Pax Transhumanity

Humankind's Next Renaissance, a card game for 2 to 4 players.

Living Rules, 1st edition, updated: **June 21, 2019**

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TTS mod for the playtest version A8 of Pax Transhumanity, by Fabian:
https://steamcommunity.com/sharedfiles/filedetails/?id=14733...

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VASSAL MODULE, courtesy Stefano Tine':

http://www.vassalengine.org/wiki/Module%3APax_Transhumanity

Names in green pick up games from Phil/Karim/Jon,

Names in orange I have sent addresses to Besime to ship a complimentary copy.

Names in red I still need an address sent.

Link to the placards & chits: https://www.dropbox.com/home/TH/Manufacturer%20pdf_TH

Link to the CS4 cards: https://drive.google.com/drive/folders/1uNM_Nn03kNclX9tmHPUFNEdYdEB0eAAd

IF PRINTING USING ADOBE READER, Set print settings to two columns and 3 rows, in this way you will print 6 cards per page.

Log Playtests here: https://docs.google.com/spreadsheets/d/1PBZZx9-Dz-ywXYNda_K46Yn9aO-6ayGuSs1fI1nJMMI/edit#gid=0

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Changes to the published 1st edition are marked in purple font.

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"I have observed that not the man who hopes, when others despair, but the man who despairs when others hope, is admired by a large class of persons as a sage." —John Stuart Mill

What if there is no dystopia? No societal collapse, no nuclear winter, no post-apocalypse? What if these ideas make for great fiction but bad forecasting?

What if humanity's lot continues to improve, decade after decade, as it has since the scientific revolution? Thanks to accelerating human progress, today is objectively, on the average, the best time in human history to be a human being. Is it so hard to imagine that hard-working scientists, civil servants and activists might be able to stay the course?

In the very near future, technology isn't going to just become vastly more powerful, it will become more pervasive, more intimate, and more of a fundamental part of who we are. We will incorporate our best ideas into our human state and use them to build the future of our species. Science will rewrite the human condition by transforming our world with biological and social

improvement, and by creating new spheres for human industry and exploration. Humanity will benefit by demolishing the barriers of aging, disease, suffering, and physical confinement to this planet. Even our most intrinsic Darwinian values – like the emotional need to be better than others rather than merely be better – may be replaced by novel transhuman ones. Whether by genetic modification, social engineering, AI development, or nanotechnology, humanity will move forward.

Any future we venture into, or fall ass-backwards into for that matter, will have dangers. Tyrants, oligarchs and terrorists will twist and undermine. New advancements will beget new inequities and new social pressures… and new weapons. But the greater danger is standing still. We must remove the barriers to education, ensure access to objective data, identify and defuse real threats to human existence, deprogram fatalist memes, mollify offended extremists, and keep… moving… forward. This very moment people are dying of disease and simple wear and tear, this very moment people are murdered over petty and ancient values, and this very moment people are suffering and scared and powerless. Damn the torpedos, full speed ahead! —Matt Eklund, 2019.

A. WHAT'S THIS GAME ABOUT?

A1. Overview.

As a startup entrepreneur in the not-too-distant future,[1] you make your living by offering new ideas and visions.[2] The position and number of financial agents on your finance board track your financial resources. Move these agents within your finance board to generate money, or move them from the finance board as employees, patents, and syndications. You have two actions each turn, which can include *syndicating* ideas in the market to gain their special abilities, *commercializing* previously syndicated ideas to startup companies or solve problems, *hiring* employees, *importing* idea cards from one Sphere (column) to another, *placating* outraged activists, and *researching* columns of ideas in order to gain patents and reveal new ideas.[3]

A2. Metarules (rules about rules).

The rules are divided into two parts: **sequential processes** and **alphabetical glossary**. The sequential processes are arranged in the order you meet them in a typical game: *Setup* (**C**), *Sequence of Play* **(D)**, *Finances & Work* **(E)**, *Actions* **(F)**, *Impacts* **(G)**, *Cutting Edge & Regimes* **(H),** *Game End & Victory* **(I).** Although useful for learning to play, the processes are not comprehensive without defining the game terms. These terms and non-sequential processes are listed alphabetically in the **glossary**, where they make for easily-found reference during a game and do not bog the sequential rules with unnecessary minutiae.

- **Capitalized terms** (e.g., Viable, Heat, Patent) are defined in the glossary. **Bold** indicates the term is being defined. *Italics* indicates a previously-defined term.

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[1] FUTUROLOGY *"always ends up telling you more about your own time than the future. H.G. Wells made the future look like Edwardian England with machines. Aldous Huxley made it feel like 1920s New Mexico on drugs; George Orwell made it sound like 1940s Russia with television. Even Arthur C. Clarke and Isaac Asimov, more visionary than most, were steeped in the transport-obsessed 1950s rather than the communication-obsessed 2000s."* - Matt Ridley, *The Rational Optimist*, 2010.

[2] CORNUCOPISM. *"These are my most important long-run predictions, contingent on there being no global war or political upheaval: (1) People will live longer lives than now, fewer will die young. (2) Families all over the world will have higher incomes and better standards of living than now. (3) The costs of natural resources will be lower than at present. (4) Agricultural land will continue to become less and less important as an economic asset, relative to the total value of all other economic assets. These four predictions are quite certain because the very same predictions, made at all earlier times in history, would have turned out right."* —Julian Simon, *The Ultimate Resource 2,* 1996.

[3] THE IDEAS in this game subsume both technological and political innovations. Such ideas can be offered on the free market for mutual profits, but others (those marked with black-heat) can be imposed by the government in the name of a better society. The acquisition of patents during commercialization and their splay-dependant value if sold reflects stocks and the stock market. Agents generally simulate capital, especially human capital.

- **Sequential processes** are presented according to the sequence of play, and are introduced by a simple overview followed by specific bullet points.
- **Card Numbers.** The symbol "#" in the rules refers to a card's number, from 1 to 120.
- **Golden Rule.** If the text on a card contradicts these rules, the card has precedence. If text on a play aide contradicts these rules, the rules have precedence.
- **Footnotes**. These describe the science and philosophy behind the technology and politics of the game, according to Phil Eklund (and not necessarily his son Matt).
- **Learning this Game**. See **www.sierra-madre-games.com** under the "Video" tab for the link to a YouTube video tutorial produced by Heavy Cardboard.

A3. The Five Arenas of Play.

1. **Finance Board.** Moving Agents downward generates money to pay for each costly action. Use the fundraiser action to move them back up. **Divesting** moves Agents from another arena to the finance board. **Installing** moves Agents in the opposite direction, from the finance board to become Patents, Syndications, Employees, etc.
2. **Market**. Choosing from among a four-column Market of Ideas, you *syndicate* enterprises to gain their listed *Abilities*. Each market column is associated with a **Sphere**: First World,[4] Developing World,[5] The Cloud,[6] and Space.[7] Unlike other Pax games, the market does not reset on its own. Gaps in the columns are refreshed only if you perform the *research action* (**F5**).
3. **Infrastructure.** These 4 placards, one associated with each Sphere, incorporate spaces arrayed into 3 tiers. Agents installed here are **Employees,** and if shifted downward (following arrows) produce Maker (hand) or Thinker (lightbulb) Work.[8] The red octagons in each Sphere are called **Barriers**. Each one uncovered in a Sphere adds to the Sphere's Barrier Cost, making the commercialize or research actions of that Sphere more expensive. Disks installed here are called **Companies**, which sometimes are worth VP at the end of the game.
4. **Victory Pile.** Unless the game ends with *singularity* (**I1b**), *tycoon* (**I1d**), or *paradigm shift* (**I2b**), each **Problem** in your Victory Pile will count as VP at the end of the game if it is part of either the Dominant or

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[4] FIRST WORLD. The industrialized nations with a human development index of .825 or higher. This currently includes Britain and her former colonies, Europe, and westernized Asian nations: all beneficiaries of the Western Enlightenment.

[5] DEVELOPING WORLD. *"The real problem of poverty is not a problem of 'distribution' but of production. The poor are poor not because something is being withheld from them but because, for whatever reason, they are not producing enough."* —Henry Hazlitt, *The Conquest of Poverty,* 1996. *"The world has completely changed (since 1965). Eighty-five percent of mankind are already in the box that used to be named 'developed world'. Only 13 countries, representing 6 percent of the world population, are still inside the 'developing world'...The idea of divided world with a majority stuck in misery and deprivation is an illusion. A complete misconception. Simply wrong."* —Hans Rosling, *Factfulness*, 2018.

[6] CLOUD. Global communication began with the printing press, a Renaissance invention. This was followed by the first widespread literacy, newspapers, journalists, the first displacement of family, nationality, religion and other cultural aspects associated with your birth or physical location by globally dispersed ideologies. Since then, the cost for every person reached has fallen in accordance with Moore's Law. The cutting edge today is the online networking world, but the basics of information technology have not changed. As in previous IT media, such as the press, radio, and TV, the internet is threatened by government regulation, licensing, and censorship.

[7] SPACE. *"Out of this revolution, … thousands of new products will be created - some of them impossible to make today and others prohibitively expensive (on Earth). … The Third Industrial Revolution is astronautics passing from the stage of exploration to the stage of exploitation."* —G. Harry Stine, *The Third Industrial Revolution*, 1975.

[8] INFRASTRUCTURE depicts the tiered nature of the unsolved barriers to human progress. These barriers are overcome by a combination of humans and their technological ideas. This includes the roads, waterworks, airports, factories, power grid, and power plants needed to make the high-tech stuff work. In a report on technological leapfrogging, *The Economist* concluded: *"Countries that failed to adopt old technologies are at a disadvantage when it comes to new ones."* Man is a technological animal, and depends on his ideas as much as the tiger its claws.

your Hidden Spheres. Add Problems to your Victory Pile by commercializing Ideas with *solution impacts* (**G2**).

5. **Splay**. This is a column of semi-overlapping public cards, each oriented so that one of its two **discipline colors** is visible**.** Pairs of adjacent visible icons in a Splay, called **Discipline Pairs**, indicate if an Idea in the Market is **Viable** (i.e. qualified to be commercialized into the Splay).[9] Agents called **Future Shock** can be stored here too.

A4. Agents.[10]

The wooden cubes are called **Agents**, of which you start the game with 9 of your color. You can increase this number through *Growth Impacts* (**G1,G7**). Each Agent assumes its identity depending upon where it is located:

a. **Finance Board Agent**. Capital, wealth, or debt depending upon position.
b. **Market Card Agent**. Syndication or Heat depending upon position.
c. **Infrastructure Agent**. An Employee in a Utility, Company, or Barrier.
d. **Human Progress Card Agent.** A Patent in one of the 4 Disciplines.
e. **Splay Agent**. Future Shock on a Heat square (white or black).

A5. Commercialization Consequences.

Your first goal in the game is to *commercialize* an Idea (**F3**). This will trigger *impacts* (**G**) as listed in the left column of the card. These are generally favorable, including **growth** (a new financial Agent) plus stuff possibly worth VP at the game's end, such as *Future Shock,* startup *Companies*, and *Problems*. As Ideas are commercialized the Splay will lengthen, creating more pairs and making more Ideas Viable, in turn encouraging further commercialization. However, each commercialization removes a Market card, leaving a Gap in the market column.

A6. Cutting Edge, Regime, Dominant Sphere.

The bottom 2 or 3 cards in the Splay, called the **cutting edge**, determine the **Regime** per **H2**. Only one Regime is active at a time, and it encompasses all players and all Spheres. The Regime in turn sets the *Dominant Sphere* (see glossary), relevant during *dominant sphere scoring* (**A7a**).

A7. Game Objective Overview.[11]

The game ends when someone commercializes a *tipping point* card, of which 4 are found in the lower half of the draw deck (**I1a**). The game can also end instantly by *singularity* (**I1b**), *plurality* (**I1c**), or *tycoon* (**I1d**). There are 3 scoring types, depending on how the game ends:

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[9] THE SPLAY AS A STRAND OF TECHNIUM DNA. Ideas evolve in ways that make technology itself a holistic evolutionary being. This being is called the *technium* by Kevin Kelly, the one-time editor of the *Whole Earth Catalog* and co-founder of *Wired* magazine. The Splay is an attempt to represent this, replacing a static tech tree with one that is built by genome-like combinations constructed by the players themselves. The names of the disciplines (Transbiology, Group Dynamics, Computing, and Assembly) were cunningly chosen to match the four bases of DNA. Thus, a three-letter codon (analogous to the game's three.card cutting edge) specifies a future in the same way a three-nucleotide codon in a nucleic acid sequence specifies a single amino acid. Possible futures: Communal Future (Hive mind GGC, Universal Citizenry GGT, Technogaianism GGA); Elitist Future (Cloning TTA, New World Order TTG, Cyberoligarchy TTC); Space Future (Space Colonies AAG, Terraforming AAT, Von Neumann Picotech AAC); Cloud Victory (Meta-AIs CCA, FIVR CCG, Mind uploading CCT); Singularity Victory = (Technocalypsis TTTTT).

[10] THE BOTTOM-UP WORLD *"is to be the great theme of this century. Doctors are having to get used to well-informed patients who have researched their own illnesses. Journalists are adjusting to readers and viewers who select and assemble their news on demand. Broadcasters are learning to let their audiences choose the talent that will entertain them. Engineers are sharing problems to find solutions. Manufacturers are responding to consumers who order their products a la carte. Genetic engineering is going to become open-source, where people, not corporations, decide what combinations of genes they want. Politicians are increasingly corks tossed on the waves of public opinion. Dictators are learning that their citizens can organize riots by text message."* —Matt Ridley, *The Rational Optimist*, 2010

[11] OBJECTIVES. An intelligent being is very good at meeting its programmed objectives. The programmed objective for life is the dispersal of its DNA. Machines can also have objectives; Deep Blue is better than humans at playing chess. The objective can be ignoble, Nick Bostrom, author

a. **Dominant Sphere Scoring.** Each player counts victory points (VP) for each of his Companies and Problems in both the Dominant Sphere and his Hidden Sphere. Those in the Dominant Sphere count double. If there is no Dominant Sphere, only the Hidden Sphere VP count. This scoring occurs for tipping point and plurality game ends.

***Tip**: Since the Dominant Sphere depends on the Regime existing the moment the game ends, you should manipulate the cards in the Splay to attain a favorable cutting edge (**H1**). Your Hidden Sphere will be determined at the start of the game (**C7**).*

b. **Future Shock Scoring.** Each player counts 1 VP for every Agent of his in the Splay. These Agents are called **Future Shock**.[12] This scoring occurs for paradigm shift or singularity game ends.

c. **Tycoon Scoring.** A player instantly wins if he establishes a fifth Company.

B. COMPONENTS & ANATOMIES

B1. Game Contents.

