning environment.

All of the required modifications, their costs as well as equipment have been budgeted. The majority of the budgeted materials have been calculated based upon average costs found on Amazon India, as finding averages applicable to every developing country would have been impossible. Please note that the standard module modifications as well as module-specific ones consider that there will be absolutely no form of donation (however unlikely this may be) other than the containers and the cost of their transport in order to provide an accurate representation of total costs. Besides the materials that Promise Hub may receive as support from current or future donor partners, we suggest that a fixed budget be allotted to hubs, based on the module calculations, so that they may seek to best manage their finances.

Design

The space in which these future entrepreneurs go about their activities will have to be a setting that facilitates the flexibility, adaptability and creativity they will require later in their lives.

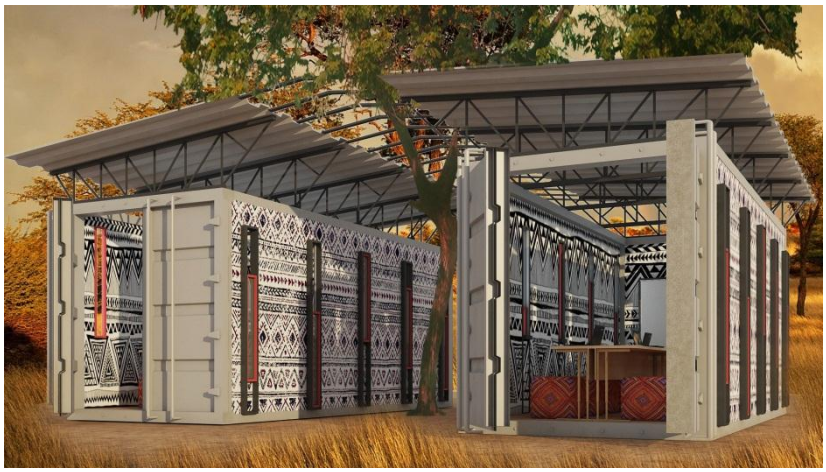
To address this, we have opted to retrofit the containers in such a way that maximizes functionality, makes use of local materials, draws inspiration from local culture and optimizes all available space.



We have considered modifications, tools and materials that would be necessary for virtually all 8 modules as well as module-specific materials and equipment so that they better serve their purpose. The most common modifications can be observed above and are further explored in the *Retrofit Requirements* section; module-specific functions and materials have been considered and are listed below in the *Module-specific equipment* table.

However, due to limited resources, sizes of the respective communities as well as the purpose of nurturing a sense of adaptability and entrepreneurship within the various beneficiary groups it may be sufficient as well as beneficial to start off with less than 8 modules. In our proposal we have opted to consider how to make best use of 1 and 2. We have also considered that the modules will have a standard occupancy of 12 + an instructor and have organized them as to comfortably and efficiently accommodate this number.

First, we ranked the modules according to importance, relevance to the ideals of the Promise Hub concept and overall practicality: 1. Developer, 2. Organizer, 3. Maker, 4. Grower, 5. Creator, 6. Community Space, 7. Spirit & 8. Healer. The ranking may vary according to local Promise Hubs' profile but the first 3 are essential to the goals, success and sustainability of the hub. Moreover, many of the of the specialized modules' activities (Organizer, Grower, Creator, Community Space) even with ideal equipment levels can be performed in other modules. The 2 modules we've chosen, Developer and Maker, with the first also acting as an Organizer & Community Space would be a well-rounded initial set-up that can be later expanded, they can also serve as other modules should the materials become available later, would have larger appeal to the community as a place with a purpose, and would inspire the hub members to efficiently organize their space.



