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Disruptive Innovations at the Bottom of Pyramid: A Future Alert or False Alarm?

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Abstract: In many cases, innovations that end up becoming disruptive usually begin as lower performing variants to an existing innovation. The early age of these disruptive innovations are usually characterized by being cheap, inferior and unsuitable for mainstream customers. Similarly, the bottom of the pyramid (BOP) is generally associated with similar attributes of being cheap, inferior and non-mainstream. This parallel between both concepts logically leads to questions like – how important is it to pay attention to possible disruptive innovations occurring at/from the BOP? Consequently, should this be considered a future alert or is it a false alarm? Using an agent based modelling simulation approach, this paper examines the different possibilities that could occur using six illustrative scenarios. Furthermore, with the aid of an ensuing model, the study advances four different quadrants from which firms can position their organisation with respect to their chosen innovation strategy and market focus.

Keywords: Disruptive Innovation; Bottom of Pyramid; BOP; ABM; Agent Based Modelling; Future Alert; Model, Innovation Strategy

1 Introduction

Innovations can and have occurred from unlikely places (Baiyere 2013). The associated element of surprise that accompanies seemingly simple innovations that mature to become disruptive innovations (DI) have left many practitioners and researchers astounded by the impact generated by such innovations. It has however been observed that many of such innovations eventually grow to be disruptive because they were ignored and deemed of inferior attributes or considered to serve non-mainstream or non-high-value customers (Christensen 1997). On a similar note the bottom of the pyramid (BOP) which constitutes the lower echelon of the global population by income, has often been characterized with attributes such as being cheap, preferring inferior products and as low-value customers. (Prahalad & Hart 2002, Prahalad & Lieberthal 1998). Following sound and valid economic and financial logic, this is a group that often hardly registers as potential customers worthy to dedicate organizational resources to or to give detailed attention to (Prahalad & Hammond 2002).

The observable fit between the definition of DIs that characterizes many such examples and the attributes ascribed to the BOP, propels logical questions like - What are the implications of disruptive innovation occurring from the BOP? This identified fit between attributes of the BOP and DI characteristics is indicative that there exists a potential vulnerability that innovations with disruptive potential occurring from the BOP may not be detected or responded to in time before maturing into a disruptive threat. And as is typical of disruptive innovations, this occurrence may hold plausible catastrophic consequence for firms who find themselves in the responders' quadrant Markides (2006).

Current Understanding

Academic research and prior literature on the concept of DI (Christensen & Overdorf 2000, Christensen 2006, Govindarajan and Kopalle 2006) and similarly for the BOP concept (Prahalad et al. 2002) are both well established. Despite the availability of prior research on these concepts, they have mostly been studied as disparate concepts. Therefore there is a dearth of studies attempting to examine the lessons from the relationship and similarities between DI and BOP characteristics (Hart and Christensen 2002). This indicates that there are issues still open to be investigated to deepen our understanding of the interplay between both concepts. With this paper, we aim to build on the DI and BOP discussion (Baiyere 2013) and extend knowledge in this area.

Research Questions

The goal of this paper is to understand the implications of the similarities in attributes between DIs and the BOP. More specifically, the study aims to investigate the implications of these fit and to highlight areas of potential vulnerability that today's leading organizations need to pay attention to. In achieving these objectives, some of the principal questions examined include:

- What are the implications of disruptive innovations emerging from the bottom of the pyramid?
- How could the occurrence of disruptive innovations at the bottom of the pyramid impact the position of todays' leading firms?

2 Methodology

The research design for this study is comprised of a two-step research process: a) a literature review of DIs and BOP from academic research and b) a simulation founded on the agent based modelling (ABM) principles.

As a starting point to the study, a literature review was carried out to identify and understand the definitions, attributes and characteristics of DIs and BOP that have been documented in prior research. The methodology adopted for this step in the paper follows a reflective adaptation of the guidelines outlined for conducting a literature review provided by Webster and Watson (2002) and Okoli and Schabram (2010). This study employed a selective analysis of relevant articles returned from two academic databases - Science Direct and EBSCO Host database. This process provided the framework under which innovation in existing literature has been considered as a DI and its attributes (Baiyere & Salmela 2013, Baiyere 2013). In the same light, the review also provided information about the conceptions around the BOP notion and the dominant thoughts associated with it. Additionally, this step provided theoretical grounding for the justification (Schmidt and Druehl 2008), model parameters and design decisions that were utilized in the development and implementation of the agent based model (ABM) simulation. Summarily, considering that this research aims to investigating the effects in two disparate domains, the need for an extensive literature review cannot be overstated.

Secondly, the choice to proceed with a model to simulate the probable implications of the occurrence was based on the consideration of the research questions. The ABM simulation presented in this paper is an extension of the simulation presented in Baiyere (2013 & 2011). The simulation research approach was adopted because the study examines the occurrence of a phenomenon in the future. With the use of existing known parameters and attributes of the concepts under study, we can through simulations identify possible implications and vulnerabilities worthy of attention. Although it can be hypothesized from literature that there exists certain implications should a DI occur at the BOP, the simulation research method is a valuable approach that demonstrates the validity of such propositions. Generally, Agent-based modeling is a modeling approach that enables the representation of characteristics and process, which normally cannot be completely achieved by mathematical or statistical methods (Andrade 2010). A key merit of ABM is that it permits representation in natural manner of - multiple scales of analysis, differences between emergences of phenomena at a macro level from individual activities and different forms of adaptation and learning (Gilbert, Bousquet & Le Page, 2004).

Simulation Design

To model the interactions and processes of DI and BOP, multi-agent systems were used to carry out a simulation. The concept of agents corresponds clearly with other modeling options because each discrete organization in the DIBOP scenery can be directly represented as an agent. Agents in this DIBOP (Disruptive Innovation and Bottom of the Pyramid) cases are chiefly the *incumbent* companies and the new *entrants*. Behaviors can typically be assigned to agents such that each acts in the expected way as the actual entity they are representing. The result of this is that when a number of agents are simulated as a group, new behaviors often appear that were never explicitly programmed into the agents; these interesting occurrences are known as *emergent phenomenon* (Lansdowne, 2006 and Macal & North 2006).

The DIBOP simulation in this research was designed using a simulation/modeling software - NetLogo (Wilensky, 1999). NetLogo is appropriate for complex systems that develop with time. Thousands of "agents" can be programmed with each operating independently. With this, it becomes possible to discover the link between the micro-level behaviour of each agent and the macro-level patterns arising from interaction of many agents. (Wilensky, 1999). In designing the simulation, the design structure was divided into five categories and explained in a stepwise manner. Figure 1 summarizes the analysis of the design categories.

Concept Design:

Agents: There are 3 agents in the simulation representing the three organization forms that characterizes the discussion of DIBOP. These are:

- the new entrants 
- the existing company/incumbent  and
- the disrupter

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The agents exhibit *transitional attributes* which involves new entrants developing till they survive and become an existing company as expected from the entrepreneurial survival theory (Holtz-Eakin et al. 1994, Jain and Kakani 2012). Such entrants may rather transit to a disrupter and then become an existing company. This builds on the theory of DI and Abernathy & Utterback (1978). A pictorial representation of this transition is as shown in Figure 2.

