



Figure 1: Feature Triangle

1 Furture Work

This section describes proposed furture work for the game Utopolis.

The biggest change that this revision proposes revolves around three new concepts, presented in a triangle:

These three concepts all interconnect and support each other.

1.1 Crafting

Crafting is the creation of goods through processing basic materials. These goods could be sub-assembly requirements for the creation of other crafted goods. For example one crafted good can be creating spear points from iron, another wooden shafts from felled trees. Spear points and shafts together can be combined to create spears.

Other than the required materials the player also needs to have free workers working in the appropriate buildings. Crafting an item can take a certain amount of time (think hours). During that time the worker (who is automatically assigned) cannot take up any other tasks. Therefore an incentive exists to have more Citizens (thus workers). The player crafts items from the GUI. Once crafted, they are added to the players' Inventory. An extensive list of crafted goods exist, some examples:

- *Food*: Bread, soup, stew, wine, various meat and fish dishes
- *Household*: Pots and pans, storage jars, baskets, brooms, whetstones, knives, spoons, chests, sofas
- *Clothing*: togas, sandals, tunics, cloaks
- *Military*: swords, spears, armour, helmets
- *Luxury/ vanity items*: Various jewelry, charms, shrines, religious tokens, mirrors

All basic goods can be crafted by all races, however some specific advanced technology is available only to certain races (e.g: persian carpets are only available to players with Persian race). This is to encourage trade between players.

1.2 Population dynamics

Population dynamics provide a dynamic, changing element to the game where the player has to respond to acute changes. Population dynamics is manifested through the needs and wishes of the players' city population (i.e Citizens). The player has to keep tabs on his Citizens frequently in order to have a prosperous city. Primarily, the player polls the houses of families (by clicking on them, and there should be a 'cycle' button that focusses on the lowest scoring house first and then moves onward) to get some idea of their needs. These change over time and influence their mood or happiness (authors note: Perhaps a better word can be found). Indeed, these mechanics can be regarded as a form of rudimentary A.I. At first, families will have need of basic things, pots and pans, flint and timber, knives, bread, soup etc. Over time, they will have fulfilled their basic needs and move on to more advanced requirements, like furniture, oil lamps and once all that is taken care of will start to yearn for luxury items such religious idols, jewelry, tapestries etc. If the player wants to satisfy her Citizens she has to Gift the house with what they most need at that point, but beware that if left without any gifts for a period of time, their happiness will decay.

This happiness is used in two ways, 1) an aggregated average of all happiness can be used in the leaderboard and 2) when a family's' happiness is below some threshold they will stop working and thus lower income and taxes. Note that happiness could be a pretty complex function and its internal workings should be hidden from the player. he also does not see the internal number value(s) but rather something more abstract e.g a smiley face or a short story explaining the situation. So the happiness function does not yield a single value but is rather a pretty complex calculation taking into account many factors to define what a Houses' greatest needs at this point in time are.

1.3 Trade

All cities in a province have access to an Auction House. This works similar to ebay, where you can sell and buy resources for gold. The idea is that an economy will start to emerge where players will actively try to sell their excesses and buy the things they can't produce themselves. Because of the complexity created by randomness in the population dynamics as well as players' choices of resource generation and crafting workshop buildings the goods that players will have will be very asymmetrical and trade will be necessary to progress. Add to that the fact that some goods are race specific thus they only way to obtain them is to purchase them from other players.

1.4 New buildings functions

Buildings work pretty different.



1.4.1 Houses

Houses require a small amount of resources and 6 citizens in order to be built. These citizens are now 'living' there (as a family) and cannot be reallocated or anything. The houses themselves are a central focus point in the game because they provide feedback for population dynamics. In a way the house is the most important structure in the game.

Other types of buildings in the neighbourhood provide work opportunities for the citizens. Note that proximity plays an important role here. Citizens will prefer to take up a job at an available 'work spot' closer to home (although a small amount of randomness here I think would be in order). If no work buildings with free work spots are located within some fixed threshold those citizens will stay home unemployed (which means sub optimal production as well as less happiness - in our world work makes one happy).

Cost: 6 Citizens + tdb (very, very cheap)



1.4.2 Storehouse

This is the structure that does not craft but rather generates (per worker) four basic resources: wood, stone, metal, clay. It would be best if the ratio of the resources generated would differ, maybe based on if the player placed the storehouse near a vein of ore, some rocks or woods. Storehouses have 8 workspaces available. Each occupied workspace in the storehouse generates some of these resources.

Cost: tbd (cheap)



1.4.3 Farmstead

Farms generate some amount of wheat and vegetables for each assigned worker. They also enable crafting of bread and soup.

cost: tdb (cheap)



1.4.4 Corral

Corrals are used to herd animals. They generate different types of meat, wool, skins (possibly some other animal byproducts, no bone though, because that is yucky). Workers in corrals can craft stews, various meat dishes and leather items.

cost: tdb (moderate)



1.4.5 Blacksmith

This structure enables crafting of metalworks such as cutlery, weapons and armour, barrel hoops, basic jewelry. Blacksmiths have 6 workspaces available.

Cost: tdb (moderate)



1.4.6 Market

Markets are the center of artisanal craft such as basket weaving, cloth making, carpets and such. Markets have 10 workspaces available.

cost: tdb (moderate)



1.4.7 Civic center

In a civic center advanced technologies such as glass blowing is practised. Also finer cloth is produced then on the market. Civic centers also enable things like paper. Civic centers have 10 workspaces available.

cost: tdb (expensive)



1.4.8 Temple

Temples enable crafting of religious tokens and shrines that Citizens will want for. They can also provide various life improving balms and potions. cost: tdb (expensive)

Note: as you will rightly notice, barracks, towers and fortresses are not included, this is due to time constraints.

1.5 Empire

You really can play one 'empire'. This is important because of race specific traits and recipes. This means: for a fun, balanced game where players get the full game experience there needs to be as much race diversity in a province as possible. For that reason it is recommended the teacher/mentor/game admin inputs each players' Race. It would be nice if she did cooperate to take into account players' preference but this is up to the teacher.

1.5.1 Gold and tax

Gold is a new resource. It is required for building more advanced houses and crafting some products. It is also the currency in the auction house. Gold is acquired through tax. The player - as the city governor - can raise tax money from its citizens. This tax is closely linked to happiness. DISCUSS I suggest the player can set a tax rate that is taken into account in the happiness function. So the player has to balance gold income with the happiness of the citizens.

1.5.2 Inventory

The inventory is just a players' current stash of raw materials (resources) and crafted goods. They can be gifted to Houses or traded in the Auction House.

1.6 Gameplay

Here is a short recap on what a typical use case looks like:

1. Player logs in for the first time
2. Player builds two houses
3. Player builds a storehouse to gain basic resources
4. Player builds a marketood
5. Player clicks on first house and notices a demand for cooking utensils
6. Player crafts some cooking utensils and a broom
7. Once the items are done, Player gifts cooking utensils to first house (increasing it's happiness) to house and lists the brooms on the auction house (possibly generating some more gold later)

[...] As the game progresses the player builds more houses and has to build more crafting structures and use the auction house to meet the all citizens' demands