Retrofit Requirements

- Roof ventilation modification: original container roof is removed, support beams are crafted from it as well as the Compost toilet add-on The support beams are fitted atop the container and a new roof, from locally sourced materials (metal or wood) is added to ensure ventilation
- Slide-down windows that make use of the container's curves: rectangular holes will be cut out at specific heights along the wall's deepenings. Windows can be created and attached along a slide-down rail for the desired amount of ventilation to be achieved.
- Access to electricity: As the community has access to broadband internet it is to be assumed it has access to electricity. Solar panels atop the structure were an option, but due to their complexity, potential risks (damage, vandalism, maintenance) we opted for connection to what pre-existing power supply is available to the community. Cables need to be drawn and dug into the earth, holes for sockets need to be cut into the container and isolated. Further cables leading up to the table will be added.
- Storage space for materials: A cabinet can be retrofitted from local materials, or can be sought as a donation
- Compost Toilet: Attached to the back of the module; retrofitted from old ceiling, can be connected to local plumbing, filled with waste-eating bacteria or can be a collector for fertilizer (please see technical drawings attached in application for further details).
- Table: large (400cm/80cm) table in the middle of the room that allows seating for 12 (3 groups applying the SOLE methodology), space for 4 desktops/laptops, as well as enough free space for freedom of movement. Can be retrofitted from local materials, or can be sought as a donation
- Seating: for 12 from repurposed plastic bottles; can be retrofitted from local materials.
- Insulation: Can be done with local materials used for this purpose (e.g. clay). Insulation with clay and straw has been is use for hundreds of years and is still used widely dues its low costs and resource needs. In colder climates either the volume will be increased or Polyurethane (foamed-in-place on the structure's curved walls) may be necessary. In colder climates electric heaters will be needed.
- Floor boards from retrofitted materials
- Design patterns on walls and seating inspired from local art & culture: making use of paints various patterns are drawn both on the exterior as well as interior of the module (local community can be invited to participate).

Team

I. Team Manager/leader of the local Impact Team: Needs to be familiar with overall hub plan, will obtain all necessary permits and agreements from local leadership regarding placement, and utilities of the hub, recruitment & oversight of staff and volunteers, responsible for community outreach
II. Local Impact Team: will aid the Team Manager in coordinating the hub's efforts and initiatives. Their number is heavily dependent on the profile and size of the hub, in the beginning a maximum of 3 should be sufficient
III. Welder, Carpenter & Electrician (In developing countries common for handymen to fulfill two or all of these roles, minimum of two workers)
IV. Volunteers: Can be drawn from local youth interested in joining the Hub. Will aid the Team Manager and qualified workers in achieving their tasks, will gather materials for retrofitting, will aid in community outreach, will create seating for the modules. We recommend a minimum of 3

Milestone plan

I. Project Start – Preparing Groundwork

a. **Legal founding**: once the decision to found a particular hub has been reached, and after the local Impact Team has been recruited, an agreement must be sought with local authorities to establish the legal status of the Hub, role in the community, location, land rights, utilities contracts and other administrative tasks.

b. **Gathering the team**: the Impact Team should begin looking for the necessary qualified workers, volunteers to aid in the hub establishment efforts as well as prospective participants (their interest in joining should be an essential part of the Hub founding decision).

c. **Sticks in a bundle:** The Impact Team and volunteers/prospective members are thoroughly trained regarding the Hub's purpose, their upcoming challenges and may begin outlining the Hub's particular core values.

d. **Community**: the community should be approached in order to fully understand what the Hub is, what it hopes to achieve and the potential benefits the community may access. This is an ongoing process and needs continuous attention even after the Hub has been established.

II. Pulling resources together

e. **First Stone (situational):** while the previous steps are nearing completion the team must be prepared to the arrival of the containers. In certain circumstances a foundation may be needed and should be achievable with local materials.

f. **Best use of what's available:** the local Impact Team should have already begun to source local materials (wood, metal, plastic etc.) and seek donations of various materials to minimize costs at this point. We recommend that all Hubs be allotted a specific budget to acquire various items to equip the modules. The items may be part of a preexisting Promise Hub contract with a partner but the items may be bought (or even obtained as part of a donation) locally in order to free up funds for additional equipment. It is an opportunity for the hubs to practice resource allocation.

g. **Unloading:** when the containers and whatever other support material has been allotted arrive, the Impact Team should have organized either a crane (ideally), or a back hoe in order to unload the containers from the trucks, and place them on whatever lot of land has been agreed upon.