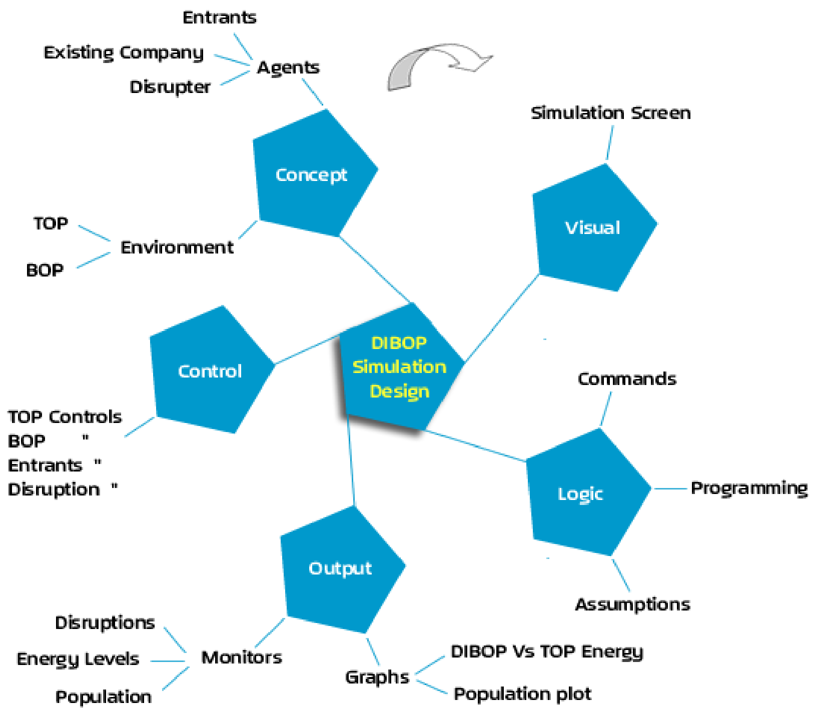


Figure 1 Components of DIBOP simulation design

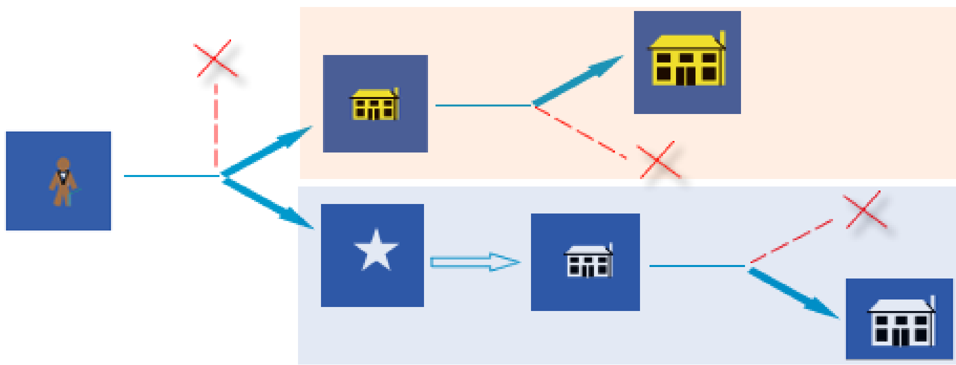


Figure 2 Possible agent transition paths

Generally, agents will grow or shrink until they cease to exist (Jain et al 2012). (indicates cease to exist.) It is worth noting that when an agent transits to another agent form, it inherits the attributes of that form. For clarity, the colour difference between the white colored organizations and the yellow ones shows the path taken by the company.