- **Cardboard 2 Piece Box.** (127 X 127 X 60 mm).
- **Rulebook. (**115mm X 115mm, 48 pages).
- **4 Finance Boards.** (115mm X 115mm X 1 mm, single-sided), one for each player.
- **4 Infrastructure Placards** (115mm X 115mm X 1 mm, single-sided),
- **120 Cards.** (57 X 87mm), represent Ideas (111), Regimes (3), tipping point/plurality cards (5), human progress splay card (1).
- **25 Cardboard Counters. (**20 mm square, single-sided), Mainly represent Problems worth a victory point or two.
- **60 Cubes.** (8mm square, 15 blue, 15 black, 15 pink, 15 red), represent Agents.
- **16 Disks. (**15mm diameter, 3mm thick, 4 in each player color: blue, black, pink, red), represent Companies.
- **Z-Folded Cheat Sheet**. (342 x 115mm), contains Sean Jehan's process flow.
- **4 Zip Bags**, 100 x 120mm

B2. Finance Board Anatomy (Qty 4).

Finance Agents of your color start in one of 3 boxes on your finance board. From top to bottom these boxes are **capital**, **wealth**, and **debt**. You generate 1 money by moving an Agent down your board (i.e. from capital to wealth, or wealth to debt).

a. **Fundraiser**. Early in the game, you will be heavily reliant on fundraiser actions, but later costly actions can be fully or partially funded by patent sales.

b. **Agents are not money**, rather moving financial agents generates money. Money cannot be directly saved from turn to turn, nor even from Action to Action. Except when selling Patents, Money Generation (see glossary) is always just enough to perform a costly action.

c. **Divestments**. At the start of a fundraiser, it is normal to find yourself spread too thin. If so, divest Agents invested in the Spheres or Market (e.g. Syndications) to your finance board to be used in other ways (like fundraisers).

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of *"Superintelligence: Paths, Dangers, Strategies"* describes an AI that destroys humanity in its pursuit to convert the world into paperclips. It bore no animosity against humans, they just happened to get in the way of its programmed objective. A conscious being, on the other hand, cannot be programmed for objectives. It goes through an initial *tabula rasa* phase, in which its consciousness is a blank slate which must be programmed using a learned language. It thus makes its own goals and victory conditions, presumably ones in which it can thrive and perpetuate as a reason-based bing.

[12] FUTURE SHOCK is a psychological state of individuals and entire societies overwhelmed by *"too much change in too short a period of time"*. —Alvin and Heidi Toffler, *Future Shock,* 1970.

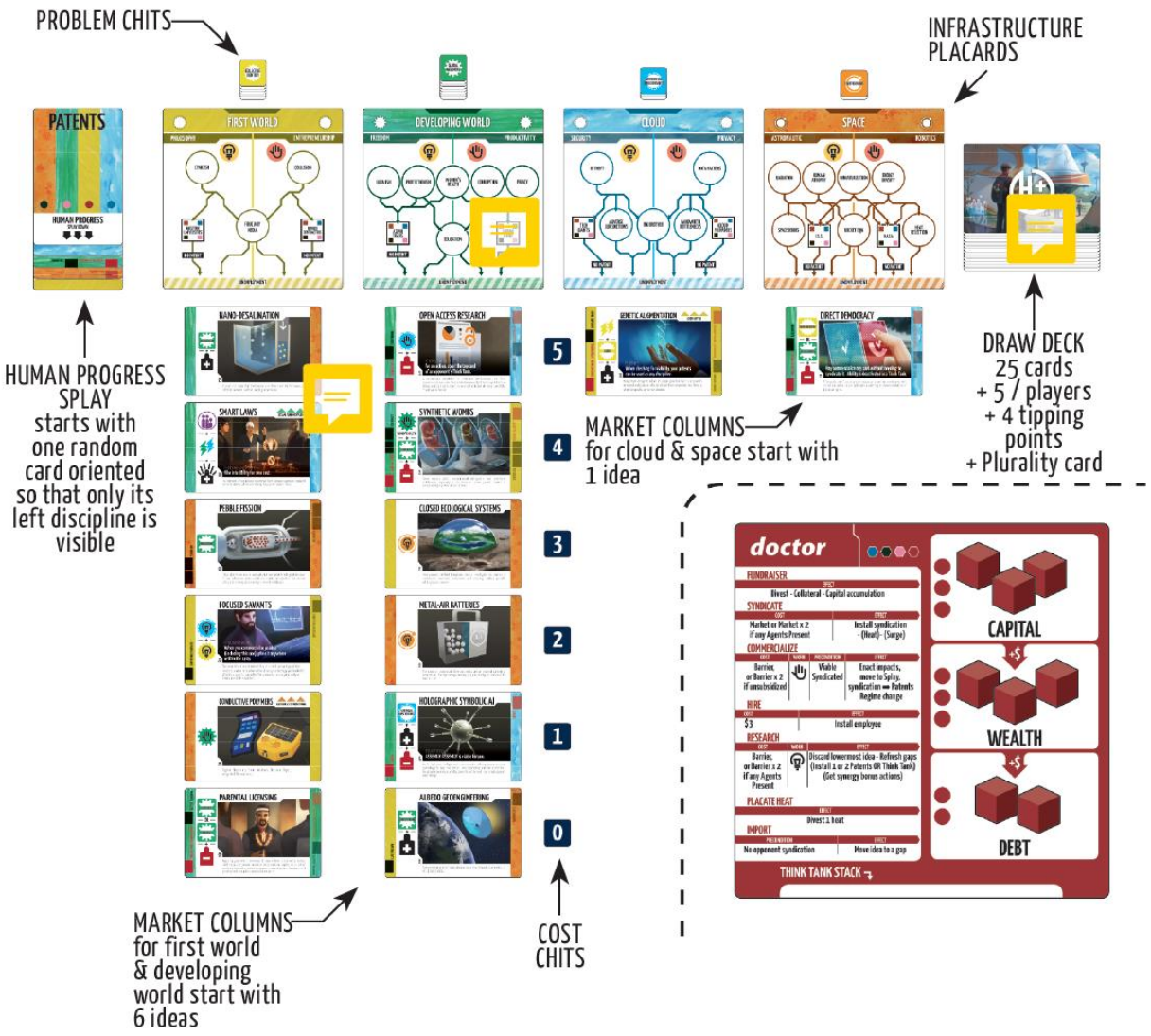
B3. Market Card Anatomy (Ideas, Qty 116).

All of the Market Cards in the draw decks are **Ideas**, which have two **Discipline** colors: on the right and left edges of the card. This pair of colors are used to see if the Idea is **Viable** (able to be *commercialized* given the commercial environment)**.**[13]

a. **Surge Arrows.** This triple arrow gives one bonus Syndication when you *syndicate* (**F2**) its card.
b. **Heat**. White or black-square icons where extra Agents may be placed upon Syndication of a controversial Idea. While in the Market, use only the icons on the left side.[14]
c. **Abilities**. Describes the advantages of the Idea while you have it Syndicated.
d. **Impacts**. Describes the advantages to commercialize the Idea.
e. **Disciplines.** A pair of colors that define the type of Idea the card represents and determine its Viability for commercialization.

[13] TECHNOLOGY AND IDEOLOGY. *"Like any form of knowledge, technology and ideology must be learned… Technology derives heavily from experience with production, ideology from socioeconomic and political experience. Discrete shifts in technological or ideological beliefs are likely to reflect what has been learned from extraordinary events: decisive experiments, deliberate or natural, in the case of technology; societal crisis and the political response to it in the case of ideology. Both realms of belief have their great inventors and entrepreneurs-in technology, such as Whitney, Edison, and Ford; in ideology, such as Smith, Marx, and Keynes-who lead the way toward a radical recasting of beliefs and practices…both technological and ideological changes appear to evolve within a competitive process."* - Robert Higgs, *Crisis and Leviathan*, 2012.

[14] RESISTANCE TO CHANGE. *"We cannot absolutely prove that those are in error who tell us that society has reached a turning point, that we have seen our best days. But so said all who came before us, and with just as much apparent reason."* Thomas Macaulay, in response to widespread reports of impending doom wrought by the Industrial Revolution, 1830.



B4. Infrastructure Anatomy (Qty 4).

There is one Infrastructure placard for each Sphere. Each has 2 tiers of Barriers (octagons) and Utilities (4-colored squares). The barrier name indicates what the Employees and Companies are solving with their presence. A 3rd tier, "UNEMPLOYMENT", is at the bottom.[15]

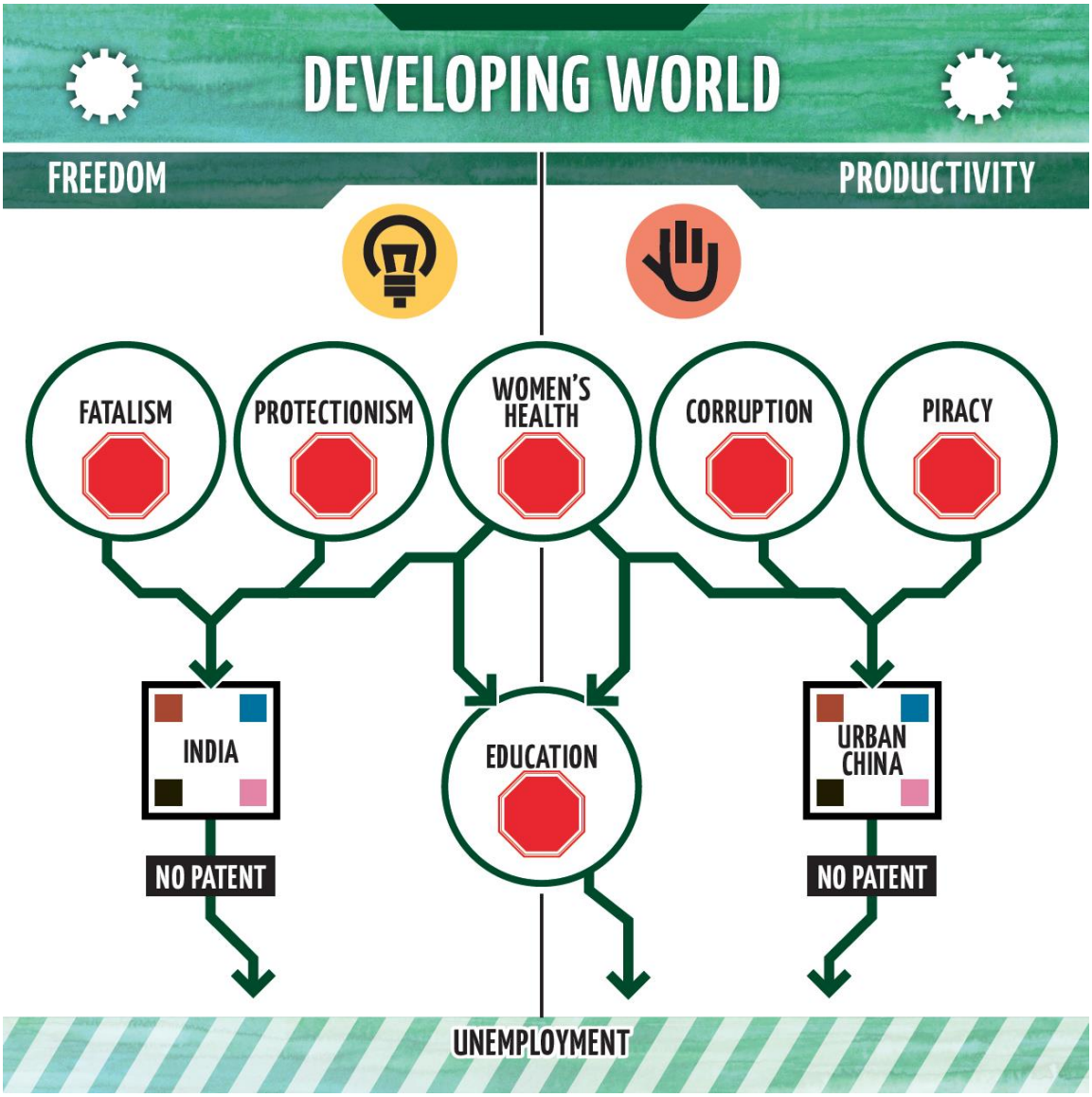
a. **Expenditure Arrows.** The downward arrows indicate the direction of Agent movement when expended for Work Production. This simulates subcontracting.

b. **Thinker/Maker.** The central divider separates Thinker (left) from Maker (right) Work. Barriers that straddle this divider can generate either Thinker or Maker work, depending on the arrow followed.[16]

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[15] UNEMPLOYMENT. *"Will humans eventually become unemployable? If AI keeps improving, automating ever more jobs, what will happen? Many people are job optimists, arguing that automated jobs will be replaced by new ones that are even better. After all, that's what always happened before, ever since the Luddites worried about technological unemployment during the Industrial Revolution."* — Max Tegmark, *Life 3.0, Being Human in the Age of Artificial Intelligence*, 2017.

[16] THINKER VS. MAKER. *"In theory there is no difference between theory and practice; in practice there is."* — anonymous, ca 1984.



B5. Problem Chit Anatomy (Qty 19).