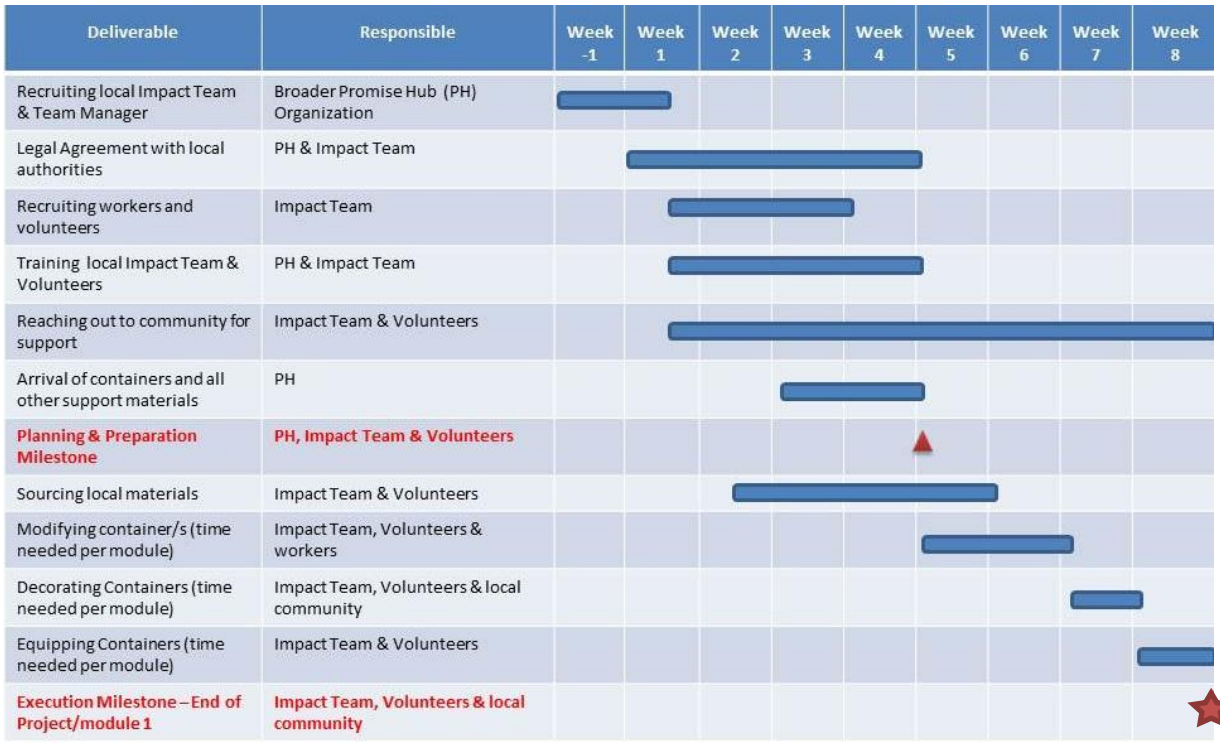
h. **Pre-insulation (situational):** in cold climate hubs, the modules need a layer of Polyurethane insulation on the underside of the modules and it may be best to do this while they are being unloaded.

