JOBM
Journal of Business Models

The Startup Jungle: Four-dimensional Business Modelling

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Abstract

The *Startup Jungle* is a four-dimensional business-modelling tool used in Masters level entrepreneurship education. It combines a metaphorical jungle landscape with the dynamics of interplay to map business ecosystems, model new ones, develop implementation strategies, consider consequences, and scenario plan.

Keywords: Business model; serious game; ecosystem

Please cite this paper as: Rumble, R. (2019), The Startup Jungle: Four-dimensional Business Modelling, Vol. 7, No. 2, pp. 25-36

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Introduction

New business model (BM) tools have rarely departed from the assumption that such tools should be flat; that is, paper-based or digital. In this paper, I argue that many of the limitations of contemporary BM tools stem from their materiality rather than their content; including their ability to represent complex interrelations, to consider implementation rather than desired outcome, and to investigate multiple scenarios. As an alternative, this article presents a four-dimensional BM tool called *The Startup Jungle*, which addresses these issues.

Flat modalities

Contemporary BM tools – canvases, cards, apps, etc. – generally model businesses in two-dimensions. There are many advantages to these kinds of methods. They have an elegant simplicity, making them easy to comprehend. They are also practical to transport and reproduce. However, it is unclear whether this two-dimensional straightforwardness is ideal in all business modelling situations.

Our reliance on two-dimensional learning materials is being questioned both within (Rumble & Mangematin, 2015) and beyond the business sphere. Roger Kneebone, professor of surgical education at Imperial College, London, recently lamented that new students lack basic competences, reasoning that: "A lot of things are reduced to swiping on a two-dimensional flat screen" (Coughlan, 2018). The unintended consequences of digitalization raise the question: When might it be more prudent to move beyond flat modalities to more hands-on approaches?

Three-dimensional modelling

The use of three-dimensional tools in design, pedagogy, and strategizing is not without precedent. Architects build 3-D miniatures of their plans to express their vision to non-specialist audiences and to investigate features not apparent in blueprints. Medical examiners use dollhouse murder scenes to train forensic investors (Miller, 2005). Child psychiatrists utilise models to facilitate communication with their patients. Militaries use three-dimensional terrain models known as *sand tables* to identify obstacles and opportunities that otherwise might go unnoticed, devise complicated tactics, and communicate them with relative ease (see figure 1).

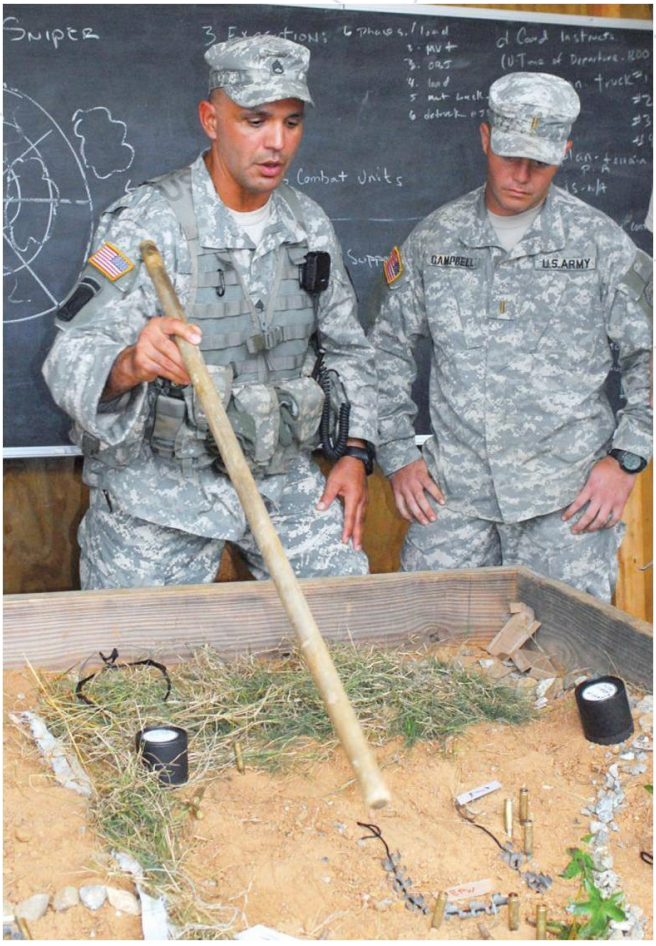

Figure 1: Contemporary use of a sand table by the US Army (credit: Cheryl Rodewig)