If the game ends by *tipping point* (**I2**) or *plurality* (**I4**), each of these chits, called **Problems**, are worth 2 VP if its color and icon indicates it is in the *Dominant Sphere*, or 1 VP if in your *Hidden Sphere*.[17]

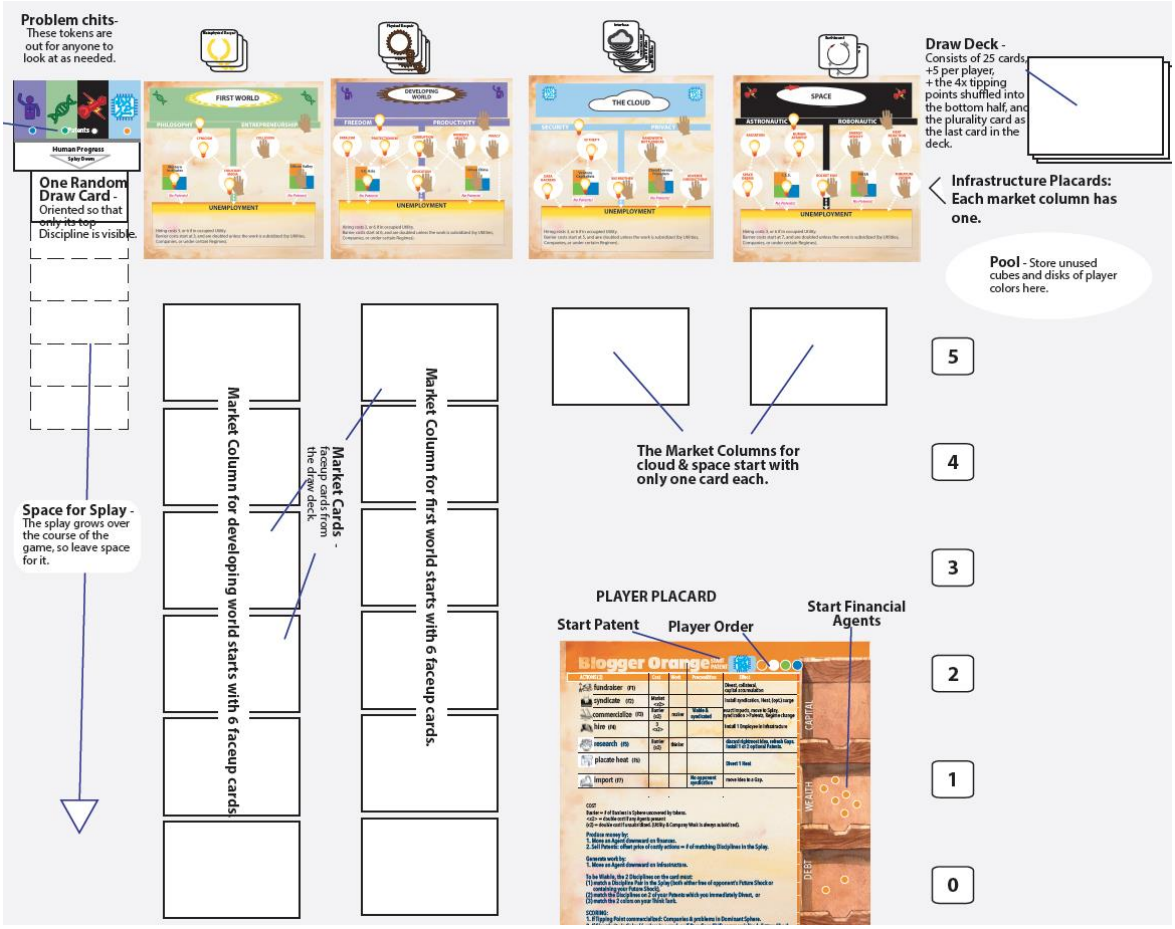


[17] PROBLEMS in this game represent externalities for which services are not easily commercialized, usually due to the inherent free-riding of those who could not be charged for the services being provided. For example, a lighthouse. Often it is claimed that only tax money can be used to solve such problems. Ronald Coase has shown, however, that in Britain, *"contrary to the belief of many economists, a lighthouse service can be provided by private enterprise... The lighthouses were built, operated, financed and owned by private individuals, who could sell a lighthouse or dispose of it by bequest. The role of the government was limited to the establishment and enforcement of property rights in the lighthouse."* Only later did the British government consolidate all lighthouse services under its own monopoly in order to eliminate competition and directly reap the financial benefits developed by private entrepreneurs. Erik Linberg, *From Private to Public Provision of Public Goods: English Lighthouses Between the Seventeenth and Nineteenth Centuries*, 2013.

B6. Pax Transhumanity Mapboard (order separately).

You can order at sierra-madre-games.com a folding Pax Transhumanity setup mapboard.

C. SETUP (The actual rules begin here)



C1. Assign Player Color.

Two to four players can play. Each player is randomly assigned one of the four player colors.

a. **2- & 3-Player Games.** In a 2-player game, do not use Col. Black and Citizen Pink (so Blogger Blue vs. Doctor red). In a 3-player game, do not use Col. Black.

b. **Player Order.** As marked on the placard, the player order is blue, black, pink, red.

c. **Finance Board.** Give each player the finance board of his color.

d. **Financial Agents.** Give each player 9 Agents of their color. Place 8 of them into capital, wealth, and debt as indicated by the small colored circles.

e. **Starting Patents**. Each player places the last Agent of his color on the *human progress card* (**A4d**), in the circle corresponding to his color.[18] Place remaining Agents and disks into a communal **pool**.

[18] HOW FAR HAVE WE COME IN MY LIFETIME? Phil was born in 1955. Since his birth *"the average human being on Planet Earth earned nearly three times as much money (corrected for inflation), ate one-third more calories of food, buried one-third as many of her children and could expect to live one-third longer. She was less likely to die as a result of war, murder, childbirth, accidents, tornadoes, flooding, famine, whooping cough, tuberculosis, malaria, diphtheria, typhus, typhoid, measles, smallpox, scurvy, or polio. She was less likely, at any given age, to get cancer,*

C2. Create Market Area.

Create a Market area with four columns with space for 6 faceup cards in each column. Each column represents a Sphere.

a. **Sphere Placards**. Place these just above each respective market column.
b. **Market Cost Markers.** Use the markers labeled 0 through 5 to denote the rows as shown. Do not populate the columns with cards yet.

C3. Create Draw Deck.

Remove the 4 tipping point cards and 1 plurality card from the deck for now. Then create a draw deck of 38 idea cards.

a. **Starting Market.** From this deck, populate the developing world and first world columns with six cards each. Place 1 card into the cloud and space columns, in the uppermost (most expensive) slot as shown.
b. **Add 4 Tipping Points.** Add and shuffle the four tipping point cards into the bottom half of the deck. Place the top half back on the bottom half.
c. **Add the Plurality Card.** Place the white card labelled "PLURALITY" faceup to the bottom of the draw deck.

***Note**: If you accidentally add the tipping points (b) before populating the Market (a), tipping points may start appearing too early.*

C4. Starting Splay.

Draw a card from the top of the draw deck, and tuck it half under the **human progress card** as shown in the diagram, with only its left Discipline visible. This seeds the Splay with its first Discipline.[19]

C5. Regime Cards.

Place the regime cards in a stack with the globalization regime faceup at the top, denoting that the current regime is globalization.

C6. Problem Chits.

Place the Problems in 4 stacks dependent on their icon.

C7. Choose Hidden Sphere.

From the unused deck, deal each player two facedown cards. They secretly examine the four discipline colors on these cards, and place one card under their placard, oriented so the one color is uppermost. This color is the player's Hidden Sphere. If the game ends by tipping point or plurality, your Hidden Sphere can give you extra VP.

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heart disease or stroke. She was more likely to be literate and to have finished school. She was more likely to own a telephone, a flush toilet, a refrigerator and a bicycle. All this during a half-century when the world population has more than doubled, so that far from being rationed by population pressure, the goods and services available to the people of the world have expanded. It is, by any standard, an astonishing human achievement."—Matt Ridley, *The Rational Optimist,* 2010.

[19] ARE YOU SMARTER THAN THE WEB? Maybe. The World Wide Web is comparable to your brain. The number of computer chips wired into the web is about the same as the number of your neurons, about 100 billion. The number of links among all the web pages in the web is about the same as the number of synapse links in your brain.

C8. Beginner's Game (Variant).

If this is your first game, consider playing this simpler variant which requires less mental load to obtain commercializations and startups. Normally, a card to be commercialized must be both Viable and *syndicated* (**F3a**). In this variant, the card must only be Viable (see glossary). All Market Cards are syndicated for the purposes of commercialization, making the *syndication action* (**F2**) largely obsolete. Furthermore, all Abilities on Ideas are inactive.

D. SEQUENCE OF PLAY

During each **round**, players take their turns in the player order blue, black, pink, red. On your turn, choose up to 2 **Actions**. You may perform the same Action multiple times. Choose both Actions from this list, then go to the next player:

a. **Fundraise (F1)**. First Divest (return) any Agents from play that you wish (you can Divest Syndication, Employees, and Patents, but can't Divest Heat or Future Shock), then collateral (using capital to buy out debt), and finally move all Agents in the 'wealth' area of your board to the 'capital' area.

b. **Syndicate (F2)**. Pay to install an Agent on an Idea in the market and gain its Abilities. If there are any uncovered white-heat squares on the Idea, you must install additional Agents to cover those icons in order to syndicate it. The money cost to syndicate is the Market Cost of the Idea's current row (5-4-3-2-1-0).

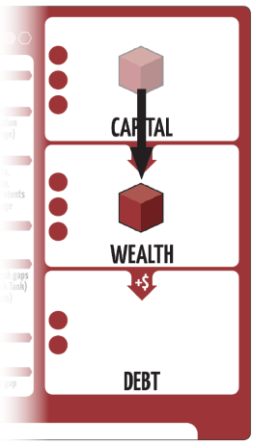
c. **Commercialize (F3)**. Check Viability, spend Barrier Costs, and expend a Maker Employee in the Sphere of one of your syndicated Ideas. This gains you the impacts on that card (from the top down), transfers all Syndications on it to the appropriate patent slot on the human progress card, and moves the Idea to the Splay (retaining Heat).

d. **Hire (F4)**. Install an Employee into any Barrier, Company, or Utility within an Infrastructure. Each Barrier or Company may hold only one Employee, and each Utility may hold one Employee of each color. Hiring cost is 3 money.

e. **Research (F5)**. Spend Barrier Costs and expend a Thinker Employee in a Sphere to discard (or claim) the lowermost card (if any) and refresh its market column. You have the choice either to discard the card and obtain up to 2 Patents, or to add it to the top of your think tank stack.

f. **Placate Heat (F6)**. Divest a Heat of your color from an Idea in the Market.

g. **Import (F7)**. For no cost, move a Market Idea with no opposing Agents on it to a Gap in the Market.



E. PRODUCTION OF MONEY & WORK

Agents on your **finance board** keep track of your funds. Agents (of your color) on the Infrastructure placards keep track of your Work. When performing an Action that is both costly (requires Money Generation) and busy (requires Work Production), generate the money first, then the work. Money can be via financial payments, patent sales, or both.

E1. Financial Payment for Costly Actions.

Just before you perform a **costly action** (i.e. one that costs money), move Agents on your finance board in order to generate the money needed. One money is generated by moving an Agent from capital to wealth, or from wealth to debt. You may do this multiple times to generate the money you need.

a. **Transparency.** Your finance board is public knowledge.

***Example**: Your finance Agents are 2 capital, 2 wealth, and 4 debt. You perform a syndication action which costs 5 money. You move 2 capital into wealth (generates 2 money) and then 3 wealth into debt (generates 3 money). At this point you have 1 wealth and 7 debt. Completing the action will require you to install your last wealth as the Syndication. You end with a 0/0/7 finance board.*

E2. Patent Sales for Costly Actions.[20]

Just before you perform a costly action, you may sell one or more Patents. This moves the Agent from the human progress card to the wealth box of your Finances, and gains money equal to the Patent Value. This money must be immediately spent on the costly action, either in addition to or replacing the payment per **E1**.

a. **Patent Value.** The amount of money gained is equal to the number of cards of the Patent's Discipline visible within the Splay.

***Tip:** Even if a Patent is worth 0 money (because it has no cards of its color in the Splay), it can be profitably sold. The sold Patent goes to wealth, and from here the Agent can be moved to debt to generate one money.*

b. **Bubble**. If a transbiology (gold), group dynamics (green), computing (blue), or assembly (orange) regime is active, then its corresponding Patents are worth double. If the paradigm shift regime is active, then all Patents are worth double.

***Example**. Five transbiology and two assembly colors are visible in the Splay during the assembly regime. You have a transbiology and an assembly patent, and your finance board has 1 capital, 1 wealth, and 6 debt. You wish to syndicate a card in the 4 row that has already been syndicated by another player (cost of this action is 8). You sell your assembly patent by returning it to your wealth and generating 4 money (value 2 for two disciplines, doubled because of the regime). Then you move your 1 capital into wealth and your (now) 3 wealth agents into debt to generate the remaining 4 money needed for the action. Finally you install a debt agent onto the syndicated card, and end with a 0/0/8 finance board.*

c. **All Transactions Are Final**. Money cannot be carried over from Action to Action. Any money leftover after completing an Action is lost.

***Example**. In the previous example, you instead decide to pay the 8 cost by selling both your Patents. This generates 9 cash, but the 1 extra money is wasted. You end with a 1/3/6 finance board.*

d. **Limits**. You can Divest Patents during a *fundraiser* (**F1**), but cannot sell them then.

E3. Installing Agents from your Finance Board.

Some Actions **install** financial Agents as Employees, Syndication, Heat or Patents. If this Action is costly, first generate money to pay for it, then install the Agent. Installation is always from your finance board.

[20] PATENT SALES where licensed ideas are indexed, bought, and sold may replace the stock market in a future where what is valuable becomes less and less tangible. The era of the stereotypical Saudi oilman or other super-rich monopolizer of scarce resources is over, if it had ever existed. Today's rich usually have invested not in stuff but in ideas, especially in Wall Street or the developing world. There are a couple thousand billionaires in the world today, and most (60%) made their money themselves rather than inheriting it.

a. **Installation Hierarchy.** When installing Agents from your board, take them from your board from the top down. In other words, remove capital first, then wealth if there is no more capital, then debt.

E4. Divesting Agents to your Finance Board.

a. **Divest** moves Agents of your color to the wealth box of your finance board. See glossary.

***Example**. You are totally in debt on your finance board. But you have 1 Patent, 2 Syndications, and 2 Employees. Divesting all of them in a fundraiser will put 5 Agents into wealth, which are moved into capital during capital accumulation (**F1c**).*

E5. Work Production.

If an Action is **busy** (i.e. requires Work), you must produce the required Work by immediately moving an Employee of your color to a row one step lower in the infrastructure, following the dotted line. This is called an Employee **Expenditure**. This costs neither extra money nor Actions.