III. Modding the module(s)

i. Cut and stick: Now that the containers have arrived, the team must shape them into modules. Window holes will need to be cut, electricity access slots created, the roof must be removed (situational, in warm climate hubs), and all other materials sourced must be prepared for the next step. The various structural modifications: roof ventilation (where necessary), window rail, compost toilet add-on can now begin.

j. Insulation and furnishings: certain aspects of this step may be begun before the previous one will have finished should the human and physical resources permit it. Electricity and internet should be extended to the module(s) and it should then be insulated with whatever material is needed (clay would be sufficient for warm climate hubs, but not for cold ones). The floor, furniture and seating can be begun and be performed almost entirely by the volunteers, whereas in previous activities they needed close supervision in order to help.

k. Fine touches: The esthetics of the module can now be tackled; volunteers and community members are invited to help decorate the inside and outside of the module with patterns inspired from local tradition. And finally, all of the module specific equipment is moved in and installed and all that's left to do is to officially launch the Hub by inviting the prospective members to create the first piece of the Hub Totem! (Please see Community space module in the *Module-specific equipment* table for further details).



Materials

Standard Module Modification Package			
Item	**Item argumentation**	**Required for**	**Estimated Cost**
Circular Saw + spare disks	Required for the various container modification/ may be owned by a hired qualified worker	Virtually all modifications	$100 (training required) / $80/module - hired worker
MIG Welder	Required for the various container modification, relatively easy to learn to use/ may be owned by a hired qualified worker	Virtually all modifications	$1000 (training required) / $180/module - hired worker
Welding safety gear	welding helmets, welding gloves, solid boots/ may be owned by qualified	Virtually all modifications	$70
Back Hoe	As cranes are much more expensive to rent ($750/day and hard to come by in developing countries), a back hoe may be hired to unload the containers off the trucks. One day sufficient to unload all	Virtually all hubs	$200
Safety gear	crash helmets, work gloves, boots, safety glasses	Virtually all modifications	$150/ may be sought as donation
Basic tools	5 razor knives, metal vice, pliers, hammer, drill, screws, nuts, bolts,	Furniture	$250/ may be sought as donation or

	saw, sandpaper, pencils, ruler, woodworking square, 3 shovels		locally sourced
Custom insulated windows	Necessary for both warm & cold climate hubs – as window size is standardized (6 identical/module) a significant discount or donation may be sought from supplier for multiple worldwide modules	Insulation	$30/ may be sought as donation
Metal for roof superstructure	Necessary for warm climate hubs	Roof ventilation modification	Can be sourced locally
Sheet metal for roof	Necessary for warm climate hubs	Roof ventilation modification	Can be sourced locally
Polyurethane spray foam insulation kit	Necessary for cold climate hubs	Insulation	$200/ may be sought as donation
Halogen Electric Heater	Necessary for cold climate hubs	Insulation	$50 + $15/month during cold seasons
Clay	Necessary for both warm & cold climate hubs	Insulation	Can be sourced locally
Metal for window rail	Necessary for both warm & cold climate hubs	Slide-down windows	Can be sourced locally
Metal/wood for furniture & floor	Almost all modules will require seating, a workstation, floor and storage space with small variations between them	Module Features	Can be sourced locally
Empty soda bottles, tape, cardboard	Required for chairs/ottomans used in the module	Module Features	Can be sourced locally
Access to electricity	Necessary for access to electricity: Power sockets, electric cable extension to modules, extension cords	Access to electricity	$15/ may be sought as donation + $15/month subscription
Electrician	Needed to install electric outlets	Access to electricity	$15/module
Internet connection & router	Necessary for access to the internet	Module Features	$30 + $15/month subscription
Design pattern paints & Brushes	Various paints to be applied on outside an inside of container to create patters inspired from local culture	Design	$80/ may be sought as donation or locally sourced
Whiteboard	large (100cm/200cm), whiteboard required for various group activities, and visualization of tasks	Module Features	$200/ may be sought as donation
Basic class supplies	Required for various activities: markers, paper, pens etc.	Module Features	$10/ may be sought as donation