Sand tables have a long history dating back to Stone Age and are still used today, even by technologically sophisticated military organisations (Smith 2010; Weiner, 1959).

Such models are able to represent a great deal of information that would take pages of text to convey. Users can survey and revisit this information rapidly and with little cognitive effort. If a picture is worth a thousand words, how many more a three-dimensional model?

Models are representations of interconnected elements; the manipulation of one affects others. Through the manipulation of these elements, modellers investigate 'what could/would happen'. This is what makes models useful as tools of enquiry, rather than simply a means of codification (Morgan, 2012). The use of 3-D models makes such modification and investigation simple and intuitive.

Time, the fourth dimension

Implemented BMs have a tendency to evolve over time in response to dynamic environments (Demil & Lecocq, 2010; Wadin & Ahlgren, 2019). Previous tools have attempted to capture this time element by creating snapshots of a BM at different time points, in a process called 'versioning' (Fritscher & Pigneur, 2009). However, versioning is not without its limitations.

First, it rarely takes into account how the stakeholders might react to a BM, or how one BM constrains or enables future iterations. As an alternative to versioning, sand tables rely upon the 'dynamics of interplay' to represent time. Here, decisions have consequences, which reconfigure the range of alternatives at different time points (Weiner, 1959). With each movement, the modeller changes the state of play; new threats and opportunities emerge altering the range of possible future decisions, thus capturing a more path dependent process.

Second, whereas versioning depicts various end-states, the act of physically moving pieces around the board encourages the user to focus on what they will need in order to create those end-states. Thus, versioning articulates ideal situations, while the dynamics of interplay focuses on execution.

Third, it can be taxing to recreate multiple scenarios from scratch using the versioning method. The dynamics of interplay allow the modeller to simulate multiple future states in rapid succession. Additionally, modellers can devise new scenarios with sand tables in the time it takes to reposition a few models. As Smith (2010, p.7) notes:

"Though the visual representation provided the initial value of the practice, the map or playing board on which multiple options could be compared proved to be even more powerful. These tools allowed leaders and their staff members to compete against each other or against historical records in an attempt to determine which ideas would be the most effective".

Incorporating insights from sand tables

The Startup Jungle was developed as a four-dimension tool enabling students to conceptualize, study, and communicate BMs. The tool was created by Hans Alveros and further developed by the author, and it is regularly employed in the *Knowledge-based Entrepreneurship* Master's programme at the University of Gothenburg.

The tool was designed to incorporate insights from modelling in other fields, principally by adapting the military sand table concept to create a metaphorical business landscape. The sand table elegantly expresses temporality through sequential repositioning of figures, eliminating the need to create multiple canvases. Expressing change through repositioning also ensures that modifications in the model are explicit and obvious, rather than implied by differences between canvases.

The Tool

The Startup Jungle is a teaching and strategizing methodology used in entrepreneurship education[1] centred on a jungle landscape (symbolizing a business ecosystem) and various animal models (signifying different stakeholders). The tool corresponds to the inter-organizational perspective of business modelling, and users are encouraged to conceptualize business model innovation as a process of integrating internal and external actors across value networks (Normann & Ramirez, 1993; Kringelum & Gjerding, 2018). The objective of the tool is to get users to position these animal actors on the landscape to convey business ecosystems metaphorically. Users do this for several reasons:

1. To sensemake and communicate their understanding of their ecosystem (Gioia & Chittipeddi, 1991)
2. To reconfigure their ecosystem into new BMs
3. To experiment with and investigate their ecosystem.