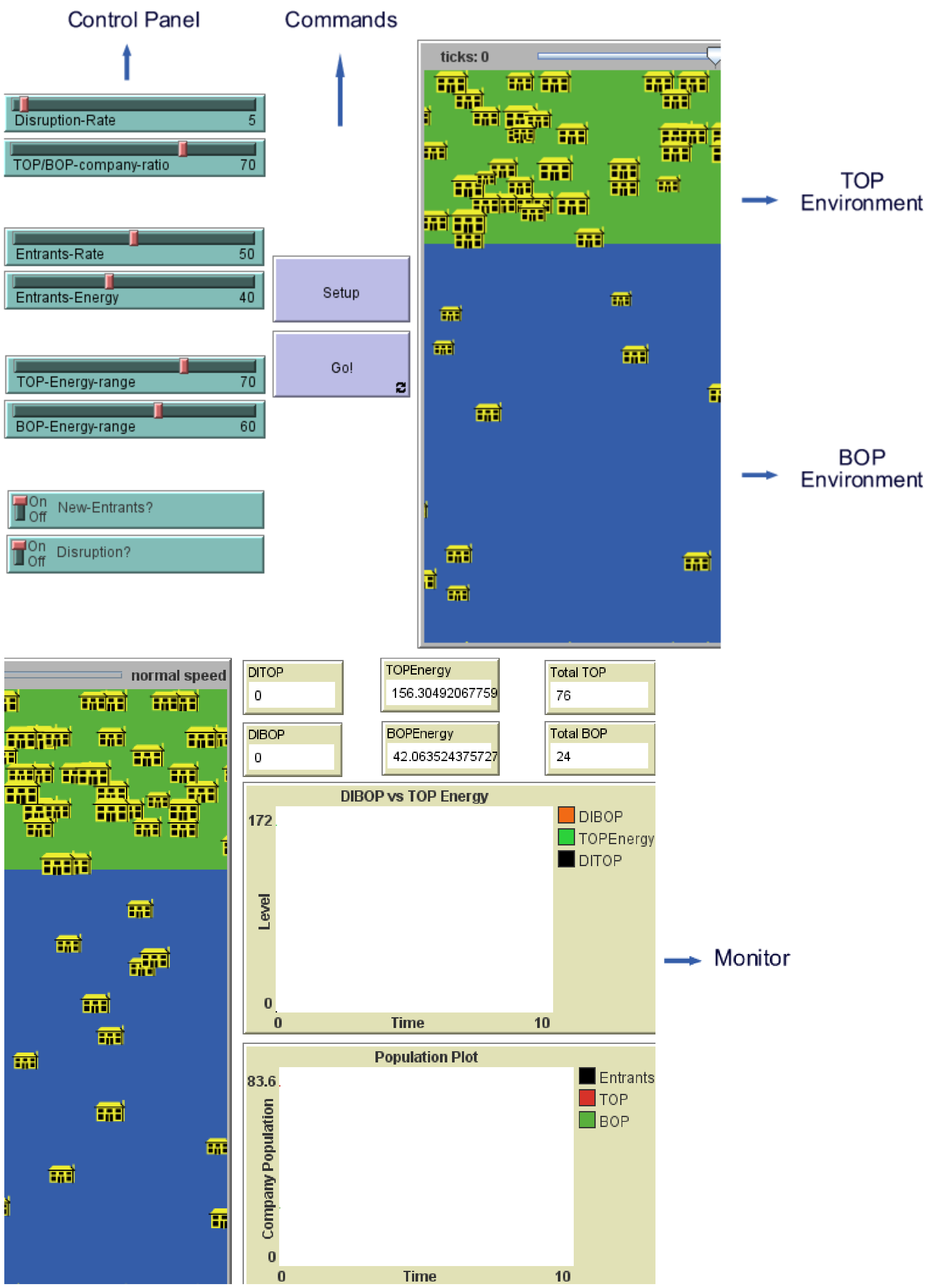


Figure 3(a,b) Interface elements and visual outlook of the DIBOP simulation

Environment: The TOP (Top of the Pyramid) region is green and the BOP is blue. BOP occupies about 65% of the environment in accordance with BOP literature (Prahalad and Hart 2002). The main difference however, is that there are more leading companies in the TOP with a stronger sustainability/energy level than BOP companies (See Figure 3).

Visual Design

Simulation Screen: Instantaneous display of what is going in the system can be visualized in the *environment*. The simulation is designed to respond visually to preset conditions/parameters and agents' interactions can be observed real-time. On the far left of the environment are the *controls* designed for the user to interact and control the simulation. From this panel, various scenarios can be executed using different parameters. Next to the controls is the commands panel which is designed for the simulation executions. The large area is the *environment* serving as the main visualization screen. Here the effect of parameter changes can be seen. Lastly, the *monitors'* panel shows a real-time output of the simulation run.

Logic Design

Commands: The simulation is run with the two command buttons on the simulation. The *"Setup"* button should precede the "*Go!"* button. *Setup* checks the parameters set for the simulation and presets the system waiting for the *Go!* to begin the run. The effect of the *setup* button can be immediately seen on the screen. *Setup* initiates the simulation and *Go!* actually runs the simulation.

Assumed Parameters: Simulations are generally built on parameters collected from prior research or established knowledge or from existing theories. The rational guiding the programming[1] is to closely represent the underlying assumptions based on relevant theories. In this study, some of the parameters adopted following the literature review are outlined below (Baiyere 2011).

- BOP Region > TOP region (BOP theory – Prahalad et al. 2002)
- TOP sustainability rate >BOP sustainability rate Sustainability represents energy in the model. (Entrepreneurial theory – Holtz-Eakin 1994, Jain et al 2012.)
- A difference in Energy level growth is represented to indicate the limitations of the BOP. This is such that regardless of the Energy level set for the BOP companies by the observer, being positioned on the BOP patch limits the rate of energy increase. (See Scenario 6 of the simulation run for a scenario without the BOP limitations)
- New entrants come from any region. (Entrepreneurship – Shane 2000)
- The number of big companies at TOP > at BOP (observation)
- New entrants survival rate < Existing companies survival rate. (Entrepreneurial Survival theory)
- Disruptive Innovations can occur at both BOP and TOP (Interviews - Baiyere 2013)

[1]The code listing of the simulation is available on request.

- Companies grow and/or shrink in size. (Theory of the firm – Jensen et al. 1976)
- New entrants and disrupters can grow to an existing company. (Abernathy & Utterback theory)

Output Design

Graphs: To facilitate visualization of the result of setup parameters on the system, two graph plots have been created. A visual indication of the relationship between DI at BOP and the sustainability level of companies in the TOP are plotted on the *DIBOP vs. TOP Energy Plot*. The second graph – *Population Plot* presents a graphical representation of the number of companies in the system. This shows how the system responds to changes over a long period of time. In contrast with the visualization screen that shows the interactions of the agent at a point in time, these plots provide the pattern/trends occurring over time in a graphical plot (Baiyere 2011).

Monitors: These provides output options for viewing real-time effects of the system. *DIBOP monitor* shows number of disruptive innovation occurrence in BOP at a point in time while *DITOP monitor* is for TOP. The *BOP Energy* and *TOP Energy* shows the energy level in BOP and TOP respectively. Lastly, the *Total TOP* and *Total BOP* displays the number of companies present at a point in time in each region.

Control Design

TOP & BOP controls: Generally, the controls enable users to test different hypothesis.
The *TOP/BOP ratio* affects both environments. It allows the user to set the company distribution in the simulation. Typically, there are more large companies expected in the TOP than the BOP, however this control makes it possible test the result if the reverse is the case. The system auto-scales the distribution based on the input provided and include a random TOP/BOP ratio of 70/30.

TOP Energy Range and *BOP Energy Range* gives the observer the opportunity to determine the maximum amount of energy a region can have. This affects the rate of growth of companies and the rate of shrink of companies on the affected region.

- *Entrants Rate* gives the system the rate at which new entrants are created. This does not however indicate that the entrants will survive, rather it just increase/reduces the number of new entrants occurring in the system.
- *Entrants Energy* on the other hand, affects the sustainability of the new entrants. It helps to control the rate at which new entrants survive their early years and transit to becoming either a regular existing company or a disrupter.
- *Entrants ON/OFF* is a switch that can be used to enable/disable the occurrence of new entrants in the system. This can be very useful in determining what happens in a system without entrepreneurs.
- *Disrupter ON/OFF* acts primarily like the *Entrants ON/OFF* but in this case it switches off disruption from the system. This can be also useful to see the effect of the presence or absence of disruption on the system.

- *Disruption Rate* informs the system as to what rate disruptions should occur on the system. Disruptive Innovation is usually not a frequent occurrence so this is normally set to a low value. However, increasing it to a high value can be useful in determining what happens whenever there is a huge occurrence of several disruptive innovations.

3 Results and Discussions

Six Simulation Scenarios

Six (6) simulation scenarios were created for the purpose of this research. All scenario had particular goals to investigate and tested certain hypothesis. About a 100 simulation[2] runs were carried out on each case. Observations over time are documented in each of the scenarios.

Scenario 1: Neutral/Control Environment

In this control simulation, a hypothetical scenario is setup with the *assumption* that there are **no new entrants** and **no disruptive innovation** occurs. The *initialization* parameters used for this setup and as a reference for other scenarios is shown in Figure 4.