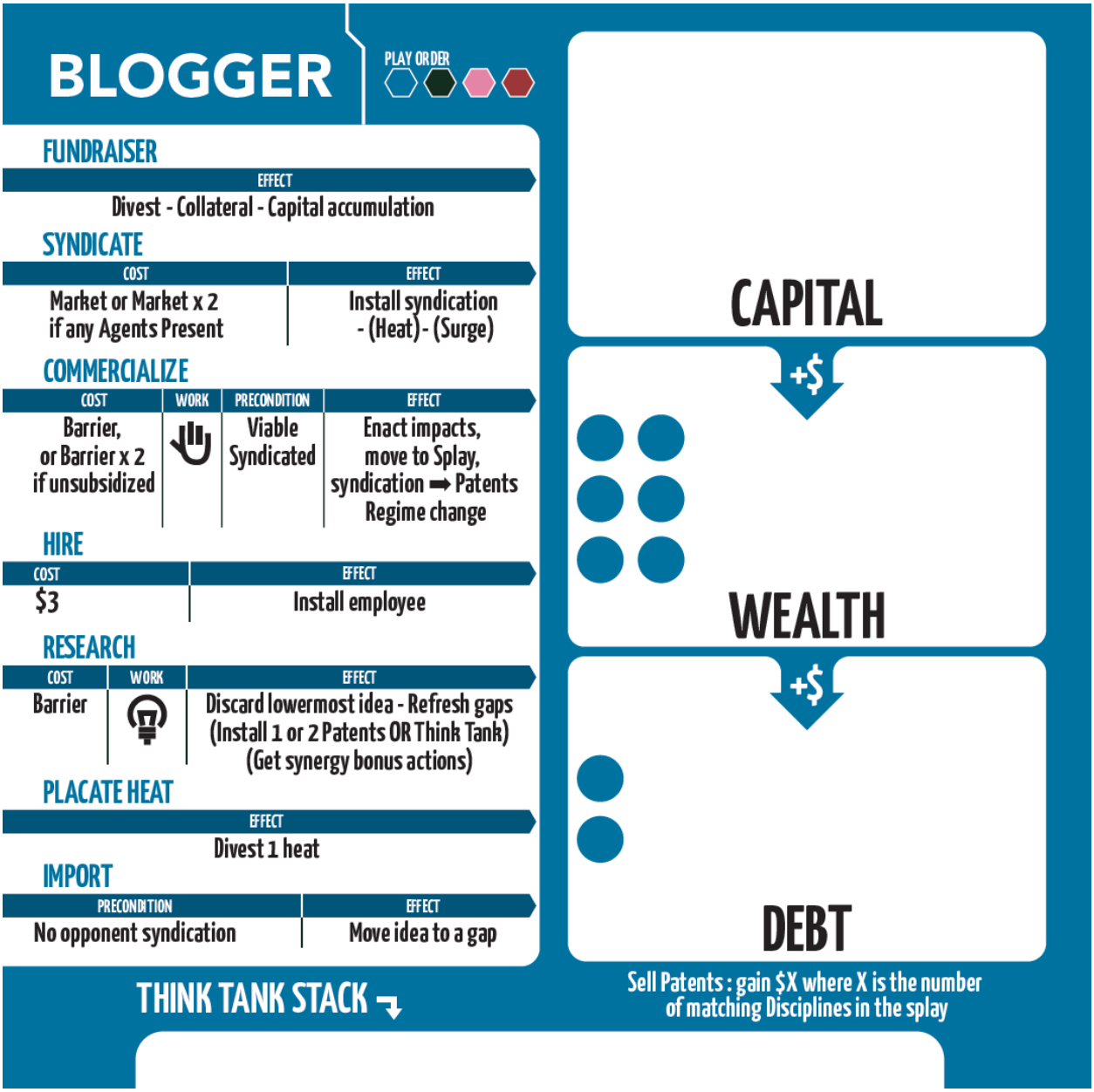
a. **Thinker Vs. Maker Work.** Work is either thinker or maker, depending upon the arrow followed is on the right or left side of the Infrastructure. The left side (lightbulb icon) produces Thinker Work, while the right side (hand icon) produces Maker Work. Work is produced regardless if the space exited is a Utility, Barrier, or Company (yours or an opponent's).
b. **Work Location.** Work production must be in the Sphere where the Action takes place.
c. **Stacking**. There is a maximum of 1 Agent per circle spot, and 1 Agent per colored square in a Utility.
d. **Foreign Employee.** If an opponent's Agent sits in your Company, either you or your opponent (but not both) may expend it for Work Production.
e. **Unemployment**. An Expenditure of an Employee into the lowermost tier means the Employee remains there until Divested or hired by its owner.

***Note**: Doing work subcontracts the Employee somewhere else: either to another Company, Utility, Barrier, or unemployed.*

F. ACTIONS

Choose up to two Actions to perform, plus any free Actions. You may perform the same Action more than once.

a. **Order**. You may perform your Actions in any order.
b. **Costly Action**. Must be paid for by Money Generation (see glossary).
c. **Busy Action**. Must be accomplished through Work Production (see glossary).



F1. Fundraiser Action.

This 3-step process improves the money in your finance board:

a. **Divestments**. You may choose to return any of your Agents that are not on a heat icon (white or black square) to your wealth box. So you can return Syndication, Employee, and Patent Agents.

b. **Collateral**.[21] If you have Agents in both debt and capital, move one capital Agent into wealth and one debt Agent into wealth. Repeat until you either have no more debt or no more capital.

c. **Capital Accumulation.**[22] Move all the Agents in your wealth box to your capital.

[21] COLLATERAL is ownership of capital, which is proof to a creditor that you are capable of repaying a debt.

[22] CAPITAL is defined as wealth employed in the production of wealth, and CAPITAL ACCUMULATION occurs when an economic system devotes more effort to the production of capital goods then required for the mere replacement of worn-out or consumed capital goods. Consider a

***Example**: You have 6 finance Agents: 2 in capital, 1 in wealth, and 3 in debt. For collateral, move 2 Agents from capital to wealth, and 2 Agents from debt to wealth. For capital accumulation, move the 5 Agents in wealth into capital. You end with a 5/0/1 finance board.*

F2. Syndicate Action (costly).

After paying the costs, take one of the uppermost Agents from your finance board and install it on an Idea. This Agent is called a **Syndication**. This Agent confers the card's Abilities (if any) and is also a necessary first step towards *commercializing* that card (**F3**). Your syndication deters rival syndication and prevents a rival from claiming the card to his think tank stack.

a. **Market Costs**. The cost for syndicating depends on the Idea's columnar location in the Market. As indicated by the cost tokens, the lowermost Idea in the column costs 0 money, the next 1 money, then 2 money, 3 money, 4 money, and 5 money for the most expensive, closest to the Infrastructure card. If the Idea is already syndicated by one or more opponents, the Market Costs are doubled: 0, 2, 4, 6, 8, 10.

***Example**: OPEN SOURCE SEXUALITY (#49) is in the second row from the bottom. To syndicate this Idea costs 1 money for Market costs. Place a syndication cube, plus (since it has white heat) a heat cube.*

b. **White-Heat.**[23] If there are any uncovered white-heat icons (white squares) on the left side of the card, you must *Install* (**E3**) additional Agents from your finance board to cover them. If you have insufficient Agents, you cannot place the syndication agent. It does not cost any additional money to install Heat Agents.

***Rookie Mistake.** The heat squares are duplicated on the right and left sides of the card, yet you only need to cover the icon on the left side, not both! The heat squares are duplicated for ease of identification once it goes into the Splay.*

c. **Black-Heat.**[24] Uncovered black-heat squares are treated the same as those containing the white square of the previous bullet, except placement of Heat on this icon is optional instead of mandatory.

***Example**: PARENTAL LICENSING (#36) has PARENTAL RIGHTS as white-heat and COERCED POPULATION CONTROL as black-heat. The first heat (immediate protest) is mandatory, and the second (long term risks) is optional.*

d. **Shared Ability.** If multiple players have syndicated the same Idea, they each enjoy the card's Ability.

***Example**: Two opponents have Agents on QUANTUM CRYPTOGRAPHY (#81). For you to syndicate it would cost double, but then all three players would have access to the card's quantum espionage ability.*

e. **Limits**. You may never have two Syndications on a single Idea.

f. **Additional Surge Syndication.** If an Idea has a triple icon on the top edge of the card 

, then you are immediately allowed, upon syndication, one free syndication placed on any card above the surging card in the column. The target card must have a Discipline color that shares that of the arrows. This

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company which generates its own power. If it uses its profits to expand its capital for additional generating capacity, it could export the extra power as a power utility. But if its profits are used elsewhere, or fixed by regulation or competition, as inflation rises it not only cannot afford new capacity, it cannot afford to replace the original capital equipment as it wears out. The company falls into debt.

[23] LUDDITES are not so much anti-technology as anti-change. Humans are so intertwined with the technium that they use it to rant against it. Thoreau made regular supply trips into town from Walden Pond, the Amish adopt technology as fast as most of society (albeit with a 50 year lag), the Unabomber shopped routinely at Walmart, and Chris McCandless lived in a bus and shot game with a rifle before he starved. Any critic claiming technology's benefits are illusionary is both wrong and hypocritical. In as much as technology is voluntarily adopted, it must improve the life of any rational technology-user. The fact is that technology advances our lives, the economy, and civilization, yet fails to guarantee the job security for buggy-whip manufacturers.

[24] BLACK-HEAT represents dystopian ideas which sacrifice individual freedoms in the name of some grand-sounding societal goal. *"Disregard for the preferences and interests of individuals alive today in order to pursue some distant social goal that their rulers have claimed is their duty to promote has been a common cause of misery for people throughout the ages."* Isaiah Berlin, 2008.

second Syndication can only be placed immediately after the first one and you install Agents onto uncovered heat squares on the newly syndicated card as normal (i.e. mandatory for white, and optional for black).

***Example**: You syndicate SEPARATION OF BUSINESS & STATE (#101), which has a green surge labeled SUPREME COURT. This idea is in the 1 cost row in the cloud. The cloud contains two other cards with at least one green Discipline: a green-blue idea (#78) in the cost 3 row and a green tipping point in the cost 5 row. You decide to surge-syndicate the former, paying nothing. You also decide to cover its COERCIVE ANTI-GROWTH black-heat.*

g. **Avalanche Surge.** If the second Syndication also has a surge arrow, it can be used for a 3rd Syndication, etc.

***Example**: In the previous example, suppose the regime is transbiology. This has exoglobalization **H3b**. You decide to surge-syndicate the green tipping point in the cost 5 row after surge-syndicating the green-blue idea (#78).*

F3. Commercialize Action (busy, costly).[25]

This Action moves an Idea from the Market to the Splay. Follow this 10-step process:

a. **Check Preconditions**. There are 2 preconditions for this Action: (1) You must have a *Syndication* (**F2**) of your color on the Idea, and (2) The Idea must be Viable.

b. **Viability**. To be Viable, the 2 Disciplines on the card (blue/gold, orange/orange, etc.) must either (1) match a *Discipline Pair* in the Splay (both either free of opponent's Future Shock, or containing your Future Shock), (2) match the Disciplines on 2 of your Patents which you immediately Divest,[26] or (3) exactly match the 2 colors on the top card of your *Think Tank* (**F5i**). If you choose (3), remove the Think Tank card from its stack and move it back into the Market, into the slot just vacated by the commercialized card.

***Example**. You have a gold/orange card in your Think Tank plus two gold Patents. A gold-gold market card is viable for you, assuming you Divest both your 2 Patents. But instead, you commercialize a gold-orange market card, sacrificing your Think Tank in order to make it Viable. Move the lost Think Tank into the slot left vacant by the gold-orange card.*

c. **Cost.** To perform this Action, you must pay the Barrier Cost (see glossary). This cost is doubled unless the Work is subsidized (e.g. expending an Employee in a Utility or Company).

d. **Work**. You must expend *Maker Work* (**E5**) in the Idea's current Sphere.

e. **Impacts**. Trigger the card's *impacts* (**G**) as shown in the card's left icon column, starting from the top down.

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[25] MOORE'S LAW states that, as a result of a constant acceleration of technological improvement, the number of transistors on an integrated circuit will double every 18 months. Related laws such as Roberts Law (communication costs), Carlson's Law (DNA synthesis), Kurzweil's Law (calculations/second over the last century), Kryder's Law (hard disk areal density), and Keck's Law (optical fiber bits/sec) all indicate invariant growth ratios as a result of downscaling of energy requirements, a doubling time between 8 and 30 months. Their parameters are measured in units such as wavelength per optic fiber, wireless bits per second, camera pixels per euro, supercomputer FLOPS, PCU power consumption per square centimeter, RAM megabytes per euro, chip MIPS, gigabytes hard-drive storage per euro, euros per sequenced DNA base pair, and microprocessor hertz. Each of these parameters is not only getting twice as good each year or two, it does so with astonishing precision despite all the chaos of entrepreneurial competition. Their predictability seems only dependant upon entrepreneurial freedom. Eventually, each particular technology will plateau, only to be overtaken by a new branch of technology until ultimate saturation occurs. When this will occur is hard to say. Gordon Moore himself predicted his law would end when it reached 250-nm manufacturing, which it passed in 1997. Today the industry is aiming for 20-nm.

[26] WHEN IDEAS HAVE SEX. A pair of ideas, combined in a novel way, is subjected to a kind of Darwinian natural selection, but a selection among ideas instead of genes. No other animal has "idea sex" or memes as well as genes. This has not touched human nature or morality, but has revolutionized human culture. —Matt Ridley, *The Rational Optimist,* 2010.

***Example**. The impacts of card NANO-DESALINATION (#64) are "FAMINE OR SLUMS + growth". First you choose one of the 2 problems to claim, and then perform the growth.*

f. **Orientation**. Choose which Discipline (via its orientation) you would like to be visible while in the Splay. Move the commercialized Idea onto the bottom of the Splay tucked so that only the chosen Discipline is visible. This is called a **visible discipline** and it forms a new Discipline Pair.

***Note**: If there was a disruption impact performed as part of commercialization, then you must choose the disruptive discipline (**G5**) as the orientation.*

g. **Heat** (either white or black) stays on a card when commercialized into a Splay. Once in the Splay, these Agents become **Future Shock**. The Future Shock resides in the square icons indicated on the end of the card that is visible after the card is oriented in the Splay.[27]

h. **Patent Generation.** Unless the Maker Work to commercialize was from a Utility, each Syndication on a commercialized card is moved to the Human Progress Card, into the region that corresponds with the visible Discipline. This Agent is now a **Patent** in that Discipline. If the Maker Work was from a Utility, then each Syndication is Divested to its owner's wealth.

i. **Regime Change.** Check the *cutting edge* (**H1**) to see if a *Regime Change* is necessary (**H2**).

j. **Endgame Check.** As a final step, check for a singularity ending (5+ same adjacent disciplines in the Splay, see **I1b**) or a tycoon ending (if you establish your 5th Company, see **I1d**).

***Example**. You have NEUROHACKING (#33) syndicated, which is a gold and blue card. This matches a Discipline Pair in the Splay. You perform the commercialize action, triggering the impacts on the card. For the first impact, disruption, you choose the gold transbiology side to be the disruptive discipline. This divests all the current gold Patents, and discards a gold card of your choice from the Splay. You place the neurohacking card into the Splay so that its gold edge is visible. For the second impact (wild problem), you choose the EXOSCIENCE GAP chit. The third impact gives you a company in the cloud. The last (recession) is ignored because you have Heat on MANCHURIAN CANDIDATES. Both your Syndication, and the Syndication of an opponent that happens to be there, are placed on the human progress card as gold Patents. There are 3 Heat on the card, and these all become Future Shock. Finally, you note that the Regime has changed to transbiology because of the addition of the new card to the cutting edge.*

F4. Hire Action (costly).

Installs an Employee into any Infrastructure Space, including unoccupied Barriers (freelancing), Utilities (unless you already have an Agent there), or unoccupied Companies (yours or an opponent's). Obtain the new Employee of your color by Installation (see glossary) from your finance board or moving from unemployment within the same Sphere.

a. **Cost is 3 Money**.[28]

[27] NANOTECH FUTURE SHOCK. Nanotechnology can be divided into stages; even at the most advanced stage, society should be less worried about biology-style accidents than deliberate abuse. Development of nanotech weapons would not be detectable by current weapons monitoring techniques. An automated monitoring system, if based on sufficiently secure software foundations and physical arrangements, could serve as the basis for an arms control enforcement mechanism. Design needs to be open and decentralized to build the required public trust. - Christine Peterson, Mark S. Miller, Allison Duettmann, *Cyber, Nano, and AGI Risks: Decentralized Approaches to Reducing Risks*, Foresight Institute, 2018.