Jungle theme

The canvas's jungle theme is not simply aesthetic. First, it distances the tool from any militaristic associations that users may have with sand tables.

Second, the jungle metaphor frames the business environment as an ecosystem, the dominant metaphor used in academia (cf. Moore, 1996). Metaphorical

[1] It has also been adapted for corporate strategy sessions. Due to word count limitations, this article only discusses its pedagogical application. More information can be found at: https://www.brainspotexecutive.se/startup-jungle/

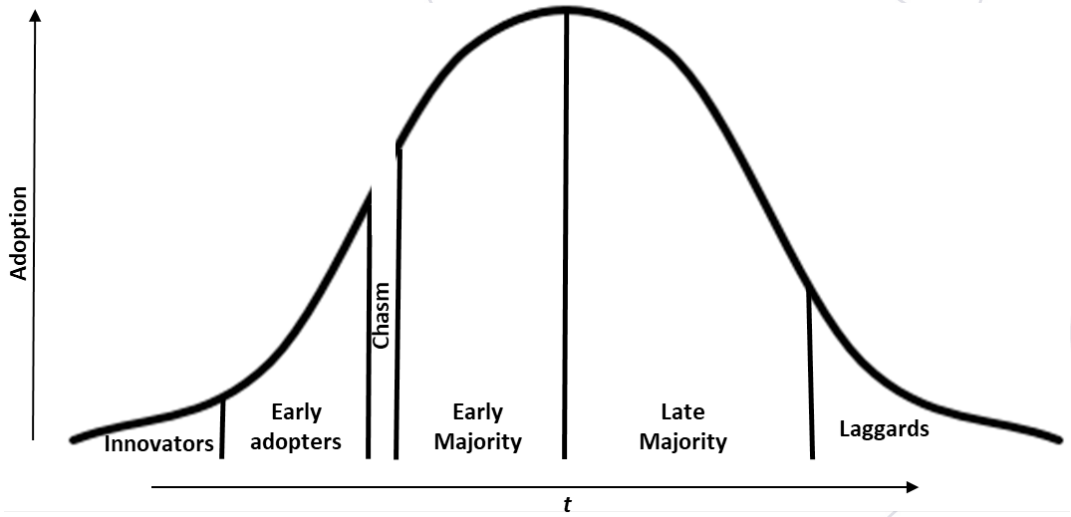

Figure 2: Moore's chasm model

framing significantly influences individuals' perceptions and decisions (Thibodeau & Boroditsky, 2011).

Third, the jungle setting gamifies the tool. Metastudies have empirically demonstrated that serious games are more effective for learning than conventional techniques (Wouters et al., 2013).

Fourth, the jungle landscape acts as a boundary object, encouraging users to speak in a common language of chimpanzees, lions, and sloths. Tactics can be explained with both visual and verbal clarity; e.g., users can communicate complex financial strategies by straightforwardly repositioning animals and resources next to one another.

The landscape

The layout of the landscape is metaphorically embedded with management theories (distinguishing it from the *Lego Serious Play* method). We felt that the incorporation of theory into the landscape was important in order to help users recognise the external environment is not a 'white space', but is subject to socio-economic structures and mechanisms of which they should be aware.

First, there is the river, which represents the diffusion of a product/service to different customer segments. Rogers (2003) described the diffusion of innovations as driven by different types of customers at different time points, each with different needs. Moore (2014) developed this idea by empirically identifying a 'chasm' between early adopters and the early majority that most innovations fail to cross (figure 2).

This is represented in the landscape as a twisting river (see figure 3, point a), signifying the product/service will need to pivot throughout its product lifecycle to appeal to different customer segments. There is a break in the river (point b), indicating the aforementioned chasm, as well as 'break-even island' (point c) and 'profitability lake' (point d), drawing on the insight from the product-lifecycle that products/services tend to remain unprofitable until a threshold of customers came be acquired.