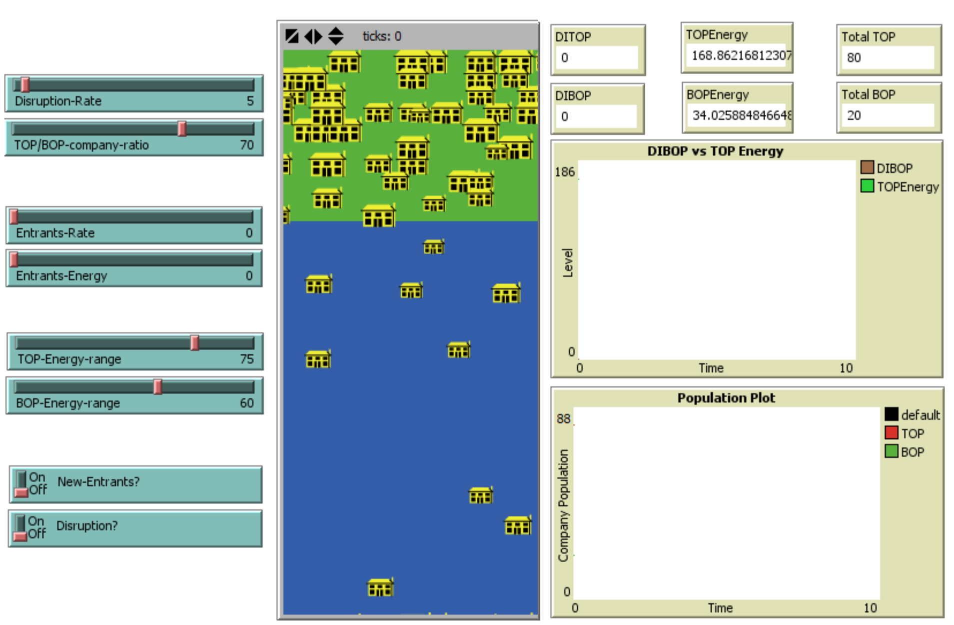


Figure 4 Control Scenario initialization parameters

The *aim* of this control scenario is to provide a reference for later scenarios. It also demonstrates the system performance in a neutral situation with every other thing being equal. This scenario will subsequently be referred to due to space limitations.

[2] each simulation run had a default tick of 500

With 50 simulation runs at 500 ticks, the *results* showed no increase in either population. While the population decrease at TOP ranges from 2% – 15% at all runs, there was almost always a decrease in the number of companies in BOP ranging from 48% - 93%. Also, TOP energy level was continuously on the increase without occasional wide swings/variation between runs. On the visualization screen, it was also observed that the TOP companies grew so big that they almost always covered the BOP region.

In addition, it can be observed that most of the decrease in population occurs at the beginning of the run. This can be explained that - *at the early stage companies do not always have enough energy for sustenance and survival.* Conversely, it was observed that companies that survive this stage, grow significantly such that regardless of the occasional decrease in size, they still have sufficient energy to recover. Figure 5 illustrates the overwhelming size the companies in this scenario can grow to.

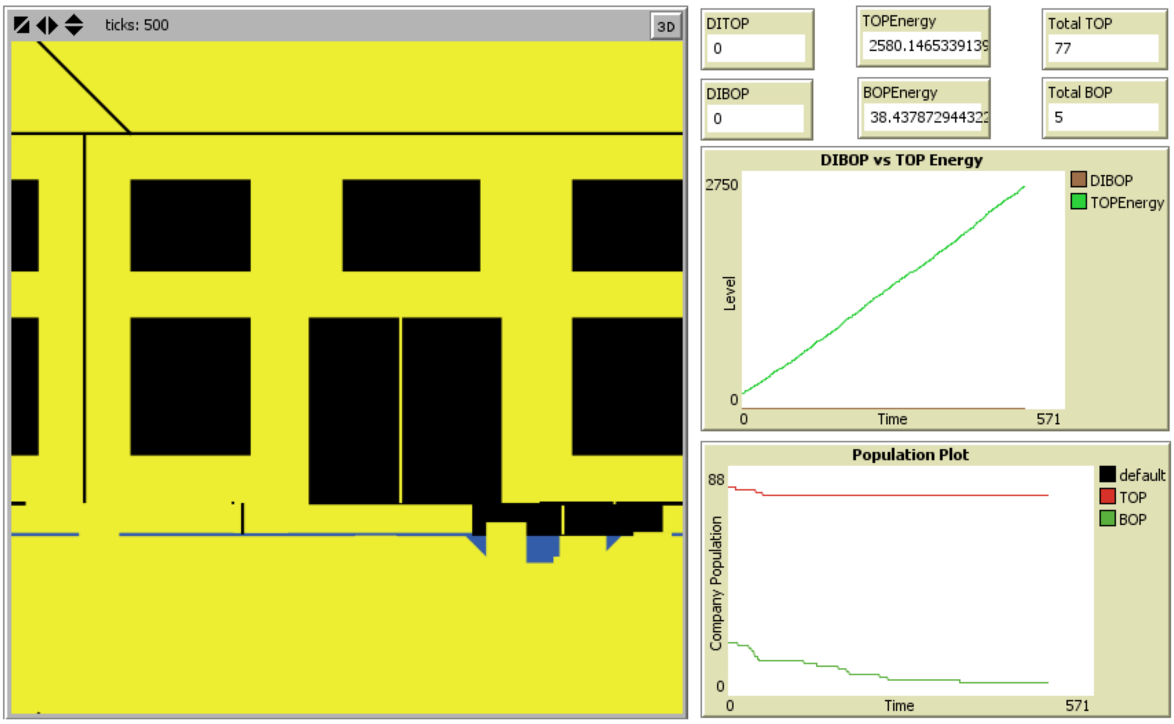
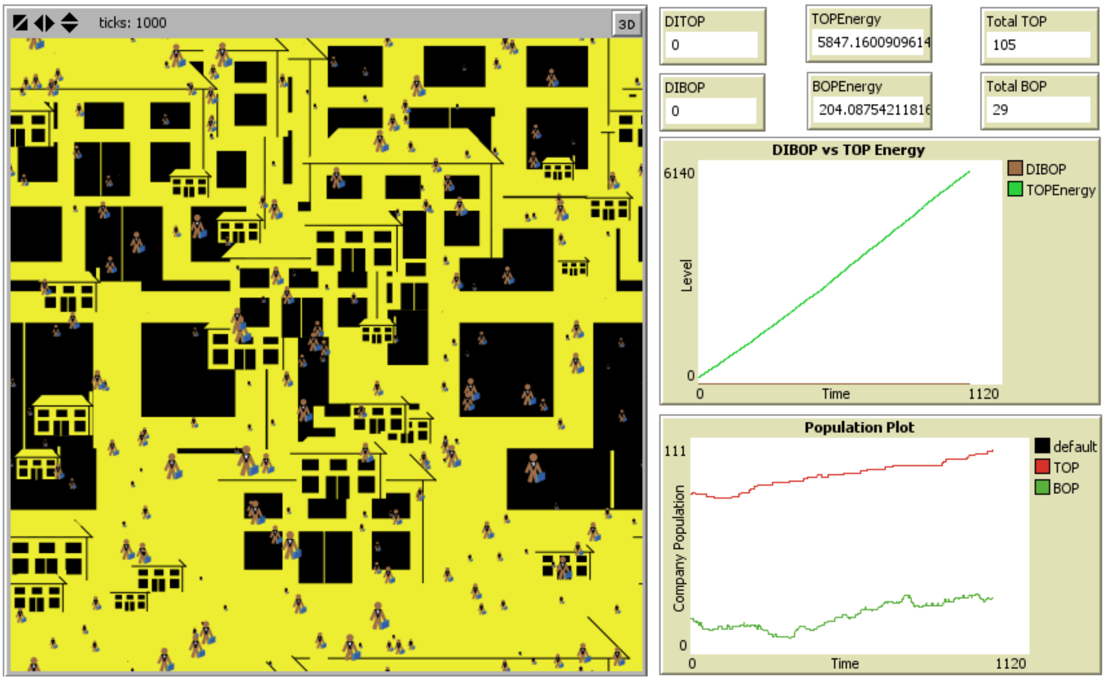