[28] HIRING COSTS represent the cost of the insurance, health, and other costs associated with hiring, as well as the costs, both to a company and to the economy as a whole, of paying deadwood employees who, by nature of unions or other clauses, can't be fired. Worker welfare generally increases hiring and firing costs, which increases unemployment and business failures.

b. **Stack Limits.** Each Barrier and Company can hold only 1 Employee, and each Utility can hold only 1 Employee of each color.

c. **Company Hiring.** Hiring into your own Company differs from other hiring because it does not require expending an Action. You can even hire several of your Agents in the same turn, without expending any Actions, as long as you pay 3 money for each.

***Example**. You have 2 Companies in the first world, and another in space. During your turn you first fundraise, then hire into all 3 Companies (costs 9), then perform research from the Company in space.*

F5. Research Action (busy, costly).

This Action discards or claims a Market card and then adds fresh cards to a depleted Market. The Market card discarded or claimed is always the lowest in the chosen column. Perform these 9 steps:

a. Choose a Sphere.

b. Cost. To perform this action, you must pay the Barrier Cost (see glossary). This cost is doubled unless you expend a Subsidized Employee (e.g. Company or Utility) to perform the Thinker Work.

c. Work. Perform thinker work in that Sphere. It can be your color, or *foreign* per **E5b**.

d. Tipping Point. In order to research a tipping point out of the market, you must first have Syndication on it.

***Rookie Mistake:** Except for Tipping Points, you do NOT need to have a card syndicated in order to research it.*

e. Remove the lowermost (i.e. least expensive) Idea in that Sphere (if any), and Divest any Agents on it.

f. Slide all cards in the column down to fill in any Gaps.

g. Refresh Gaps with new cards from the draw deck (from bottom gaps to top gaps).

***Example**. The cloud started with only one card, which was lost due to an import. You have established a Thinker Company in the cloud infrastructure. On your turn you hire an Employee to your company for no actions but 3 money, then perform a research using your first action. This expends your Employee and costs 4 money (the number of Barriers remaining in the cloud). Since it is performed by a company man, your research is subsidized. No cards are discarded from the cloud, since it has none. But it does have 6 Gaps, all of which are filled from the draw deck. Unfortunately, you can't install any Patents because no Idea Card was discarded.*

h. Optional Patents. Decide to accept the researched card as Patents or as a Think Tank. If you decide on Patents, the Thinker Work for the research must not be from a Utility.[29] Then *install* (**E3**) your choice of zero, one or two Patents. Each Patent must match a Discipline on the card discarded (if any). If you install 2 Patents, they must be the two Disciplines of the card.

***Example**. In the previous example, suppose GENETIC AUGMENTATION (#16) was the only card in the cloud column. This is a gold-gold card. You decide to install 2 gold (transbiology) patents.*

i. Think Tank. Assume the researched card did not have any opponent's Agents (i.e. Syndicate or Heat) on it, instead of discarding and claiming Patents, you may claim it to the top of your Think Tank stack (see

[29] INVENTIONS of the last century or two have been overwhelmingly borne from private, not public, research. This includes the greatest 20 century inventions: automobiles, airplanes, radio, television, integrated circuits, microprocessors, desktop computers, refrigerators, agricultural green revolution, microwave ovens, ethernet, and cell phones. All stem from the first world, usually American. Yet large amounts of capital were typically not involved, and the inventors ranged from a log cabin teenager (Philo Farnsworth, electronic television) to an impoverished housewife (Josephine Cochrane, mechanical dishwasher). The crucial ingredient that the first world provides is the motivation to promote a discovery to a commercial scale, i.e. the freedom to profit from one's own efforts. Even inventions with obvious military potential (airplanes, rockets, lasers) come not from DARPA-style labs, but from backyard tinkerers with nary a dime of tax subsidies. Most medical breakthroughs are private, with a few serendipitous exceptions such as penicillin. This contrasts to most taxpayer-funded medical research, such as the Nixon's and later Obama's war on cancer, which swallowed billions with little results.

glossary). The two colors of your Think Tank enhance your viability, and give you private access to the card's Ability (if any).

***Example**. In the previous example, assume GENETIC AUGMENTATION (#16) did not have any foreign agents on it. When you research it, you may claim it to the top of your Think Tank stack instead of installing the 2 Patents. Gold-gold is now a Viable pair for you, and you get its cool ability.*

F6. Placate Heat Action.[30]

Divest one Heat of your color. It can be on either a white or black square.

***Note**: Your Agents in the Splay (Future Shock) can't be placated. They can only be Divested if either they are targeted by a social resilience impact (**G4**), or the card they are on is discarded via disruption impact (**G5**).*

***Example**. You syndicate EXOCORTEX (#4), which has 2 white-heat (identity blur). Therefore, you install 1 Syndication and 2 Heat Agents. For your second action, you perform a placate heat, which removes one of the Heat and returns the Agent to your wealth.*

F7. Import Action.[31]

Move an Idea from any market column to a **Gap** (empty spot) in any market column.

a. **Agent Precondition**. The card moved must have no opponent's cubes on it. If it has your cube(s), they move with the card.

***Example**. You import EXOCORTEX (previous example) from the first world, to the nearly empty cloud where you have a company. You decide to move it to the most expensive spot (5), to discourage Syndication competition.*

G. IMPACTS

As the first step of *commercialization* (**F3**), perform the icons on the left column of the card from top to bottom. These are called **impact icons**.

- **And/Or.** If two impact icons are separated by a "**+**" icon, then you get both impacts. But if separated by an "OR" icon, then you choose which of the two impacts that you wish to activate. Always evaluate an "**- OR -**" icon before evaluating any "**+**" icons.

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[30] PLACATE HEAT. Well-meaning activism to block technology can be catastrophic. The world-wide ban on the use of DDT, even though this pesticide has never been demonstrated to harm humans nor accumulate in the food chain, constitutes the biggest man-made disaster of all time. Without DDT spraying, malaria and typhus in Asia and Africa rebounded from close to zero to deadly-pre 1950's levels. India for instance suffered 800,000 malarial deaths in 1947, reduced to no deaths and "total control" using DDT in 1965, but after the DDT ban rebounded to over 500,000 in 1971. This magnitude of lives saved, only to rebound, was echoed in Zanzibar, Venezuela, Nepal, Peru, Uganda, Taiwan, African fatalities remain to this day over a half million per year. Supporters of the ban, such as the Malthusians Paul Ehrlich, Michael McCloskey (Sierra Club Director), and Alexander King of the Club of Rome, stated that malaria was useful as population control for the developing world. *"European nations and the United States used insecticides to rid themselves of disease and then pulled up the ladder, denying Africans, Asians and Latin Americans the benefits of those same insecticides."* —Dr. Donald Roberts and Richard Tren, *The Excellent Powder: DDT's Political and Scientific History*, 2010.

[31] TECHNOLOGICAL COMPLEXITY. *"**Scenario #1.** As in nature, the bulk of technology remains simple, basic, and primeval because it works. And the primitive works well as a foundation for the thin layer of complex technology built upon it. Because the technium is an ecosystem of technologies, most of it will remain in its equivalent microbial stage: brick, wood, hammers, copper wires, electric motors, and so on. … **Scenario #2.** Complexity, like all other factors in growing systems, plateaus at some point, and some other quality we had not noticed earlier … takes its place as the prime observable trend. **Scenario #3.** There is no limit to how complex all things can get. Everything is complexifying over time, headed towards that omega point of ultimate complexity. The bricks in our buildings will become smart; the spoon in our hand will adapt to our grip; cars will be as complicated as jets are today. The most complex things we use in a day will be beyond any single person's comprehension."* —Kevin Kelly, *What Technology Wants*, 2010.

G1. Growth Impact.[32] ()

The **growth icon** means to take a new Agent of your color from the pool, and place it into wealth on your finance board.

G2. Solution Impact ().[33] [34] [35] [36]

Take the named Problem in that icon's Sphere and place it in your Victory Pile, assuming that Problem has not already been solved. Note that there are 2 copies of some Problems, and you can only claim one at a time.

a. **Wild Problem**. Impact icons with the question mark  are wild, you can select any unclaimed Problem from any Sphere.

[32] GROWTH, defined in this game as an increase in the number of player agents, represents the increase in the supply of capital, both human and industrial. Without the appropriate capital, products either cannot be produced at all or can be produced only with the expenditure of far more work expenditure. Two causes of growth that work in unison are: (1) the economic degree of capitalism, i.e. the amount spent or saved for capital goods relative to what is spent or saved for consumers' goods, and (2) the efficiency of the economic system in using existing capital goods. Cause (1) is simulated using the financial boards, and cause (2) is simulated by the advance of technology through commercialization and the reduction of barriers.

[33] FIRST WORLD PROBLEMS include the underpopulation crisis. Outside the reign of science and technology a growing population will collapse on itself as it meets Malthusian limits. But inside the first world a growing population creates a positive feedback loop wherein more people participate in scientific innovation and purchase the results, driving more innovation, which brings better nutrition, and more surplus. Human minds are, according to the economist Julian Simon, "the ultimate resource". For reasons not well understood, as countries become developed, their fertility rates invariably drop to below the replacement level of 2.1 children per woman. Places like Japan or Europe have fertility rates in seemingly bottomless freefall. Not to zero population growth, which they long ago sank past, but to zero population. Even developing countries see a plummeting fertility rate today. About half the countries in the world are now below the replacement level, and every country in the world has a lower rate then it had in 1960. Despite ever lengthening lifespans, the world population will likely peak in 50 years. The crisis: can deep technological progress be maintained in the face of gradual population declines, as an increasing number of fresh young minds are entrained into caring for an aging population?

[34] DEVELOPING WORLD PROBLEMS are often political ones. In particular, hate groups account for most of today's wars, starvation, refugees, and anarchy. This form of tribalism ostensibly divides people along race, religion, and cultural lines. However, since the victims (e.g. Croats, Albanians, Ibos, Tutsis, Pied-Noirs, Shona, Rohingya, Jews) are usually industrious and relatively wealthy minorities, the chief motivation for the violence seems to be economic. There are also major natural problems such as vector-borne disease; see footnote 30.

[35] CLOUD PROBLEMS are no different than problems in other spheres: transacting with others for information, food, medical care, education, and family, all using a sound media of exchange. The so-called "virtual reality" is a mildly entertaining form of escapism, like drugs or alcohol, that solves none of the problems. *"What a funny species we are, capable of believing there's a reality other than reality."* —Quent Cordair

[36] SPACE PROBLEMS. Humans have been long accustomed to a planet with plenty of mass, but limited energy. In space, the reverse holds true. All vehicles, whether on land, sea, or space need both energy and mass to enact the momentum transfer that allows them to maneuver. But a space vehicle needs to bring its own mass, namely rocket propellent. And the more mass brought, the bigger the thruster must be in order to actually move all that mass. The tyranny of the rocket equation leads me to conclude: *"if you have a choice of a rocket and something else, always use the something else"*. Another serious consequence of the lack of mass in space is heat rejection. On Earth, it is a simple matter to dump waste heat into a river or atmosphere. In space, the only practical way to reject heat is by radiators with huge surface areas.

***Example**: You commercialize NEOGEN PHARMING (#24) which has 3 impacts: FAMINE **- OR -** DISEASE + first world thinker company. You decide to claim the solution for disease, then you establish the Company.*

G3. Company Startup Impact ( ).

Take one of your unused Company disks (if you have any) and place it on any Barrier in the Sphere's Infrastructure that is on the appropriate side (thinker or maker). If the Company is a *brash startup* (**G3d**), it may alternately be placed to dislodge a foreign company.

a. **Local Hiring**. If the chosen Barrier is occupied by an Employee, including an opponent's Employee, it must be immediately employed into the Company. Place it on top of the disk.

***Example**: You commercialize AVATAR TEACHERS (#77), which has an impact of a thinker company in the developing world. You decide to place your company disk on the PROTECTIONISM barrier. Your opponent has an Agent there, who is immediately employed into your new company.*

b. **Thinker/Maker Companies.** Each Sphere has a thinker half (left side) and a maker half (right side). If the impact icon indicates thinker, it must be on the left side. If maker, the right side. In each Sphere there is one or two Barriers with the (hand/light bulb) icon, and either a thinker or maker company can go here.

c. **Business Saturation**. If all the available Barriers are occupied by Companies, this impact has no effect.

d. **Brash Startup**. These company impacts are marked below with the name of a Barrier followed by an exclamation point (!). If so, these follow the same rules as other startups (including local hiring), but if placed on its named barrier, it discards any company disk already there.

***Rookie Mistake:** You do NOT need to place a brash company on its named barrier.*

***Example**: In the previous example, you decide to establish your company on the EDUCATION barrier instead of PROTECTIONISM. Your opponent already has a company disk there, but because AVATAR TEACHERS has EDUCATION listed as a brash startup, the old company is replaced by your company.*

G4. Social Resilience Impact ( ).[37]

You may Divest one Heat or Future Shock. It can be either white or black, in the Market or in the Splay, or yours or an opponents'. It cannot be a Heat/Future Shock on the card being commercialized. The divested Agent returns to its owners' finance board.

***Example**: You commercialize STATELESS CITIZENSHIP (#65) containing 3 social resilience impacts. You decide to divest a couple of Heat you have in the market, and one of your opponent's Future Shock in the Splay. The latter gives you access to an advantageous Discipline Pair.*

G5. Industry Disruption Impact ( ).[38]

If you commercialize an Idea with the **industry disruption icon**, the discipline chosen to be visible when it enters the Splay is called the **disruptive discipline**. This impact has 2 effects (perform in this order):

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[37] SOCIAL RESILIENCE is defined as: 1. Coping capacities –the ability of a social animal to learn to thrive under a changing environment; 2. Adaptive capacities – its ability to inductively visualize future challenges using its lingual repertoire of abstractions; 3. Transformative capacities – its ability to craft proper societal behavior and institutions that foster individual welfare and sustainable societal robustness. All social animals exhibit (1), but only humans wield the lingual abstractions required for (2) and (3).

[38] INDUSTRY DISRUPTION. *"Though they may start out full of entrepreneurial zeal, once firms or bureaucracies grow large, they become risk-averse to the point of Luddism…That is why Apple, not IBM, perfected the personal computer, why the Wright Brothers, not the French army, invented powered flight, why Jonas Salk, not the British National Health Service, invented polio vaccine, why Amazon, not the Post office,*

a. **Patent Kill.** Divest all Patents in the disruptive discipline (this Divestment occurs before placing Patents generated by commercializing, see **F3**).
b. **Splay Kill**. Choose one Splay card with a disruptive discipline visible (if there are any), and discard it from the game, Divesting any Future Shock on it.

Note: *This can eliminate certain Discipline Pairs, and create new ones. It also can change the cutting edge and the regime (**H2**).*

Example*: You commercialize the disruptive idea SANGRECYTES (#25) and choose the orange orientation to be the disruptive discipline. During patent kill, all orange patents are divested. During splay kill, you remove a orange card visible in the splay. This removal joins two 3-card chains of green disciplines, ending the game in singularity during endgame check (**F3k**).*

G6. Exoglobal Recession Impact ( ).[39]

This impact only occurs if the Idea being commercialized has no Heat on its black-heat square. If so, each player with Employees (in any Sphere) must select one of them and discard it into the pool.