Module specific equipment

	Role of Module	Item	Item argumentation	Estimated Cost Item	Estimated Cost module
Developer	As the fundamental module for the purpose of the Promise Hub, the Developer Module, in our opinion should be the most important one.	Standard Module Modification Package	All necessary features, materials, modification costs, and 12 months' cover of recurrent costs (i.e. electricity, internet)	$1670 – warm hubs $2100 – cold hubs	$3370-$3800
		HD Projector	Not a high priority, but useful for instructional videos, to discuss common or separate software initiatives as well as certain Agile practices	$100	
		Medium-range Laptop/ Desktop	This module requires 4: 3 for the participant groups and 1 for the session leader/teacher	$1600 (400 x 4)	
Organizer	A module dedicated to management & organization will be necessary in order to develop the Promise Hub beyond whatever initial support it will have received	Standard Module Modification Package	All necessary features, materials, modification costs, and 12 months' cover of recurrent costs (i.e. electricity, internet)	$1670 – warm hubs $2100 – cold hubs	$2258-$3488
		Additional storage space	(Promise Hub international documentation, Hub specific documents (regarding mission, organization specifics, role within community, land rights, accounting records, membership documentation, contracts, awards etc.)	locally sourced	
		Medium-range Laptop/ Desktop	This module requires 1-3; 1 Required to keep track of hub activities as well as external communication; 1-2 for junior members assisting in coordinating events	$400-$1200	
		Multifunctional laser printer	Needed in order to print, scan & copy various hub-relevant documents & materials.	$188	
Maker	As this module is meant to be a place where ideas and creativity take physical shape it is essential to equip it properly. Specific equipment is heavily dependent on the profile and interests of the hub members, multiple options available – but they are not mutually exclusive	Standard Module Modification Package*	All necessary features, materials, modification costs, and 12 months' cover of recurrent costs (i.e. electricity, internet). In this specific module the table/workstation might better serve its purpose as separate workstations	$1670 – warm hubs $2100 – cold hubs	$3520-$3950
		Lego Mindstorms for Schools edition	Great for a large number of young individuals within the local community who may be interested in programming and/or robotics. The suggested edition includes 48 tutorials to walk the learner through the basics of coding to more sophisticated and complex concepts such as data logging. The Mindstorms official website also has a range of inspiration and challenges. This particular resource is ideal for initiating younger members into the hub, as well as for community oriented workshops in order to aid in the hub's outreach.	$339.95 X 2/ may be sought as donation (the LEGO Group may be very interested in the Promise Hub concept)	
		Old/ discarded electric appliances, mech parts, metal, wooden and plastic sheets and scrap	In order to create prototypes from scratch. Many may be sourced locally and in order to obtain usable electronic equipment either donations may be sought from large IT companies, or from those companies that already attempt to recycle them.	locally sourced	