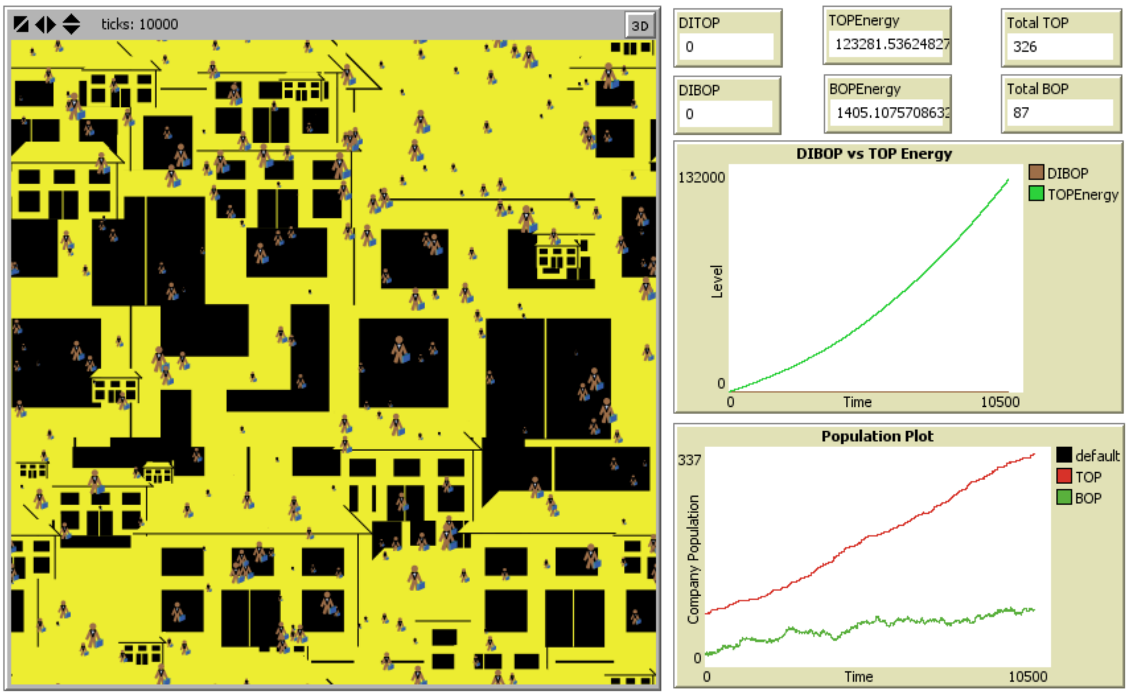
Figure 5 Control Environment Simulation Output.

Scenario 2: Simulating with New Entrants

The underlying *assumption* for this scenario is - **new entrants come in** but **no disruption occurs**. The *initialization* for this scenario changes from the control scenario in that the “New Entrants” switch is now ON (Figure 6). and Entrants-Rate is set to 60%. This considers that entrepreneurs spring up randomly plus the huge number of SMEs globally. The Entrants-Energy, which shows the survivability of new entrants, is set to 32 based on the entrepreneurial survivability theory. This is reflective of new entrants having lesser survival rate in comparison to incumbents. In this case the Entrants-Energy is set to be lesser than the BOP-Energy range.



(a) Simulating at 1,000 ticks



(b) Simulating at 10,000 ticks

Figure 6 New Entrants Scenario with 1000 and 10,000 ticks.

This scenario *aims* to examine the difference with new entrants introduced. Adopting same procedure as the scenario 1, a change was made to the number of ticks from 500 to 1000 and then to 10,000 and a significant difference was observed (Figure 6).

The *resulting output* of the simulations with 500 ticks indicated an inclined increase in the number of TOP companies with momentary periods of decline. BOP companies were mostly ending up with about same number of companies (about ±15%) though the change in population was not significantly wide.

With 1000 ticks, an increase in the population of the BOP companies was observed. An explanation is that the first 500 ticks characterized the struggle to survive period for new entrants. Proceeding to10,000 ticks of a few runs, a significant increase in the BOP population was observed. It was also noticed that the growth path at the BOP is chaotic with series of ups and downs as shown on the population plot in Figure 6. This reveals that though a lot of companies are starting up, a lot are also ceasing to exist in this region.

It is noteworthy that with the 10,000 ticks trial runs, there is a consistently wide gap between the population of TOP companies and the BOP companies. Also, the energy profile of the TOP companies stopped following a linear path but displayed an upward curved graph. This is indicative of the *scale of potential energy growth of TOP companies in the absence of disruptions*.

Scenario 3: Simulating with Disrupters

In this scenario, disrupters are part of the system. The *initialization* here involves switching the "Disruption" switch to on and setting the disruption rate to 5. The disruption rate is set low following the *assumption* based on historical data that disruptive innovations do not occur frequently.

This scenario *aims* to examine the effect of disruption on the system when new entrants have the possibility to transform into disrupters due to the occurrence of DI. A *procedure* similar to scenario 2 was adopted with the ticks set to 1000.

Th*e results* from the 1000 ticks, shows that the introduction of disruptions stifles the growth of the BOP companies. The BOP population constantly revolved round a point with a continuous string of ups and downs. On the other hand, the population of the TOP was on an increase but equally filled with series of ups and down sessions too. In some runs the drops and rise point where very sharp which implies a period where there are lots of disruptions occurring at the same time. Also, the energy plot for the first time now shows a wavy pattern as opposed to the smooth line plots in the previous scenarios (Figure 7). Introduction of disruptions would explain this. To fully understand the effect of DIBOP and DITOP on the energy level, the simulation was run at a slow pace.

Noticeably, there are more DIs at the BOP. This could be related to literature which shows that DI can occur anywhere. Coupling this with the fact that BOP is characterized by a wider geographical area and more people (without considering todays current constraints to BOP innovations), this can be the expected result. *Despite this potential, DI occurring at the BOP will likely remain lesser until the barriers to BOP innovations (education, infrastructure and enabling system) are removed.* An indication of the BOP potential is more evident in Scenario 6 which represents the simulation where the innovation barriers have been removed or BOP is assumed to be on equal level as TOP.

The energy plot revealed a change in direction of the chart with a sharp change in the position of either the DIBOP/DITOP values. For example, when the DIBOP/DITOP shoots up, a downward tilt will be noticed in the flow of the energy plot. Also, whenever both the DIBOP & DITOP plots are both low the energy plot indicates an upward spike).

