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Martin Seneviratne – Cottage Industry 2.0:
Grassroots technology as a solution for youth unemployment

COTTAGE INDUSTRY 2.0: GRASSROOTS TECHNOLOGY AS A SOLUTION FOR YOUTH UNEMPLOYMENT

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Geeks and Growers

There is a beautiful little farmers market in Palo Alto, not far from Silicon Valley, where every fortnight local growers and craftsmen come to sell their wares – organic honey, specialty cheeses, hand-knitted shirts. The market is a rare blending of two very different worlds. The customers are a young crowd from a world of software entrepreneurs and tech engineers – the ambitious ‘innovation elite’ of the Valley who work in futuristic offices on globally-marketed gadgetry. The sellers are an older generation, from a world of small-scale family businesses making home-made products for the local community. However in this rare interaction may lie the key to overcoming one of the biggest inter-generational clashes of our era – youth unemployment.

The Jobless Generation

As the young tech doyens of Silicon Valley cruise around on segues, 6000 miles away in Spain youth unemployment is at an all time high, rising to 57% in November 2013 [1]. Across the Eurozone, unemployment amongst 15-24 year olds has steadily risen over the last 5 years to 12.1% [2]. The rate in my home country of Australia is 17.1%, though it rises to 40% in the regions of greatest socioeconomic disadvantage [3, 4]. Figures from the International Labour Organisation (ILO) reveal that 75 million youth remain unemployed worldwide in 2013 [5]. The most acute problems are in the developing world, with the World Bank estimating that 260 million young people in developing economies can be classified as “NEETs” – not in employment, education or training [6].

There is a growing recognition from both ends of the generational spectrum that youth unemployment is a key issue for the coming decade. Martin Schultz, president of the European Parliament, declared in December 2013 that “the fight against youth unemployment is the first priority” [7]. Meanwhile, young delegates at last year’s One Young World Summit in Johannesburg named youth unemployment as an urgent global issue [8].

This is because our current situation, where some 25% of the world’s youth is not in gainful employment, is patently unsustainable. The direct productivity cost of youth unemployment in Europe in 2011 was US\$153 billion [6]. Then there is the destabilizing effect on the workforce

pool, with stagnation in the employee pipeline and loss of workforce capital. James Howat from Capital Economics Research writes, “Countries and their employers are losing human capital and will have to spend money to reintegrate those who are unemployed now in the long-term.” [1]

As a corollary of these economic problems are various, arguably more sinister, social issues. Dutch psychologist Wilmar Schaufeli showed in a prospective study of 750 high-school leavers that unemployment was associated with poorer mental health outcomes [9]. The ILO, in a 2013 report entitled “*Repairing the Economic and Social Fabric*”, stresses the contribution of youth unemployment towards social unrest in the form of increased crime, public dissidence and political instability [10].

In short, society has an urgent mandate to combat this issue of youth inactivity. What are the potential strategies?

Proposed Solutions

In 2013 the ILO outlined a three-pronged strategy for tackling youth unemployment [10]:

- (i) Improved vocational training and support for high-quality apprenticeships, based on the model in Germany and the Nordic countries (where youth unemployment is the lowest in Europe at around 5% [2]).
- (ii) Employment assistance services to facilitate the transition back into work or between jobs.
- (iii) Creation of new jobs by building a culture of entrepreneurship within

training programs.

Some excellent recent progress has been made, especially with respect to the first two strategies. The “Erasmus +” and “Your first EURES Job” programs aim to facilitate international training within the Eurozone to enhance cross-border employment opportunities [11]. July 2013 saw the launch of the European Alliance for Apprenticeships and a pledge of €6 billion towards the Youth Employment Initiative to directly fund work placements as a starting platform for struggling youth [11]. Individual companies are also contributing – Nestle, for example, launched the pan-European “Nestle needs YOUTH” program which aims to provide 20,000 new employment opportunities [12].

However there have been very few initiatives that directly tackle the ILO’s third major goal – enhancing entrepreneurship. In order to achieve the broad paradigm shift required to truly overcome youth unemployment, creation of new industries born of innovation and entrepreneurship is crucial.

A beacon of youth

The paragon of an entrepreneurship-driven community is Silicon Valley. The Valley has evaded the youth unemployment crisis as a result of two factors: high economic growth, and a culture that explicitly champions youth. Unlike most traditional industries, the managerial elite of Silicon Valley is extremely young – the CEOs of Facebook, Dropbox, Reddit and GitHub are all under 30 [13]. The median employee age at Google is 29 (compared to a national US average of 42.3 years) [14], and there is even an increasing number of founders aged under 20 [15].

In a recent address at Stanford to the startup teams of Y-Combinator (arguably the world’s preeminent startup accelerator program), Facebook CEO Mark Zuckerberg said: “Young people are just smarter. Why are most chess masters under 30? I don’t know. Young people just have simpler lives. We may not own a car. We may not have family. Simplicity in life allows you to focus on what’s important.” [16] Provocative statements like this have led some to criticize Silicon Valley for its reverse age-ism – discrimination towards middle-aged employees [17, 18].

For all of the criticisms of ‘youth worship’ in Silicon Valley, there is no denying its success in empowering youth and leveraging their creativity for economic growth. The problem is that this culture is so unique to the Valley – an economically powerful, but geographically insignificant tract of desert land south of San Francisco. Although thousands of entrepreneurs from around the world have migrated to Silicon Valley with great success, this is an unrealistic prospect for most young people as it requires a) significant resources and b) an idea with world-changing potential. In essence, the problem with Silicon Valley is that although its technologies are designed around global scalability principles, the unique Valley culture has not been scalable so far.