Figure 3: The Startup Jungle landscape

Second, there is the firm, represented by the encampment (point e). The encampment is subdivided to represent internal divisions; for example, R&D volcano (point f) and executive hut (point g). Cross-departmental collaboration can be represented by moving actors within the firm. The firm is fenced but gated, representing the semi-permeable barrier between the firm and its environment. During a strategy session, users can signify the need for certain internal actors to 'get out of the building' by positioning them outside this fence. Alternatively, the incorporation of external actors into internal operations can be signified by bringing these actors within.

The animals

The animal models serve as metaphors for different stakeholders (see figure 4). Customers are divided into subgroups representing each of Roger's adopter categories. This is an important distinction since it is not uncommon for entrepreneurship students to conceptualise target customers as generic whole, without considering the sequential nature of new customer adoption. Customers are signified with the following animal models:

1. **Chimpanzees (early adopters)**: Curious consumers who are interested in novelty. Less-risk adverse than the majority and willing to buy innovative products/services that are still undergoing product development.
2. **Lions (Early majority)**: More cautious consumers. Enjoy hunting down novelty but more risk-adverse than chimpanzees. Will tend to wait until the value of the product/service is more developed.
3. **Zebras (Late majority)**: These consumers tend to follow the herd. Not interested in novelty, but see the value enjoyed by earlier customer groups and (eventually) follow suit.
4. **Sloths (Laggards)**: Very little interest in keeping up with the latest trends in this market. Often persuaded by the less-enthusiastic Zebras.

Additional animals are included to represent other stakeholders. While we do make some recommendations about which animals typify which stakeholders, there are no compelling reasons why students should not define their own associations, giving them the freedom to assign the range of actors based upon their own situation and selecting the animal metaphor that most resonates with them. Key stakeholders to consider are partners, suppliers, investors, governing bodies, and competitors.

Figure 4: A brass resource token (centre) flanked by animals models representing different customer groups

Resources tokens

The tool also has chunky brass tokens to represent resources (figure 4). The weight, colour, and size of these tokens is deliberate, since larger, heavier objects tend to perceived as having more value (Alban & Kelley, 2013; Jostmann et al., 2009), psychologically nudging users not treat them lightly. Their golden colour also alludes to their value.

Method

The method outlined below describes how the author employs the tool in the *Methods of Practical Entrepreneurship 2* course. Students in this course work in small groups to develop real business ideas from a concept to pre-incubation (teachers could also use the tool for historical/hypothetical case studies). The purpose of the workshop is to enable students to consider how their business ideas can create and capture value through stakeholder interaction over time.

A typical classroom session takes three hours, divided into the following stages:

1. Icebreaker stage (20 minutes)
2. Opening stage (40 minutes)
3. Strategizing/scenario stage (100 minutes)
4. Closing stage (20 minutes).

The tool requires a facilitator on its first use to explain the methodology and coach students throughout the session (once familiar with the tool, students should be able to self-coordinate). The facilitator should place the landscape on a large table somewhere where users can stand around it.

I have never had a student express scepticism towards using the tool (quite the opposite). Nevertheless, some students might see the jungle setting and discount the tool as frivolous. It may be prudent to emphasis at the start of the session that professional organizations use similar methods routinely for serious purposes, as noted in the introduction.

Icebreaker stage

The session should begin with a hands-on icebreaker, encouraging students to interact comfortably with the tool. One simple icebreaker is a variation of the river-crossing puzzle. Here, four animals – the chimp, the lion, the zebra, and the sloth – are placed on one side of the river and students are given the task of getting all the animals to the other side. The animals must cross by a boat that only the chimp can operate, and this boat only allows the chimp to take one passenger at a time. However, certain animal combinations must not be left on one side of the riverbank without the chimp's supervision: the lion will eat the zebra, and the zebra will trample the sloth. The group now has the responsibility of solving this puzzle as a team.

In order for the icebreaker to encourage familiarity with the tool, each member is assigned an animal that only they can touch, so they must collectively interact with the landscape. Students should be encouraged the solve the problem through trial-and-error by physically interacting with the model, rather than trying to solve it verbally or mentally.