		Welding equipment & hardware tools	In order to create larger or very specific tools/ pieces of furniture/ creations that may serve a certain role for the hub or community	$1170	
Grower	Tech employed in agriculture has come a long way and is unlikely to slow down. While Hubs may specialize to the extent that they may experiment with various genetically modified seeds it seems unlikely that it one module would be reasonably able to provide the ideal conditions for such a laboratory with a small budget. However, this hub may be an excellent place to organize innovative approaches in agriculture within the broader community.	Standard Module Modification Package	All necessary features, materials, modification costs, and 12 months' cover of recurrent costs	$1670 – warm hubs $2100 – cold hubs	$1670-$2100
		Local maps	May be locally developed/adapted and presented in order to aid local farmers	locally sourced	
		material on modern agriculture techniques & farming tools	Tools and techniques that can be adapted to local needs may be researched, discussed and even created here and the hub may be able to ensure community buy-in as well as support for its other activities. This module's team in this format will do most of its work outside and can use the module itself for coordinating its specific initiatives. May be locally developed/adapted and presented in order to aid local farmers	locally sourced	
Creator	This module will nurture the creative spirit of the hub members and as such should be very attuned to its specific hub. Again a multitude of options exist, many of which can make great strides in involving and ensuring the buy-in of the local community	Standard Module Modification Package	All necessary features, materials, modification costs, and 12 months' cover of recurrent costs	$1670 – warm hubs $2100 – cold hubs	$3740-$4170
		Materials for local traditional art projects	Whether they be weaving, painting, sculpting it may be a good place to exercise traditional artisan crafts and how they may be optimized/improved by technology	locally sourced	
		Local recycling-oriented art projects	Here skills used even in the hub's founding may be leveraged to create useful items.	locally sourced	
		Media material: Speakers, Filmmaking equipment HD Projector, higher tier PC/Laptop capable of editing as well as specific software,	This is where various members may watch films, documentaries or where they can even create and edit short/full-length films, documentaries or promotional material for the hub. Although this is the most expensive option and would require passionate members, it can do wonders for the hub's recognition and image.	$40 – mid-range speakers $100– Projector $800 – Computer $400 – Film editing Software $730- Film gear	
Community space	As a place for the hub members, prospective ones, and perhaps even members of the broader community to come together it should be ideal for debates, discussing ideas and projects and remembering past achievements.	Standard Module Modification Package*	All necessary features, materials, modification costs, and 12 months' cover of recurrent costs. *In this module's case certain items may be omitted (whiteboard, internet, class supplies)	$1345 – warm climate hubs $1775 – cold climate hubs	$1465-$1895
		Recreational supplies	Board games, Activity kits etc.	$120	
		Comfortable seating	Bean bag style seating from recycled material	locally sourced	
		Hub Totem	Something that would truly aid in developing a sense of community within the hub would be developing a sort of handmade totem illustrating the various significant milestones the hub had undergone (something small made with materials of the respective event: the hub's foundation, a certain local project successfully finalized, an award with written descriptions of which members were involved), if one event were one piece, the next event would be connected either with glue or nails or whatever would seem appropriate to the members. It would be a physical representation of the hub's activity and something to remind its members that they are a link in chain which has had achievements and can rely on their fellow members to achieve their goals as well as the hub's goals.	locally sourced	
Spirit	This module would focus on the personal development and mental strength of the hub members and as such should focus on the individual. It may be a place to meditate (either individually or as a group), to have team building exercises, or to coach others in the spirit of the Promise Hub.	Standard Module Modification Package*	All necessary features, materials, modification costs, and 12 months' cover of recurrent costs. *certain items may be omitted (the whiteboard, internet connection, class supplies, table)	$1345 – warm climate hubs $1775 – cold climate hubs	$1774-$3244
		Meditation room	In case the hub opts to transform this module into a meditation room they would require mats, incense and ambiental music	$180 – 10 mats $11 – incense sticks $40 – mid-range speakers	
		Coaching/ General teambuilding space	A variety of materials is available: a, b, c – to name a few. Although most of these and other types of training require a strong familiarity with the tools and format. Some members of the hubs may be interested in such tools and developing others as effective teamwork is essential in a range of IT fields.	$198 – a $250 – b $789.99 - c	
Healer	As the module that aims to focus on health and wellbeing this hub may opt for either strength and stamina training or a number of martial art forms that may be practiced in a small space. Such as a module and would aid the members in becoming adaptable as well as healthy	Standard Module Modification Package*	All necessary features, materials, modification costs, and 12 months' cover of recurrent costs. *certain items may be omitted (the whiteboard, internet connection, class supplies, table and chairs)	$1345 – warm climate hubs $1775 – cold climate hubs	$1936-$3671
		Strength and stamina training: Treadmill, Multi-purpose bench	These however, have a slim chance of being sourced cheaply	$487 – treadmill $104 - multi-purpose bench	
		Martial arts studio: mats, protection kit, punching bag	Kickboxing, Krav Maga, Hapkido, Wing Chun can be practiced in confined spaces. However they would require an experienced member to train the others.	$1335- 5 Gym mats $550 – 10 prot. kits $11 – punching bag	