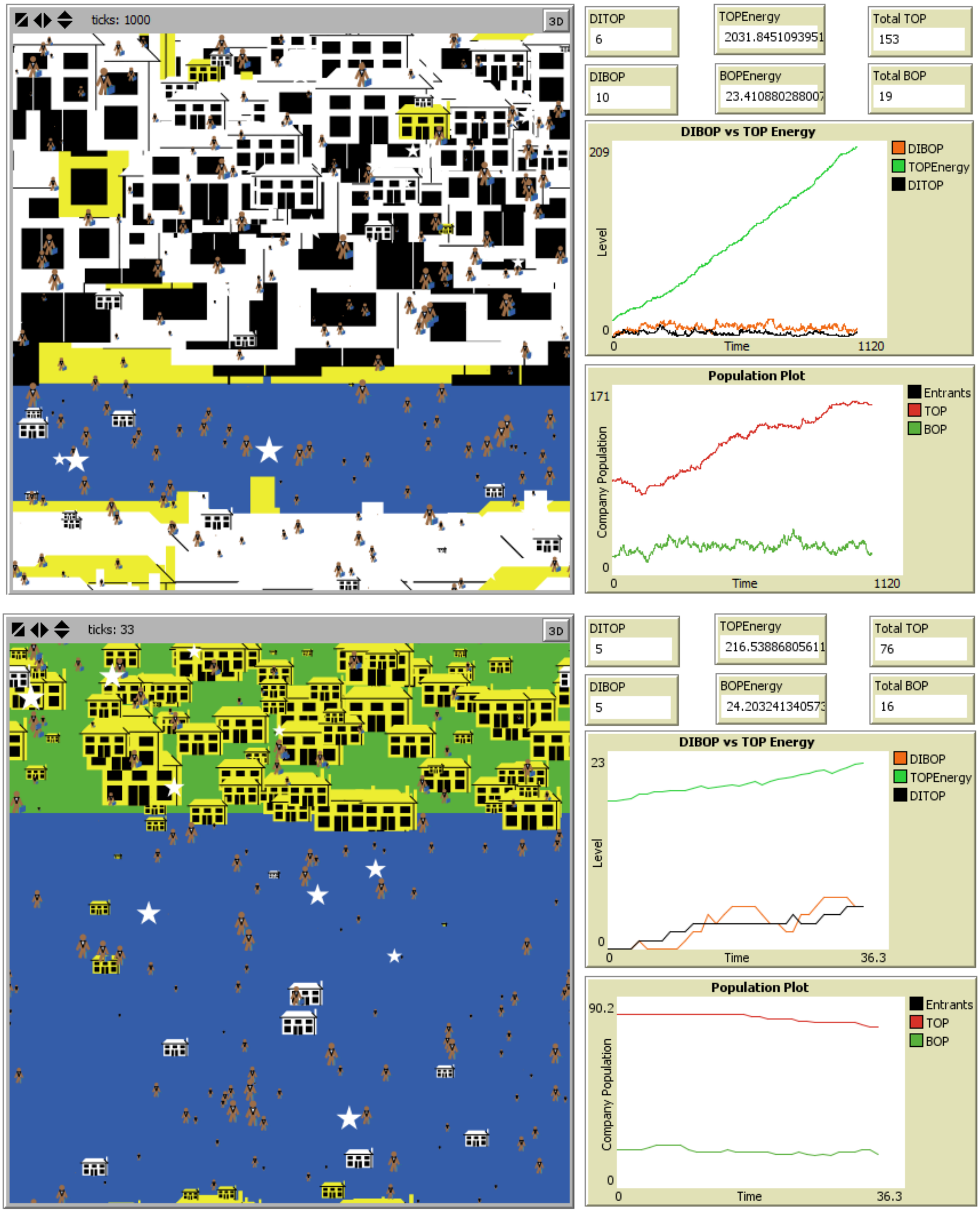


Figure 7 (a) Disrupters scenario (b) Relating DIBOP, DITOP and Energy level (scaled by 10%)

This behavior can also be studied with the DIBOP, DITOP and TOP Energy monitor which displays this pattern in numbers. *In essence it did not matter which of the regions had a higher number of disruptions.*

Scenario 4: Simulating with a doubled disruption rate

Retaining the *procedure*/setup of scenario 3 with only the disruption rate doubled, the *aim* of this scenario is to study the effect of more disruption on the system. The visualizations screen demonstrates this scenarios' *result* very vividly. Running the simulation slowly gives an interesting insight between the first 1000th tick. *Disruptions can heavily impact on the position of companies in the organizational lattice.* From the graph plots, both the TOP and BOP companies reaction to this change of parameter was quite huge. The TOP Company's populations radically reduced in number while the BOP Company's population experienced very sharp swings of highs and lows. Generally, both regions had about the same mean population of companies.

On the energy plot, an observable occurrence is the periods of high energy profiles and then low points. The high points will imply that despite the disruptions around them, some companies still grow to a significant size before being disrupted. This can be seen from the visualization screen during some of the runs (Figure 8).

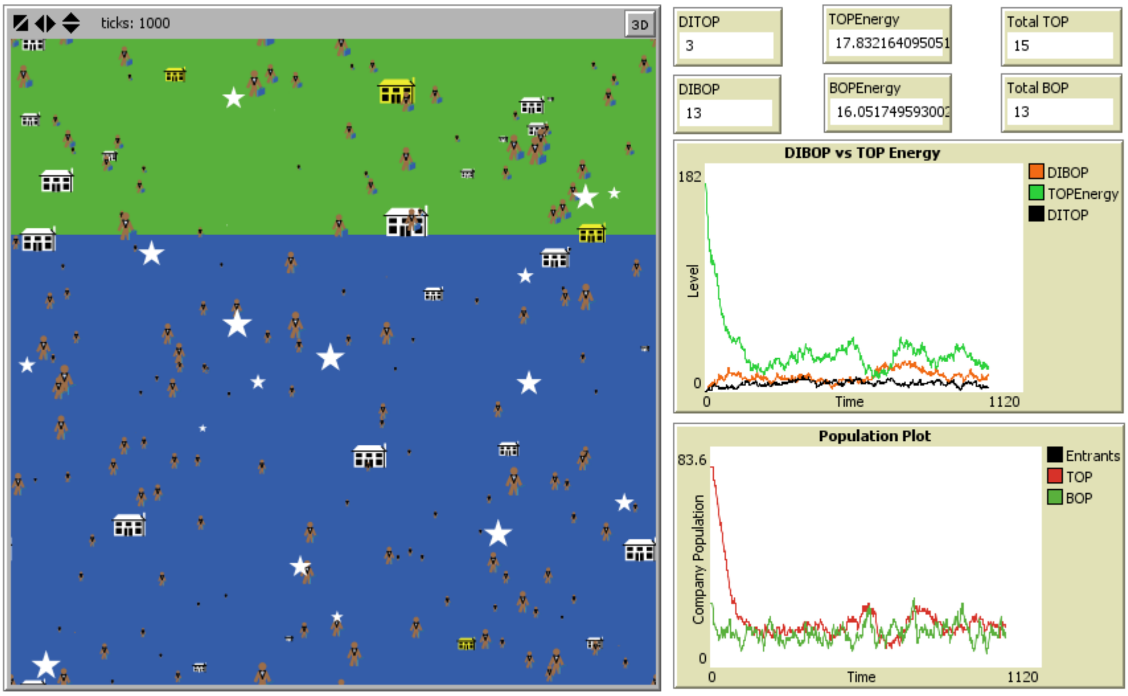


Figure 8 Effect of a doubled disruption rate

Scenario 5: Increased sustainability with double disruption.