Opening stage: Sensemaking the current business situation

First, the layout of the canvas is explained. It helps if students are already somewhat familiar with theoretical concepts embedded in the design (e.g., product lifecycles, customer types). If they are Masters students, they likely already understand most of these concepts. If not, I would recommended that students are at least briefed on them before the session. Students may wish to label key areas of the board or certain animals using sticky notes if they have trouble remembering what these represent.

Next, the facilitator introduces animals sequentially. The customer groups are explained first. It is fairly common for students not to have considered the segmentation of the target market(s) by time to adoption, and so students are given a moment to discuss who their early adopters are, then their early majority, and so forth. Facilitators should encourage students to hold up each model and ask the question: who is our [chimpanzee]? This physical interaction with the models and the framing of the question helps students to associate the model with the actor it represents.

After the students have identified each customer segment, they are then asked to position them on the board based upon where they perceive each group currently exists on this landscape. It is common for the chimpanzees to be positioned at the start of the river, the lions further down by the chasm, the zebras by breakeven island, and the sloths towards the end of the river, signifying the customers' respective position along the product lifecycle. However, students may have exceptional reasons to position them elsewhere. For instance, if the early adopters are co-developing the product, they may place the chimpanzee inside the firm.

The positioning of the animals is ultimately metaphorical so there is no 'correct' placement. What is important is that the students collectively understand *why* they have placed a model where they have. This is achieved by getting the students to explain why they are positioning stakeholders where they are as they are doing so. The tool's value ultimately derives from its ability to help students to sensemake and sensegive (Gioia & Chittipeddi, 1991; Weick et al., 2005), and not in their adherence to where to facilitators think each model belongs.

Nonetheless, the facilitators do have a vital role here in asking questions. If a certain placement looks peculiar (e.g., placing laggard sloths at the start of the river), they should ask the students to clarify why. Clarification helps in two ways: first, it draws students' attention to implications that they might have overlooked or misjudged (Rumble & Minto, 2017). Second, if the

unusual positioning of an actor was purposeful, it gives the student an opportunity to communicate their reasoning to the team.

Once the customers have been positioned, students then start positioning other key actors relevant to their business. Again, the positioning of actors is at the discretion of the students. They may, for example, conceive of financers being inside the firm where such investors are actively providing advice to the firm, or outside if investors have a hands-off role. Next, they can identify key resources and position resource tokens where they believe those resources lie (e.g., finance next to investors, IP next to a licence holder).

Once the landscape is populated, the students are asked to reflect upon what insights they can gain from it. They may notice that certain actors seem isolated from one another. Alternatively, the facilitator may notice this and ask the students if they believe this signifies something. The question may itself encourage the students to create signification for this that was not there before.

Figure 5: Repositioning animal figures to model a new business

Strategizing/scenario stage

The facilitator now asks the students to reposition the stakeholders in order for their planned business concept to work. This may include identifying key partners (if they are not already on the landscape, they can be added) and positioning them within or adjacent to the firm, or sending out representatives to customer groups, or bringing actors within the firm (see figure 5).

This continues sequentially to explore how the BM might evolve at different stages of the new venture, including how decisions at one time enable/restrict later decisions, or how stakeholders might react to decisions. At an early stage, students will probably focus on the early adopter chimps, while later stages include the majority customer groups or new constellations of partners and financing.

This strategizing stage has the added advantage in that it gets students to consider not just their planned BM evolution, but also what activities they have to do and relationships they have to form in order to make it a reality. During this stage, the facilitator can ask students a number of questions: how will other actors respond to this new situation? How might you make this happen in the real world? These questions help the students consider the implications, threats, and opportunities of such an arrangement. Asking these questions early on tends to result in students asking themselves these questions at later stages without prompting by the facilitator.

In addition to mapping and strategizing, the tool can also be used for scenario planning, asking questions such as what happens if the product does not appeal to the [lion]? The stakeholders and tokens can be repositioned to represent these scenarios. In practice, there are no sharp distinctions between strategizing and scenario planning. Students tend to reposition, question, and reposition again throughout the session without much prompting by the facilitator.