Democratizing Innovation

Perhaps the key to making the Silicon Valley experience more accessible is to replicate the youthful, entrepreneurial ethos of Silicon Valley on a grassroots scale.

This is where the Palo Alto farmers market fits in. What if tech startups were like the local producers at the

market – run by the community, for the community? Imagine that in addition to the local butcher, tailor or farmer, there were also local designers of technology – of smartphones, digital cameras, keyboards, headphones, apps, each tailored for the community in which they were designed. And imagine if that local technology were preferred to external imported goods, just as the local food movement has shifted culture towards locally-sourced produce [19].

The reason the technology industry has never previously been ‘localized’ in this way is due to the specialized skills and equipment required. However this stands to change as a result of two emerging trends.

The first is the democratization of manufacturing through 3-dimensional printing. 3D printers allow objects designed on a computer to be printed by progressive addition of two-dimensional slices of plastic, resin, nylon, and now even metal [20]. A number of printers have become commercially available for under US\$2000, such as the Cube™ and Fab@Home™ [21]. 3D printing is making basic manufacturing accessible to the public, and with technical improvements may soon allow for professional-grade manufacturing in the household. Importantly, there is a strong open-source culture that goes with it. In the words of Erik de Bruijn, an early adopter of 3D printing: “If you don’t want to create your own design, you can download one of 11,000 online. There is a massive sharing culture with 3D printing, which is forming the building blocks for a new age of design.” [22] Information sharing and accessible design platforms are key ingredients for localizing innovation.

The second important trend is the democratization of skills. Platforms such as Stanford’s Coursera, MITx and iTunesUniversity™ have made available to the public high-quality educational materials about the cornerstones of innovation – programming, design and business [23]. Meanwhile, user-friendly programming environments like LiveCode have enabled entrepreneurs to turn their idea into a reality without any formal training in software development [24].

Together, increasingly accessible manufacturing and innovation skills could allow the localization of tech startup culture and the creation of technology micro-economies, initially at a city-level but perhaps eventually at a suburban scale. These micro-economies would be driven by local youth, based around ideas and products tailored for the local community, which would not have to satisfy the scalability requirements of Silicon Valley venture capitalists. In short, cottage industry for technology – cottage industry 2.0.

Potential Benefits

There are four major benefits of a cottage technology industry:

- (i) *Employment opportunities*: The creation of youth-driven local industry carries the potential to employ and empower millions of youth around the world and help combat the crisis of youth unemployment in a more proactive way than government financial assistance schemes.
- (ii) *Tailored technology*: The potential to develop technological solutions that cater to a unique community problem. For example, Indian

entrepreneurs recently developed the bus-ticketing software redBus which is tailored to the unpredictability, passenger volume and timetabling of local buses in Andhra Pradesh [25].

- (iii) *Community integration*: Tech startups would exist alongside traditional community businesses like butchers, tailors or agriculturalists, encouraging cross-generational dialogue and community cohesion.
- (iv) *Economic benefits*: Local industry not only reduces transportation costs but feeds into a collaborative consumption ideology. Goods are more likely to be recycled and reused, since they can be repaired locally and there is a greater sense of community ownership [22].

Potential Risks

This technology democratization model is not without its own limitations. Consider the following six principal concerns:

- (i) *Innovation silo-ing*: Would the fragmentation of the technology industry into local cottage marketplaces reduce the opportunities for centralised collaboration and risk unnecessary duplication of labour?
- (ii) *Lack of regulatory oversight*: Will local industries be subject to the same regulatory approvals as current large technology manufacturers? How can quality and consumer confidence be maintained?

- (iii) *Funding*: This model would require significant local startup funding, and perhaps communal infrastructure such as shared computing and 3D printing services. Will governments be willing to invest accordingly?
- (iv) *Corporate competition*: How will local technologists compete against corporate giants like Apple and Samsung? Would the community favour local over imported products, potentially at the expense of quality and functionality, in the interests of nurturing local innovation?
- (v) *Youth autonomy*: Running a successful startup requires dedication, vision and business acumen – can we expect this in a generation that has been repeatedly denied entry-level work?
- (vi) *Economic inefficiency*: Small-scale manufacturing is less cost-efficient in terms of labour and materials. Given that one of the core drivers of youth unemployment is limited economic growth, is it wise to encourage less efficient manufacturing practices?

Conclusions

The idea of a cottage technology industry is a bold vision that carries significant theoretical appeal, but comes with a raft of practical challenges. It is not viable as a complete substitute for the high-end centralised tech industry based out of Silicon Valley and other international hubs; however it could be a valuable add-on model that coexists with the current technology landscape to foster local innovation and thereby improve youth employment prospects.

In order to achieve this, a delicate balance of cross-generational collaboration is required. The community must vote with their wallets and purchase locally-sourced technology. Experienced entrepreneurs must resist the temptation to move to the Valley and help build innovation communities at home. Large technology corporations must discontinue the current culture of eliminating or acquiring emerging grassroots technology, but rather help foster small players through skill-sharing and mentorship, perhaps in return for partial equity. Governments must ensure appropriate funding and regulatory infrastructure for small local companies to launch smoothly. And educators must re-envision school curricula towards entrepreneurialism and product development.

Perhaps most importantly, both the young generation and that of their parents must together become comfortable with the idea that in the present employment landscape, the most valuable currency is creativity. Young people will increasingly need to create their own jobs through innovation rather than following traditional career pathways. And older generations will need to support them. This is an inter-generational conversation that must play out both at the dinner table and at the highest echelons of government debate.

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