Note*: Like Regimes, recession is **exoglobal**, i.e., it impacts all players in all Spheres.*

Rookie Mistake: *An Employee lost in a recession is discarded into the pool, not Divested!*

Example*: You commercialize GLOBAL POLICING (#79), but have not covered the black-heat CENTRAL GOVERNMENT PLANNING. You choose one of your unemployed Agents to discard, but your opponent is forced to discard one of his company employees. Both losses go into the pool and not returned to finance. Another opponent, who has no Employees, is immune.*

G7. Defusal Growth Impact ( ).[40]

This impact allows you to take one of your Agents from the pool, and place it on any uncovered black-heat square in the Market or the Splay. This Agent is then treated the same as Heat or Future Shock respectively. This impact has no effect if there are no available black-heat to cover.

invented one-click ordering and why a Finnish lumber-supply company, not a national telephone monopoly, became the world leader in mobile telephony." —Matt Ridley, *The Rational Optimist,* 2010.

[39] RECESSION is the politically correct name for what used to be called a "depression". Rather than falling prices, it describes a decrease in the quantity of money and/or volume of spending in the economic system. Falling prices are a consequence of deflation (a fall in demand), not the phenomenon itself. Indeed, falling prices (e.g. by the introduction of new cheaper technology) are healthy for the economy and allow the masses to afford marvelous machines like cars and computers that are in increased supply. However, a deflation can also be caused by a decreasing supply of money, as in the Great Depression. This sucked liquidity out of the market, the market crashed, unemployment soared, and banks stopped loaning money because people were defaulting. This spiral caused the money supply to drop even further, etc.

[40] DEFUSAL represents activism aimed at protecting an individual's freedom to profit by his or her own actions. *"In lofty socialist theory, the government should control all technical innovation. Above the narrow factionalism of individual interests, high-minded bureaucrats should calmly judge the costs and benefits of a project for the good of the whole community. In practice, however, government control is the kiss of death. In the British aerospace industry alone it has clocked up a long succession of disasters, from the R101 airship to the Concorde, which either turned out unworkable, unwanted, horrifically costly, or all of them at once. In aerospace as elsewhere, it is the selfish, profit-centered capitalist ventures which tend to deliver the goods. And maybe this makes sense. After all, shrewd and informed investors risking their own money are probably the soundest available judges of whether a technical scheme is going to be worthwhile. Money talks, and often tells the truth."* —David Jones, *The Further Inventions of Daedalus,* 1999.

***Example**: You activate a defusal-growth impact (#14), which places a new Agent on an uncovered black-heat. You choose the GRAY GOO (#45)"[41] in the Splay to cover. Your new Agent comes from the pool, thus increasing your repertoire of Agents in play.*

G8. Nuclear Exchange Impact ( ).[42]

This impact icon is found on tipping point cards, the 4 ideas regarded as "epic", and the plurality card. For each black-heat square visible in the Splay before the impact is enacted, all players are forced to discard to the pool their choice of one Company or one Problem in the Sphere icon indicated by the color and shape of the mushroom cloud.

a. **Shielding**. For each Future Shock that you have on a black-heat square in the Splay, you may ignore one discard from a nuclear exchange.

***Note**: This impact has no effect on those with no Companies or Problems in that Sphere.*

***Example**: Your opponent commercializes PROGRAMMABLE MATTER (#106) an orange (space) card with the nuclear exchange impact. There are 3 black-heat squares visible in the Splay. Therefore, each player must discard 3 entities in space, either Companies or Problems. Your opponent does not have any, so he is unaffected. You have 3 Future Shock on black-heat, and you are also unaffected.*

G9. Game End Impact ( ).

Like all impacts, the *game end impact* is mandatory, and the players score per (**I1a**) if the game ended with the purchase of a tipping point card, or per (**I1c**) if it ended with the discard of the plurality card.

***Example**. You commercialize the gold tipping point card and perform the nuclear exchange impact and the wild problem impact. Then, without placing the card in the Splay, you perform the game end impact. The Regime is computing, so each player counts 2 VP for each cloud Company and Problem. Each player adds his Hidden Sphere VP to see who is the winner (**I2a**).*

H. CUTTING EDGE & REGIMES

The game state is always in exactly one of the six **regimes**: globalization, group dynamics, transbiology, computing, assembly, or paradigm shift. These 3 double-sided cards are stored in a stack.

a. **Start Regime.** The game starts with the globalization regime faceup on top of the regime stack.[43]

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[41] GRAY GOO refers to a deliberate or accidental escape of out-of-control replicating assemblers capable of consuming biomass while building more of themselves. *"Though masses of uncontrolled replicators need not be gray or gooey, the term "gra goo" emphasizes that replicators able to obliterate life might be less inspiring than a single species of crabgrass. They might be 'superior" in an evolutionary sense, but this need not make them valuable. We have evolved to love a world rich in living things, ideas, and diversity, so there is no reason to value gray goo merely because it can spread."*—K. Eric Drexler, *Engines of Creation*, 1986.

[42] NUCLEAR WAR is perhaps the most plausible of the doomsday scenarios. Yet since the fall of the Soviet empire, global arms spending has fallen by 30% and three-quarters of the nuclear missiles have been dismantled. This amazing accomplishment has gone almost unnoticed.

[43] WORLD BANK, along with the International Monetary Fund (IMF), and Inter-American Development Bank (IDB) are central banks facilitating loans to heavily indebted countries. *"It is one of the ironies of history that in the postwar pre-Adam Smithian ideas monopolized Western thinking about economic development. Hundreds of billions of dollars of counterproductive aid were poured into strengthening the very rent-seeking behavior and institutions that had prevented Latin American progress for centuries. In the 1990s, the perpetrators of development planning still churn out billions of dollars of loans yearly to build up state sectors, even while countries privatize previous development bank*

H1. Determine Cutting Edge.[44]

The bottommost (i.e. most recently added) 3 visible disciplines (or 2 visible disciplines if the Splay only contains 2 cards) determine the **cutting edge**, which sets the Regime per **H2**.

H2. Regime Change.[45]

As a final step in *commercialization* (**F3**), check to see if the regime changes from the current one. If so, add the new regime faceup on top of the regime stack. Its effects (**H3**) are active immediately. There are 6 regimes:

a. **Globalization** - the default regime. If there is no other regime, then the regime is globalization.
b. **Transbiology** - if exactly 2 of the *cutting edge* (**H1**) are the transbiology discipline (gold).
c. **Group Dynamics** - if exactly 2 of the *cutting edge* are the group dynamics discipline (green).
d. **Computing** - if exactly 2 of the *cutting edge* are the computing discipline (blue).
e. **Assembly** - if exactly 2 of the *cutting edge* are the assembly discipline (orange).
f. **Paradigm Shift** - if all 3 of the *cutting edge* are all the same Discipline (same color).[46]

***Example**: The last 3 cards in the Splay are assembly, assembly, group dynamics. Therefore, the cutting edge is assembly (**H2e**).*

H3. Exoglobalization.[47]

Each Regime lists its **exoglobalization**, i.e. metarules universal for all players as long as that regime is active. For all the regimes except globalization and paradigm shift, one Dominant Sphere is specified, which determines how to count victory points during a *tipping point scoring* (**I2**).

a. **Globalization Regime Active.** Research and commercialization in the developing world is subsidized. There is no Dominant Sphere.
b. **Transbiology Regime Active**. Every market idea has surge arrows (**F2f**) for both of the card's Disciplines. Transbiology (gold) Patents are worth double (**E2**). The Dominant Sphere is first world.[48]

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projects. Paradoxically, part of the government-to-government lending now goes to assist countries in downsizing governments that were built up by previous loans." —Paul Craig Roberts & Karen LaFollette Araujo, *The Capitalist Revolution in Latin America,* 1997.

[44] CUTTING EDGE. The forefront of technological change. Sometimes this is called the "bleeding edge", if referring to technologies so novel they are unreliable or full of bugs. Phil recalls questioning the wisdom of his partner Fat Messiah investing in game advertising on a bleeding edge novelty he called the "World Wide Web".

[45] ADVERTISING is an essential step on a particular technology's road to first changing society, and then becoming so ubiquitous as to be invisible. After an invention, there is a number of years until it reaches 50% adoption in the Western World. This was 7 years (X-ray, Internet), 10 years (cell phone), 22 years (PC), 26 years (TV), 30 years (radio), 33 years (microwave oven), 36 years (VCR), 55 years (electricity), 75 years (telephone), 77 years (airplane), 85 years (automobile).

[46] PARADIGM, a Greek term resurrected by Thomas Kuhn, refers to the techniques, patents and values shared by the extant members of the scientific community. If enough anomalies accumulate in the current paradigm, under a proper epistemology it shifts to an improved paradigm, such as when a Copernican cosmology supplanted the earlier Ptolemaic one. In a 2015 retrospective on Kuhn, the philosopher Martin Cohen describes the notion of the "Paradigm Shift" as a kind of intellectual virus – spreading from hard science to social science and on to the arts and even everyday political rhetoric today.

[47] EXOGLOBALIZATION is the elimination of government-enforced restrictions on exchanges across the Earth and extended to extraterrestrial resources and facilities, creating an interglobal marketplace.

[48] TRANSBIOLOGY REGIME is the battleground between two shades of green: the Green Revolution (high yield crops and mechanized farming) and environmentalism. The first is led by economists seeking to put all of nature to maximum use for the production of more goods and

***Example**. A sphere has 3 cards in its market column: orange-green (at top), gold-gold, blue-orange (at bottom). The regime is transbiology, which confers surge to every card in the market. Therefore, by syndicating the lowermost orange idea, you can surge upwards, syndicating the other card with orange per **F2f**.*

c. **Group Dynamics Regime Active**. Hiring costs zero. Group Dynamics Patents are worth double. The Dominant Sphere is the developing world.
d. **Computing Regime Active**. Research actions do not cost any money. Computing Patents are worth double. The Dominant Sphere is the cloud.
e. **Assembly Regime Active**. Commercialization is Subsidized. Assembly Patents are worth double. The Dominant Sphere is space.
f. **Paradigm Shift Regime Active.** Syndication costs zero. All Patents are worth double. There is no Dominant Sphere.

***Example**. The Regime is assembly (see previous example). On your turn, you commercialize (which is subsidized), and pay for this by selling 2 assembly patents (worth double) 2 assembly patents (worth double).*

I. GAME END & VICTORY

I1. Game End.

The game ends instantly one of four ways:

a. **Tipping Point**.[49] At the beginning of the game four Tipping Point cards are shuffled into the bottom half of the deck (**C3b**). If one of these is commercialized, its *game end impact* (**G9**) ends the game and scores per **I2**.

***Remember!** Impacts occur before adding the Idea to the Splay (**F3**).*

b. **Singularity.** Certain Abilities or the last step of a *commercialization* (**F3k**) can result in the Splay somewhere containing 5+ successive cards all of the same Discipline. This ends the game at that point. Score per **I3**.
c. **Plurality**. During setup (**C3c**), the plurality card is added as the very last card in the deck. The game ends if this card is discarded from the Market by research (**I4**).
d. **Tycoon**.[50] During the last step of a *commercialization* (**F3k**), if you cannot place your Company because you already have all 4 disks used, then the game ends and you win.

I2. Tipping Point Scoring.[51]

The game ends if a tipping point is commercialized. Count scores according to the current Regime:

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services and other human benefits, while the second is led by those who see all population and economic growth as immoral challenges to the natural order and the sacred wilderness.

[49] TIPPING POINT is where the technium's ability to alter us exceeds our ability to alter the technium. Whether this is a good or bad thing depends on how good a job you think human beings are doing. "Technical artifice as an aggregate phenomenon dwarfs human consciousness and makes unintelligible the systems that people supposedly manipulate and control; by this tendency to exceed human grasp and yet to operate successfully according to its own internal makeup, technology is a total phenomenon which constitutes a 'second nature' far exceeding any desires or expectations for the particular components." —Langdon Winner, *Autonomous Technology: Technics-Out-of-Control as a Theme in Political Thought,* 1977.

[50] TYCOON FUTURE. In a future where state power is eroded, socially responsible businesses will assume many of the traditional roles of central democratic governments in improving infrastructure and leveling barriers. Some fear this will lead to chaos. But the opposite of "central planning" is not "no planning", it is the absence of the forcible superseding of other people's planning by a government official.

[51] TIPPING POINT DOOMSAYERS. In 1974, Phil Eklund had to give a report in front of his High School class about the tipping point everyone knew had doomed the planet. In The Population Bomb (1968), Paul Ehrlich asserted, in its very first sentence, that the world death rate would substantially increase, and hundreds of millions would die from starvation in the 1970's, regardless of preventative measures taken. (Instead of

a. **Transbiology/Group Dynamics/Computing/Assembly.** If the Regime is one of the 4 Spheres, this is the **Dominant Sphere** (**H3a,b,c,d,e**), and each of your Companies and Problems in your Victory Pile that are associated with that Sphere are worth 2 VP. Each Company and Problem in your Hidden Sphere are additionally worth 1 VP.

***Example**: The game ends with the computing regime active, so that the cloud is the Dominant Sphere. Your Hidden Sphere is space. You have artificial consciousness[52] (a cloud problem) and global warming (a developing world problem). You also have a company in the first world. Because you have nothing in your Hidden Sphere, only the artificial consciousness chit counts, and you end with 2 VP.*

b. **Paradigm Shift.** If the Regime is **paradigm shift**, there is no Dominant Sphere and *singularity scoring* is used (**I3**).
c. **Globalization.** If the Regime is **globalization**, there is no Dominant Sphere and the winner is the player with the most Companies and Problems in his Hidden Sphere.

***Example**: Your opponent commercializes a tipping point during the globalization regime. Your Hidden Sphere is the developing world, and in this Sphere you have 1 Company and 1 Problem. You end with 2 VP.*

***Rookie Mistake**: What is important for Tipping Point Scoring is the Regime when the game ends, and not the color of the tipping point card commercialized.*

I3. Singularity Scoring.[53]

If the game ends in a *paradigm shift* (**H2f**), or in a *singularity* (**I1b**), then Future Shock (Agents in the Splay) are worth 1 victory point (VP). Nothing else scores.

***Example**: You commercialize a disruptive card which creates a string of 6 cards with the same visible discipline in the Splay. This ends the game in a singularity (**I1b**).*

I4. Plurality Scoring.