Closing the session

It is important to close the session formally so students can summarize what they have learnt. The facilitator can do this by asking the students to exhibit their insights to the rest of the class; repositioning and verbally explaining their current situation, followed by their BM strategy.

Key Insights

In classroom settings, I have observed the tool to be helpful in the achievement of several learning outcomes:

1. Sensemaking the current business ecosystem
2. Identifying customers based upon adoption
3. Awareness of issues involved in new venture creation: chasm, resource allocation, competitor positions, etc.
4. Business modelling using a network perspective
5. Considering staged implementation strategies and their feasibility (cf. Wirtz & Daiser, 2018)
6. Scenario planning

The first significant challenge with the tool is also one of its key strengths; namely its materiality. The tool was costly to produce (making the landscape, purchasing the animals models, etc.) and bulky to transport. One solution we developed was to create a printed version of the landscape that could be easily transported and cheaper to replicate (which is useful when running multiple sessions simultaneously; see figure 5). A more frugal option is drawing a simple landscape on an A0 sheet of paper. The animal models could be replaced with cheaper alternatives, including Lego or chess pieces.

Second, students can be reluctant at the start of the session to handle the animals and resource tokens, talking over the canvas rather than interacting with it. To tackle this issue, we monitored the icebreaker sessions carefully and reminded students to move the pieces whenever we noticed them trying to solve the problem verbally. A catchphrase we oft repeated was 'don't tell me, show me'. Any reluctance eventually dissipated during the main strategy session.

Third, the tool is constantly in flux. Students continuously position, question, and reposition stakeholders. Therefore, movements are not automatically logged. We overcame this issue by asking students to take photos at key moments and label them appropriately (e.g., 'scenario 3'). However, such images would not be readily understandable to others not present at the session without supplementary explanation. Whilst the tool is useful at facilitating discussion *in situ*, it is less able to convey meaning outside of a workshop.

Videoing the sessions could also be useful. I got permission to film students interacting with the tool during one session (available at https://vimeo.com/306352237). The students in the video are developing a new e-book business and are using the tool to identify a neglected customer group (represented as a chimpanzee) by querying its relationship to Amazon (represented as a hippo), whom they interpret as a main competitor. They then devise a strategy to co-create with this customer, expressed by repositioning the chimpanzee model inside the firm.

Fourth, although most teams understood what they were expected to do, one of the smaller teams needed further coaching to guide them through the process. In classroom settings, there are often multiple groups using canvases for different business ideas simultaneously, and it may not be possible to assign a permanent facilitator to each group.

Students' response

Some days after using the model, students anonymously rated their perceived usefulness of the tool from one (*very unuseful*) to five (*very useful*). 54% rated it *very useful*, 31% *useful*, and 15% *undecided*, resulting in a 4.4 average. No student rated it *unuseful* nor *very unuseful*. Students rated the tool more much more highly than other entrepreneurial activities, such as creating a group charter (3.3 average).

The perceived value of the model went beyond the assigned workshop. When one of the groups acquired a new team member, they asked to borrow the tool again in order to explain their BM to them. Afterwards, I received this email:

"I tried to do it the same way we did during the actual workshop, first laying out where all of our customers are today in relation to [our business idea] and where we want them to be in the future. Unlike the workshop though I was the one putting out all the animals to show [the new team member] how I am thinking about our customers and explaining each customer as I put them on the mat.
Thank you for letting us borrow the game, it helped me order some of my own thoughts regarding our customers!"

Conclusion

The Startup Jungle is an attempt to apply best practices from modelling in other domains to business modelling by adapting the sand table concept to metaphorically represent a business ecosystem. The method described above captures how the tool can be applied in classroom settings, but it is also being used by entrepreneurs and incumbent organisations as a new way of interpreting, business modelling, and strategizing.

Practically, the Startup Jungle requires much more preparation than alternative business modelling tools. However, the overall positive response from the students and their claims that it helped them identify and plan for contingencies they had not considered before should be enough to convince some educators that four-dimensional modelling is a worthwhile investment.

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