This is a scenario that is *aimed* at stimulating the effect of increase in the energy level of organizations to respond to an increased rate of DI. The *procedure* involves changing the TOP energy range to 100 and the BOP to 90.

The *result* of this simulation point out that *companies are now able to survive the disruptions better.* From the plot in Figure 9, the rise in energy represents a period when some companies grow really big. In comparison with scenario 4, at the 1000th tick there were still more companies operating and some of them were of significant size.

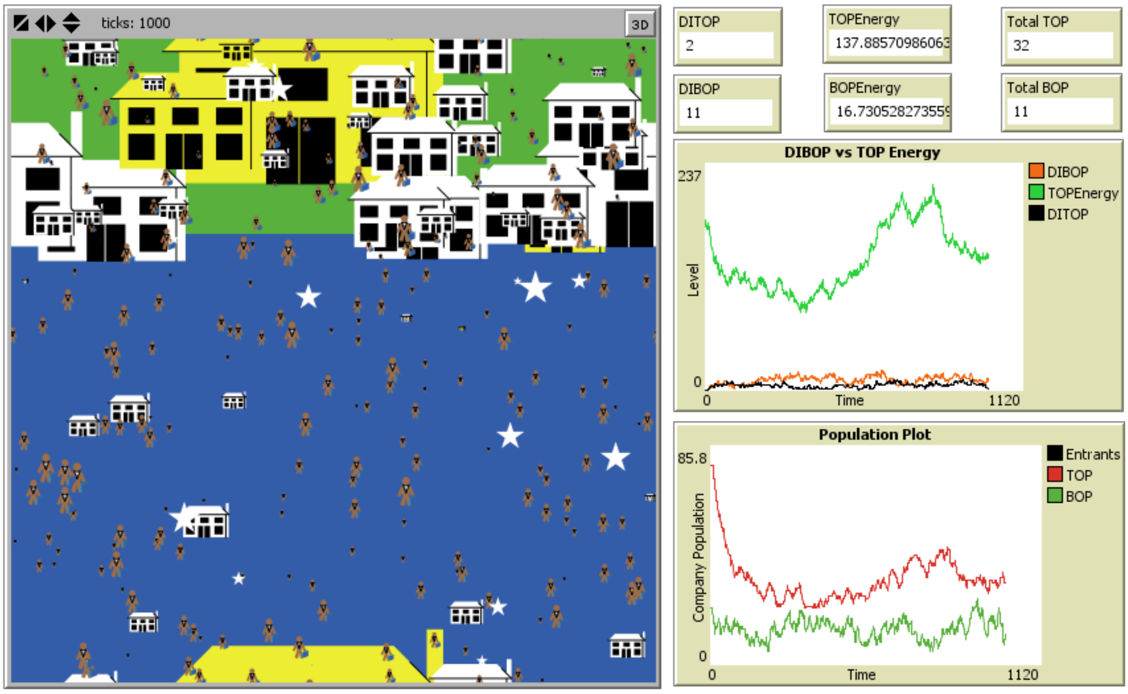


Figure 9 Increased energy within a double disruption scenario

Scenario 6:[3]DIBOP without BOP limitations – Paradigm shift

This scenario demonstrates what can happen if/when the limitations and barriers to the innovation capacity of the BOP are removed. Executing the previous 5 simulations with this new parameter, reveals some valuable insights. Using same settings as previous scenarios (with the tick rate set to 1000 except when stated), all the simulations are again repeated with the BOP limitation now switched OFF.

Control Environment: This is similar to the outcome of scenario 1. The difference of significance here is that the fall in the population for the regions was mostly about same and this occurs mostly at the beginning. However, rather than the continued reduction of the population of the companies in the BOP both regions maintained a constant population after the initial drop.

With New Entrants: Comparable to when the BOP limitations was ON, both TOP and BOP company populations increased. However, the pace of increase is significantly different. The slope of the population plot indicated a faster rate of increase for the BOP population.

With Disrupters: This scenario introduces a new turn to the simulation with its unique results. At the early phase of each simulation without BOP limitations, the BOP region

[3] Scenarios 1-5 had BOP limitations set to "Off".

takes up at a very fast speed and overtakes the TOP rather quickly. However, at some point the reverse suddenly occurs. While the TOP keeps a steady and roughly linear progress, the BOP's rate of growth changes slope slightly downwards mostly before the 5000th tick (Figure 10). Observing this new arrangement to the 10,000th tick, showed the TOP overtaking the BOP and consistently maintaining that lead and consequently widening the gap.

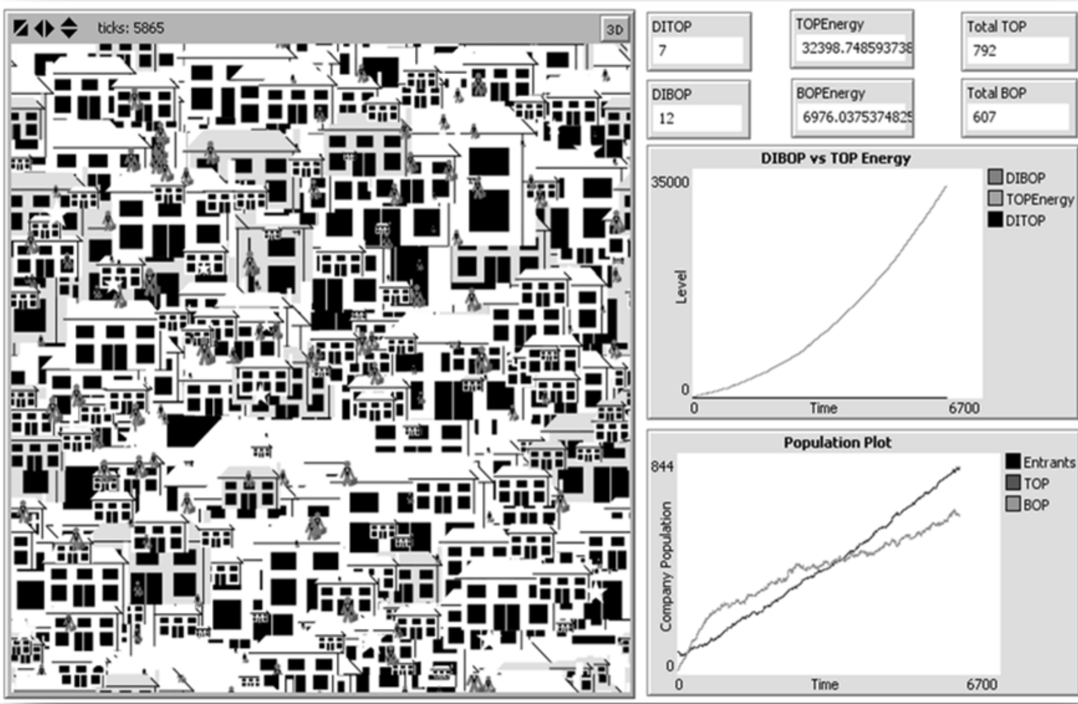


Figure 10 Different pyramidal forms based on income and population.