The final game card, the **plurality card**, can't be commercialized. If discarded during *research* (**F5d**), apply its 4 *nuclear exchange impacts* (G8) and then end the game. Each player scores 1 VP for each Problem in any Sphere, and an additional VP for each Problem in his Hidden Sphere

***Example**: You research the plurality card, ending the game. You have 2 Problems in your Victory Pile for space which is your Hidden Sphere. Your final score is 4.*

famine came an agricultural glut, and the number of calories per capita continued to climb throughout this decade). Rationing during the 1973-74 oil crisis was still in full swing, and I reported we could not expect to be able to drive when we got our licenses for lack of gasoline. Since my sober report, false in every particular, a fresh crop of pessimists have arisen each generation assuring us that we have reached a tipping point, and commercial activity is to blame. Recent doomsayer authors include Chomsky, Ehrenreich, Franken, Gore, Gray, Klein, Monbiot, and Moore. Such books are supported by politicians who have a vested interest in using manufactured crises to enhance their power to "rescue" society with their interventions.

[52] ARTIFICIAL INTELLIGENCE is the problem-solving and learning to achieve goals that have been programmed (either by humans or natural selection). These goals range from mathematical proofs to winning a game such as Chess, Go, Jeopardy!, all areas where AI has outpaced human intelligence. Intelligence has nothing to do with consciousness, which subsumes the conceptual capacities for self-programming, inductive logic, fantasies, evaluation, and goal-setting.

[53] SINGULARITY. *"Within thirty years, we will have the technological means to create superhuman intelligence. Shortly after, the human era will be ended...I think it's fair to call this event a singularity…"* —Vernor Vinge, *VISION-21 Symposium,* 1993.

I5. Ties.

If there are players tied for the lead at the end of the game, break the tie with the winner as the player with the most capital (**B2**). If still tied, the winner is the one with the most wealth. If still tied, share the victory.

***Example**: In the example for I3, you have 3 Agents as Future Shock and 1 capital, the same as an opponent. You have more wealth, so you win.*

J. INVESTMENT STRATEGIES & MONEY MANAGEMENT

The finance board is not your only source of income in the game. As the Splay gets longer, Patents can generate all the money you'll ever need. This allows investment strategies familiar to any investor who has been approached by promoters of managed risk mutual funds: what percent of your assets should be fixed income (finance board) and how many in global markets ("Patents").

a. **Debt Avoidance**. Avoid going heavily into debt, and if this happens, you may have to divest during multiple *fundraisers* (**F1a**). As a last resort, syndicate in the 0-cost column and immediately divest the agent by performing a fundraiser. In this way you gain a capital, which you can use to recover your finances.

b. **Speculator.** A bold player with a certain savoir-faire can ignore the tips for debt-avoidance given above. This strategy concentrates on the acquisition and sale of patents instead of fundraising, think tanks or utility work, and requires planning several turns ahead to buy the next important patent.

K. EXOGLOBAL ARENA - Solo Variant by Jon Manker

As business expands into the cloud and space, "multinationals" become supplanted by "exoglobals".[54] In this variant, play as a solo player against automated exoglobal players:

[54] MULTINATIONAL. Sometimes multinational corporations are smeared as unethical and otherwise reified as if they were a person. In reality, only individual persons commit crimes, and doing business in more than one nation merely exposes them to be plundered by a broader range of bureaucrats. Sierra Madre Games is an example of a multinational, consisting of myself, Phil Eklund of Germany, and my son, Matt Eklund of Arizona.

K1. EXOGLOBAL SETUP

a. **Assign Player Color.** Choose one player board for yourself and setup per **C1**. Choose 2 or three exoglobal player's boards and place all 15 of their cubes on their respective boards.

b. **Setup Market Area** per **C2**.

c. **Setup Draw Deck** is per **C3**. Then create a second faceup draw pile, called the **exoglobal deck**, using all remaining cards. It will be used to determine exoglobal player's actions.

d. **Starting Splay, Regime Cards, Problem Chits, & Hidden Sphere** are per **C4 - C7**. Deal each of the exoglobals a facedown Hidden Sphere.

K2. EXOGLOBAL DIFFICULTY LEVEL

a. **Easy**. For your exoglobal players, use 3 exoglobal players. Use a faceup exoglobal deck.

b. **Hard**. For your exoglobal players, use 2 exoglobal players. Use a facedown exoglobal deck.

K3. EXOGLOBAL SPHERE SELECTION

If an exoglobal syndication **K5c**) or a commercialization **K6b**) occurs, select the Sphere and Market Card as follows:

a. **Tipping Point.** As tipping points become available in the Market, the exoglobal player will preferentially target the first one, following the order specified in the next bullet.

b. **Spheres**. Start in the first world market, and evaluate cards from cheapest to most expensive. If there are no suitable cards, then move to the next column to the right, and repeat until a match is found or all cards are evaluated.

c. **No Matches.** If no cards in the market match any of the discipline colors on the drawn card, no exoglobal syndication is placed.

K4. EXOGLOBAL ECONOMY & COMPANIES

a. **Economy**. Exoglobal players can always afford their actions; you don't track their economy, patents, or employees.

b. **Exoglobal Companies**. You may not hire into or enter a exoglobal company. If your Employee is already present where an exoglobal is formed, it becomes employed into that company.

K5. EXOGLOBAL SEQUENCE OF PLAY

You play your turn as normal, then one of the exoglobal players takes its turn. Then it is your turn again. The sequence for a exoglobal turn is as follows:

***Note**: During an exoglobal recession, if exoglobals suffer losses they lose Companies instead of Employees (since they have no Employees).*

a. **The Phasing Exoglobal Player**. The **exoglobal player** for this phase is the color with the fewest cubes in play (as syndication, heat, or future shock). If tied go in *player order* (**C1b**).

b. **Draw Exoglobal Card**. Reveal the topmost card of the exoglobal deck. This is the **exoglobal card** for this phase.

c. **Place Exoglobal Syndication.** Place 1 exoglobal player syndication cube on a market card that has the same Discipline Pair as the exoglobal card. See **K3** for priority. This card cannot have been already syndicated by that exoglobal player, but can have the syndication of your color or those of other exoglobal players. If the market card has white-heat, place exoglobal cubes on all white-heat spaces on the Syndicated card.

d. **Surge.** If the card being syndicated has surge arrows, place syndications on all cards possible, including chain surge.

e. **Perform Exoglobal Impacts.** The icons on the exoglobal card have a different effect when the card is drawn from exoglobal deck, follow the rosetta stone below: All icons take effect (ignore any "**- OR -**" statements).

***Note**: Ignore Abilities on exoglobal cards.*

K6. EXOGLOBAL ROSETTA STONE

When *performing exoglobal impacts* (**K5e**), interpret its icons as follows:

a.  **Company.** Place a exoglobal player disk as a company following standard rules **(G3)**. If there are several options to place it on, you choose where. However, a *brash company* **(G3d**) is always placed on its named barrier.

b.  **Growth or Defusal Growth Impact.** Commercialize a card in the market that is syndicated for the phasing exoglobal player (**K5a**). See **K3** for priority. No impacts or patents are awarded to the exoglobal player. Orient the card with its left Discipline visible in the Splay.

c.  **Exoglobal Recession Impact.** Discard 1 of your Employees to the pool (**G6**).

d.  **Industry Disruption Impact.** Perform normally (**G5**) choosing one of the two colors of the icon.

e.  **Social Resilience Impact.** Remove the lowermost card (if any) of the Sphere with the most Companies plus Employees (counting all players). In case of a tie use the leftmost of the tied spheres. Divest any cubes on this card.

f.  **Solution Impact.** Take the solution shown on the card if it is still available.

g.  **Wild Problem Impact.** Draw one card from the bottom of the global deck of ideas and place in a Gap in the market. See **K3** for priority.

h.  **Other Impacts** (nuclear exchange, end of game) are handled per standard rules.

K7 GAME END & VICTORY

The solo game ends per **I1**, and scores per **I2, I3, I4,** and **I5**. Consider each exoglobal players individually when it comes to scoring, so you win if you beat the best of them. Note that a exoglobal player may win a tycoon victory.

GLOSSARY (Definitions for terms in Capital Letters)

Ability - is a *metarule* (**A2**) listed in the lower part of certain idea cards. Each player who has such a card syndicated or in his Think Tank may utilize this metarule during his Actions. If an Idea is discarded, commercialized, or covered by a new Think Tank, the ability is instantly lost.

Adjacent - Two Disciplines are adjacent in the Splay if they are visible next to each other. This forms a Discipline Pair. If one or both members of a Discipline Pair contain Future Shock, it remains adjacent but the pair is only Viable to the player(s) owning the Future Shock.

Action - During your turn, perform up to 2 actions. Money or work generation, Patent sales, and Company hiring (into your own Company) do not expend actions. Research does not cost money during the *computing regime* (**H3d**).

Agent - is the game's basic unit, a cube token in a player color. Each assumes an identity based upon its location, see **A4**.

Barrier[55] - is a red octagon  on an Infrastructure placard. The number of barriers in a Sphere not covered by a Company disk or Employee token is used to compute Barrier Costs.

Barrier Cost[56] - is the cost to perform the commercialize or research actions. It is equal to the number of Barriers remaining uncovered by tokens in the Sphere. The barrier cost is doubled unless performed by a subsidized Employee. For instance, if the first world has 1 of its 3 Barriers covered by your Employee, the unsubsidized Barrier Cost in the first world is 4. Barrier cost for an Action is reckoned before Work Production.

Company - is a disk in one of the player colors. It is placed on a Barrier by the *company startup impact* (**G3**). Once placed, it never moves. Each Company may employ up to one Employee, shown by placing the Agent on the disk. Any player may *hire* (**F4**) into an unoccupied company. Each company covers a Barrier. reducing the Barrier Costs for the Sphere by one. At the end of the game, companies are worth VP during some *tipping point scorings* **(I2a,c)** or *plurality scoring* (**I4**).

Discipline - is a color associated with one of the 4 Spheres: transbiology (gold), group dynamics (green), computing (blue), or assembly (orange). Two disciplines are found on each Idea, one on each side.

Discipline Pair - is two adjacent visible icons immediately above or below each other in the Splay. If they match the 2 colors of an Idea, they make that Idea Viable and able to be commercialized without divesting patents. If one or both members of a Discipline Pair contain Future Shock, the pair is only Viable to the player(s) owning the Future Shock.

Divest - is a withdrawal of an Agent of your color from cards or infrastructure into your wealth box. An Agent is involuntarily divested if its card is discarded (research, disruption) or commercialized by another player, with the exceptions (1) Heat becomes Future Shock (**F3g**), and (2) Agents on Ideas commercialized by non-utility work become Patents (**F3h**). During a fundraiser, you may voluntarily Divest Employees, Syndication, and Patents, but not Heat or Future Shock. Heat is divested by the *placate* action (**F6**). Future Shock is divested by *impacts* (**G4, G5**).

[55] BARRIERS are a limitation/expense (either manmade or natural) suffered by a customer that can be relieved by technological advancement. In this game, *barriers,* which impact specific customers and whose leveling costs can be recouped by customer payments, are contrasted to

Dominant Sphere - is the Sphere associated with the current Regime at the end of the game. If the Regime is globalization or paradigm shift, there is no dominant sphere. During *tipping point scoring* (**I2**) and *plurality scoring* (**I4**), Companies and Problems in the dominant sphere count 2 VP each.

Employee - is an Agent in an Infrastructure, either on a Company, Utility, Barrier, or unemployed. If moved downward (e.g. during the commercialize action), it produces Work through Employee Expenditure. An Employee of one color on a Company of another color is called a **foreign employee**. This employee can be expended either by the owner of the Agent or the owner of the Company, and in either case produces work for the player doing the expenditure.

Expenditure - See Work Production.

Future Shock (F3g) - is an Agent on a Splay card, either on a white- or black-heat square. It can only be Divested if either it is targeted by a *social resilience impact* (**G4**), or the card it is on is discarded via *disruption impact* (**G5**). Future shock blocks a card from being used as part of a Discipline Pair by anyone except one of the future shock owners, and counts as VP during a *singularity scoring* (**I3**). It does not block the sale price of a Patent.

Gap - is an empty spot in the 6 X 4 matrix that comprises the Market for all 4 Spheres.

Growth - adds a new Agent of your color from the pool, so that you have one more pawn in play. This happens during impact icons with the "+" sign, including *growth* (**G1**) and *defusals* (**G7**).[57]

Heat - is an Agent installed on a heat icon of an Idea in the Market, which allays the fears of special interests. The heat squares come in two colors: white-heat (to the left) and black-heat (to the right). White-heat squares are treated the same as black, except placement of Heat on a white square is a *precondition* for *syndication* (**F2b**), while placement on a black square is optional during syndication (and cannot be placed outside of syndication). However, if a black square is left uncovered it adds to destruction if an *exoglobal recession* (**G6**) or a *nuclear exchange* (**G8**) occurs.

- **Important**! Each heat square is duplicated on both the right and left edges of the card, but you only install heat on the left side.

problems, an externality whose costs cannot be easily assigned to individual customers. Examples of problems: mosquito control, honey bee pollination, lighthouses, enforcement of law and order.

[56] BARRIER COSTS are the costs to invest in a sphere, reflecting labor, education, and pollution handicaps. Such costs can only be reduced by technological progress. *"In the absence of technological progress, the point must always sooner or later be reached where additional supplies of capital goods would increase the ability to produce by diminishing amounts, with the result that capital accumulation would eventually peter out, no matter how great the relative production of capital goods."* —George Reisman, *Capitalism,* 1990.

[57] LIMITS TO GROWTH. *"The best-known doomsday forecast in the last few decades was 'The Limits to Growth'. It sold an astounding nine million copies in twenty-nine languages. But that book has been so thoroughly and universally criticized as neither valid nor scientific that it is not worthwhile to devote time or space to refuting its every detail. Even more damning, just four years after publication it was disavowed by its sponsors, the Club of Rome. The Club said that the conclusions of that first report are not correct and that they purposely misled the public in order to 'awaken' public concern."* —Julian Simon, *The Ultimate Resource 2,* 1996.

Hidden Sphere - is the Sphere you secretly select at the start of the game (**C7**), as indicated by the Discipline color uppermost on a card hidden under your placard. During *tipping point scoring* (**I2**) Companies and Problems in your hidden sphere count a VP each. During *plurality scoring* (**I4**) Problems in your hidden sphere count a VP each.

Idea - is a card with two Discipline colors, able to be syndicated, commercialized, researched, or imported. See **B3** for anatomy.

Infrastructure - This placard is in a column associated with one of the 4 Spheres. It contains Barriers and Utilities for the Installation of Employees and Companies. Unoccupied Barriers count towards Barrier Costs. It also includes a place at the bottom for unemployed Employees.

Install (E3) - moves an Agent from the uppermost occupied box on your finance board to a Sphere. This happens during *syndicate* (installs Syndication and Heat, **F2**), *hire* (installs an Employee, **F4**), and *research* (install 1 or 2 Patents, **F5**).

Maker Work - is an Employee Expenditure, in which the Employee exits a Barrier, Company, or Utility located on the right half of the infrastructure (marked with the hand icon), moving to a space one row lower in the Infrastructure. Maker Work is necessary to *commercialize* (**F3**).

Market (**C2**) - has four columns: first world, developing world, cloud, and space. Each column has a Sphere placard and then up to six faceup Idea cards. See the setup diagram in **Part C**. Each Idea is in a specific row, as marked with a cost token indicating the Market Cost (from 0 to 5).

Market Cost - The cost for the *syndicate action* (**F2**) depends on the Idea's columnar location in the Market. The lowermost Idea in the column costs 0 money, the next 1 money, then 2 money, 3 money, 4 money, and 5 money for the most expensive. These costs are indicated by a cost token beside each row.

Money Generation - If an Action is **costly** (i.e. costs money), generate the required money by moving Agents to a lower box on your finance board (**E1**) and/or by Patent sales (**E2**). You generate one money for each Agent shifted down your board (i.e. from capital to wealth, or wealth to debt).[58] You must always choose one of your uppermost Agents to shift. For instance, if you start with 1 in capital and 5 in wealth, and need to pay 4 money, shift 1 from capital to wealth, and then 3 from wealth to debt. Patent sales are a special way to generate money, useful only when paying for costly actions, see **E2**.

Patent - is an Agent placed in a patent slot of the human progress card (**C4**), corresponding to one of the 4 Disciplines. Patents are created during *commercialize* (**F3**) or *research* (**F5**). Patents can be *sold* to pay for costly actions (**E2**) or *Divested* (**E4**) to make a matching idea viable during commercialization.

Problem - is a chit, stored either in the pool, or in a player's Victory Pile. If the latter, it is worth 1 or 2 VP during *tipping point scoring* (**I2**) or *plurality scoring* (**I4**).

[58] CONSUMPTION is simulated in this game by moving financial agents downward. Thus capital is consumed to produce wealth, and wealth is consumed to produce debt. The Enlightenment economists recognized two types of consumption: **unproductive** and **productive**. The former includes the eating of bread (from wealth to debt), and the latter includes the consumption of flour and the wearing-out of ovens for the purpose of baking bread (from capital to wealth). Flour and ovens are examples of **capital**, anything productively consumed to produce a wealth (here bread, but wealth includes any human value from food to freedom). If the proportion of labor to produce capital goods is large enough to more than offset productive consumption, then **capital accumulation** occurs—i.e. the supply of capital goods grows.

Regime - There are six cards in the game indicating a regime: globalization, assembly, computing, group dynamics, transbiology, and singularity. They are stored in a stack, and the faceup regime is determined by the final 2 or 3 cards in the Splay, called the *cutting edge* (**H1**). Whenever the cutting edge changes, such as the final step in commercialization, check the cutting edge to see if a *regime change* (**H2**) is required. If so, put the new Regime on top to show it is active. The active Regime imposes an *exoglobalization* (**H3**) and also determines the Dominant Sphere that may be scored at the *game end* (**I1**).

Sphere - is one of the market card columns, including its Ideas and Infrastructure. There are four: first world, developing world, cloud, and space. Each is associated with one Discipline: transbiology (gold), group dynamics (green), computing (blue), or assembly (orange).

Splay - (short for human progress splay), is a semi-overlapping column of commercialized cards stored just below the human progress card. The first card in the splay is seeded during setup (**C4**).

Subsidized - This prevents the doubled Barrier Cost for producing the work for the commercialize or research actions. An Employee is always subsidized if he exits a Company or Utility during Work Production. Exiting Barriers is unsubsidized except during certain Regimes (**H3**) or Abilities.

Syndication - is an Agent on a Market Idea. It is installed by the *syndicate action* (**F2**). This Agent immediately gives you the card's Ability if any, and is the first step to commercialization. "To syndicate" means to organize a group around an idea or founding principle.

Thinker Work - is an Employee Expenditure, in which the Employee exits a Barrier, Company, or Utility located on the left half of the infrastructure (marked with the lightbulb icon), moving to a space one row lower in the Infrastructure. Thinker Work is necessary to *research* (**F5**).

Think Tank - is the uppermost card of a personal stack of cards representing your research department. The 2 colors of this card are a Viable pair for you, and if used for Viability during commercialization, the Think tank is reintroduced into the Market per **F3b**. The Ability (if any) of the think tank is active for you. Think tank cards can be added during *research* (**F5i**), which covers (and makes obsolete) previous think tank cards.

Token Management - All tokens not in play are stored in a central pool. You are limited to the tokens provided, and e.g. cannot gain an Agent if the pool is empty of your color. If you establish a 5th Company but can't place it because you ran out of your 4 company tokens, you win the game as a *tycoon* (**I1d**) (or, if blocked by from victory by an ability, remove an old company for the new company).

Utility - One of the square-shaped spaces on an Infrastructure. It is divided into 4 quadrants, because it can support one Employee of each of the 4 player colors. Work Production from a Utility is always Subsidized but never generates Patents.[59]

Viable (F3) - There are 3 ways an Idea can be Viable, which allows it to be *commercialized* (**F3**). These 3 cannot be mixed:

1. **Splay Viability** if its two Disciplines appear in a Discipline Pair, i.e. visible on any two adjacent cards in a Splay. The order does not matter, but if there is any Future Shock on a splay card, only those players with that Future Shock may use it for discipline pair viability.
2. **Patent Viability** if its two Disciplines match the Disciplines on 2 of your Patents which you immediately Divest, moving the 2 Agents to your wealth.
3. **Think Tank Viability** if its two Disciplines match the 2 colors on your *Think Tank* (**F5i**). If so, return your Think Tank card to the newly vacant market slot (**F3b**).

Victory Pile (**A3.4**) - is your private stack of Problems, which you have solved. During *tipping point scoring* (**I2**) and *plurality scoring* (**I4**), each Problem is worth 2 VP if it is in the Dominant Sphere and 1 additional VP if it is in the Hidden Sphere.

VP - short for Victory Point.

Work Production - moves an Employee down one tier in an Infrastructure, following the arrows, in order to fulfill the precondition for busy actions (commercialization or research). This movement, simulating subcontracting, is called an **Expenditure**, and the Employee must either be your color or be in your Company. Work is produced by exiting any Barrier, Company (either yours or an opponent's), or Utility.

- **Thinker vs. Maker Work**. Exiting from a Barrier, Company, or Utility on the left produces Thinker Work, while exiting on the right produces Maker Work. Exiting from the middle (straddling the central divider) produces either Thinker or Maker Work, depending on the arrow chosen.
- **Work Location.** The Sphere where the Work production occurs must be in the Sphere where the Action takes place.
- **Work Costs**. Work production costs neither money nor Actions.
- **Work Subcontracting & Unemployment**. An expenditure from the upper tier leaves the Employee in a space in the middle tier, as a subcontractor. An expenditure from the middle tier into *unemployment* (**E5e**) remains there until Divested or rehired.
- **Utility Work.** Work produced by a Utility does not result in Patents during *commercialize* (**F3**) or *research* (**F5h**). This is indicated by a note on the arrow exiting each Utility.

ROSETTA STONE

Barrier The number of Barriers in a Sphere not covered by a cube or disk token adds to the Barrier Costs within that Sphere.

Black-Heat Square is where you can place a heat cube upon syndication.

Brash Startup Impact 

places a company disk as per a normal company startup, but if placed on its named barrier discards the company already there if any.

Cloud is the Sphere (market card column) associated with the computing discipline (blue).

Company Startup Impact  places a company disk in the Sphere indicated on the appropriate side (thinker or maker).

Defusal Growth Impact  takes a new Agent from the pool, and places it on any uncovered black-heat square in the Market or the Splay.

Developing World is the Sphere (market card column) associated with the group dynamics discipline (green).

Exoglobal Recession Impact  occurs if this card is commercialized without Heat on its black-heat square. If so, each player must discard an Employee.

[59] UTILITY in this game is a tax-funded entity, normally with the peculiar property of non-rivalry in consumption. In other words, it's benefit can be exploited by one consumer without diminishing its availability for another customer to exploit. National defense is the classic example. Government-regulated utilities (such as the Post Office) are legal monopolies, where competition is excluded by the force of law.

First World is the Sphere (market card column) associated with the transbiology discipline (gold).

Game End Impact  ends the game immediately with final scoring.

Growth Impact  takes a new Agent from the pool and places it into your wealth.

Industry Disruption Impact  first kills all patents of the color chosen to be visible upon commercialization, then kills one splay card of this discipline.

Maker Icon indicates the right half of the infrastructure must be used to place companies or produce work.

Nuclear Exchange Impact forces all players to discard a number of Companies or Problems in the indicated Sphere according to the number of black-heat squares visible in the Splay. Effects are reduced by shielding.

Social Resilience Impact  allows you to divest one Heat or Future Shock, either yours or an opponent's.

Solution Impact 

allows you to claim a matching named chit from the pool of unclaimed chits.

Space is the Sphere (market card column) associated with the assembly discipline (orange).

Surge 

allows you, upon syndication, one free syndication placed on any card above the surging card in the column.

Thinker Icon indicates the left half of the infrastructure must be used to place companies or produce work.

Utility is where you can store an Employee to do subsidized work but without claiming Patents.

White-Heat Square is where you must place a heat cube upon syndication.

Wild Problem Impact  is a solution in which you can select any unclaimed problem.

§§§§§§§§§§§§§§BLURB FOR BGG, PRODUCT DESCRIPTION ON WEBSITE, BACK OF BOX.

What if Hollywood and the doomsters are wrong and the future is non-dystopian? No pandemic, zombies, or post-apocalyptic rubble? A more likely future is one where free-market fortuneers explore the fringes of the achievable. Where scientists and technocrats rewrite the human condition by expanding into new spheres: the developing world, the cloud, and space. In doing so, demolishing the barriers of age, disease, suffering, and physical confinement to this planet. As control over our surroundings expands, technology will become more of an intimate part of who we are. Or acquire a mind of its own, incorporated into our transhuman state.

Change Log

C1 Jun. 2019	**Plurality scoring changed at Matt's request, so that only problems count. Exoglobal clarifications.**
B3 Mar	**Hidden Sphere added, general 2 VP per Dominant Sphere and 1 VP per Hidden Sphere. Captial as general tiebreaker.**

2019	**Game shortened for 3 and 4 players** **Solitaire Game added** **Nuclear exchange affects companies but not Problems.**
B2 Aug 17	~~**Installation can be from Finance Board or from Unemployed in any Sphere.**~~ **Per Matt request, changed "World Bank" to Globalization** **Rules Layout by karim, see https://drive.google.com/drive/folders/1uNM_Nn03kNclX9tmHPUFNEdYdEB0eAAd**
B1 CS4 cards Aug 9	**Karim uploaded the CS4 cards, placards, chits.** https://drive.google.com/drive/folders/1uNM_Nn03kNclX9tmHPUFNEdYdEB0eAAd Changed Tycoon Victory to 4 instead of 3. For Hiring (**F4**), Installation can either be from unemployed or from finance board.
A8 July 21	Synergy actions for Research.**F5j** Research action does not expend an action during Computing Regime. Hiring costs are not doubled if hiring into an occupied Utility. Direct Democracy special ability does not work in a Think Tank. Change space & cloud setup to be the most expensive. Added beginner's game variant **C7** **Changed mollify into placate.**
A7 July 8	Start changed from 20 +6 to 25 + 5. Commercialization of tipping card to end game, allowing tie games. Cash victory if tipping point during World Bank. Reduce number of companies per player from 5 to 3. Change singularity from 6 in a row to 5 in a row. Social Resilience number assigned, 1, 2, or 3, G4
A6 June 24	Add Tycoon Victory **I1d**. Removed cost of mollify, and removed social cost. Added general surge to Transbiology Regime **H3b**. Changed some card events.
A5 June 16 Cards 4.1	Nuclear exchange impact on cards NOT moved to bottom. Color code the icons. Changed nuclear exchange shielding, G8b. Import cost = 0 instead of 3, see F7. Victory Points only in Dominant Sphere No company refresh, start card in zero cost column, removed G3d. Abilities are active in Think Tank, & Think Tank not busy. Do not install patents if installing Think Tank. Paradigm Shift, change card.
A4 June 5 Cards 4.1	Added Think Tank Changed name of Collapse to Plurality Removed mixing Patents with Splay option for viability (caused 1st turn windfall). Added company refresh G3d. Change startup cards C3
A3 May 7 Cards 4.1	Import cost F7 reduced to 3 Move regime change from advertising to last part of commercialization Added starting Patents to placards and Setup. Cards added Recessions, also halved the number of cards with growth. Made defusals into a type of growth. Add world bank to rudderless exoglobalizations. H3. Change 2 player game from orange vs. white to orange vs. blue. Seed 1 card into the most expensive slot of the cloud and space during setup. Added F2f, syndicating a tipping point card ends your turn in a 2-player game. Added F5d. In order to research a tipping point out of the market, you must first have syndication on the idea. Makes tippers less fragile.
A2 April 29 Cards 4.0	Matthew's "game 2" playtests Changed Hire (F4). Eliminated payroll, Changed exoglobalization H3. Eliminated cost of work. Made victory dependant only in Dominant Sphere. Eliminated Advanced Game (Part J). Added concepts: Subsidize, foreign employee, Patent sales, brash. Changed cutting edge. Merged collapse and singularity. Added Adververtising step to fundraising F1a as the only means to Regime Change, mainly to ease the confusion on when it occurs during commercialization. Added Company Hiring for zero action cost.

	Revised Heat, and Defusals, adding Heat• concept to kill companies, Problems, employees. Added Nuclear Exchange to the tipping point. Affects Companies and Problems in any Sphere. Dominant Sphere counts double VP, other Spheres count single VP. Employees removed as VP. All chits count as 1 VP.
A1 Feb 6 Cards 3.0	Renamed “Infrastructure” to “Employee” and “Sphere Placard” to “Infrastructure”. Reset/payroll now part of fundraising. Rebound defined as an Employee producing work without moving downward on Infrastructure. Deleted Takeovers Companies and Freelance added G3 Innovate changed to Research
A0 Dec 01 Cards 2.0	Reorganized into standard format and added glossary Terminology Change: “Reserves” into “Capital” and “Spent” into “Wealth” to match Emancipation, Cubes into Agents. Streamlined infrastructure. The terms "infrastructure columns", "hand columns", "lightbulb columns", "hand/lightbulb columns" replace the terms "infrastructure", "basic infrastructure", "Star infrastructure", "player infrastructure", "barrier infrastructure", "public infrastructure", etc. The term “infrastructure” replaces “maker” or “thinker”. . Added busy & work concepts. Added G7 Mergers. Agents are called:. Financial (Finance Board), Syndication or Heat, (Idea), Patent (Sphere Card), Infrastructure (infrastructure column), Future Shock (Splay). Advanced game: Public Servant (infrastructure column), Defusal & Partnership. Renamed invest to hire, and reset action into payroll action. Combined Liquidate and Divest
B1 Cards prototype, June 13	Changed plurality victory at Matts request to 1 VP for any problem, plus VP in hidden sphere. Move black heat to the right side.