From the disruption counter, the numbers of disruptions originating from BOP are mostly more than those occurring at TOP per time. Similarly, the energy counter shows that the energy level at the TOP is continually above that of the BOP. These two events are useful in understanding the direction changes observed on the population plot.

This reveals that, to sustain the innovation potential unveiled by the removal of the limitations, the BOP needs to have a sustainable energy level. It is therefore clear that - even if the limitations to innovating disruptively are removed or reduced, that alone may not be sufficient to maintain a steady long term lead. Thus, increasing the energy output that sustains companies becomes another essential element for all regions and companies globally. Summarily, although the elimination of limitations can enable the BOP to create DI's, the capability to sustain the lifeline of the emergent companies/innovation could be a factor that defines the regions eventual long term position and its impact on TOP companies.

Taking another perspective, if the energy level of BOP is set to be equal with TOP, the chart takes a form where the BOP rises significantly higher. In either scenario, the fact remains clear that *there are more disruptions and the implication of this is that survival becomes a key strategy*. *Companies would therefore need to actively create sustainable plans to identify the future alerts vs the false alarm in their bid to remain relevant and survive in such a turbulent environment.*

With a Double Disruption rate: This simulation shows a period of chaos where companies hardly survive to a fraction of the age of the world's oldest companies. Companies are created and destroyed simultaneously in this setting. In fact there is barely any significant difference in this simulation compared to when the BOP limitations is set to ON, except that the position of the BOP versus TOP population plot has been reversed.

With a Double Disruption and Increased Sustainability rate: This scenario indicates that the higher the energy level, the more the chances of survival of companies. This scenario is worth paying attention too, particularly as indicators of economic progress in the developing nations continue to rise. Although there will continue to be reshuffling of who or which region is in the BOP, MOP or TOP. One can arguably say that there will hardly be a point where the capacity of the world will become universally equal, as presented in this scenario. However, form the above simulations and *in light of the nature of disruptive innovations, an unsuspecting leader in the TOP today may find itself losing that esteemed position to an unexpected disrupter from a lower level of the pyramid if the future alert is ignored.*

Considering DIBOP as a Future Alert vs. a False Alarm

To consolidate the foregoing analysis and the results from the simulation, a model has been developed to aid organizations operating at the TOP to categorize emerging innovations. The two defining parameters are the type of innovation and the market focus (TOP/BOP) of the innovation (Figure 11).

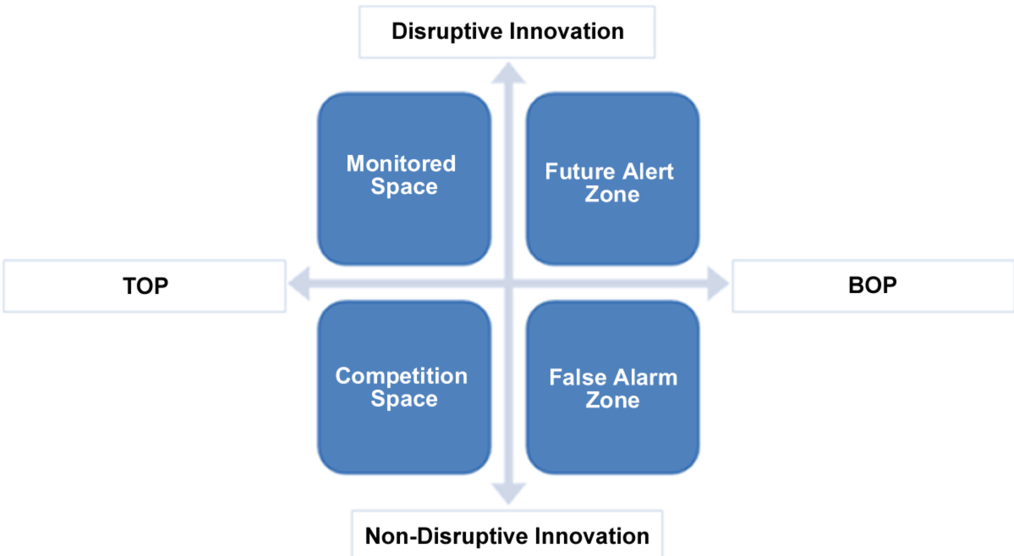


Figure 11 Future Alert vs False Alarm Model of DIBOP

When a non-disruptive innovation (sustaining or incremental innovation) occurs, an organization can easily spot it and respond to it. This is essentially the dynamics of business competition. Hence such Innovations are categorized in the model as innovations in the *competition space*. If however a disruptive innovation occurs which is targeted at the TOP or the mainstream customers of the company, TOP organisations are better aware of things happening in their market or their region hence this forms the quadrant referred to as the *monitored space* in the model.

However, while TOP organisations logically monitor and compete in their region or within the sphere of their mainstream customers, it is also important to be aware of unseeming threats that could emanate from the BOP region. Many innovations initially have the properties and promise of a disruptive innovation (e.g tata nano) but over time this innovations can be classified as non-disruptive innovations. These category of innovations are what the model refers to as innovations belonging to the *false alarm zone*. Similarly, Innovations with potentials to be disruptive that are emanating from BOP or from TOP but focused on BOP (or non-mainstream masses), are the tricky ones that organisations need to be aware and cautious of. This category are the ones with the potential to exploit the vulnerability or lack of alertness of TOP companies hence the category *future alert*. Summarily, the positioning of the innovation in the model relative to the organizations assessment, will determine if the innovation is to be considered a Future Alert or a False alarm signal.

4 Conclusion

In conclusion, the paper has, by means of an extensive ABM simulation demonstrated that the implications of disruptive innovations emerging from the BOP can be severe *if* and *whenever* it happens. Using a systemic view, the paper illustrates the different scenarios of the interplay between DI from the TOP and the BOP and its impact on the sustainability of organisations in each region. With the observation that the occurrence of DIBOP can impact the position of todays' leading firms that are not alert or prepared, the paper further advances a model that provides a means of categorising potential disruptive innovation and gauging their preparedness and alertness to respond to such threats.

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