**In-Game Element Output Techniques**

How other games do it

Big Pharma

In big pharma, ingredients (the input elements) are processed by machines and then eventually prepared to be output by being turned in to tablets, syringes, packages, creams and sachets.

Based on the drug being output, money is gained. The stronger the positive effects of the drug are in comparison to the negative side-effects, the more the drug will sell for. Having a long production line and complex production line to produce the drug costs money though, so players must balance this with the quality of their drug being sold to make profit. The format of the drug being sold also affects the value of it; for example, sachets will sell for a higher price than tablets.

If the player is managing to output drugs efficiently using a well-designed production line, they will make profit, otherwise they will lose money and eventually go bankrupt unless they remedy the situation.

Infinifactory

In Infinifactory, ‘Outputs are structures of variable size which are used to collect the output of your factory and send it to the aliens.

Outputs cannot be built by the player except in the Level Editor.

Each output will display a hologram of the structure that the aliens want you to make. A counter of the number of structures that must be produced - usually 10 - is visible on the display on top of the output. To deliver an item, it must be moved into the output - usually via [Conveyor](https://infinifactory.gamepedia.com/Conveyor)- so that it lines up exactly with the hologram, by size and rotation. Structures to be delivered must be welded together.

If an incorrect item is placed inside the hologram of an Output, your factory will be halted and an error message displayed. There is no other penalty.’

Once an output has been fully fulfilled, the level will be complete and the player can move on to the next level. They will also be given a ‘cycles’, ‘footprint’ and ‘blocks’ score.

‘The Cycle score is simple. Cycles represent the amount of time it takes to finish a solution. This is generally measured by "ticks". The lower the number for Cycle is, the better.

Footprint is represented by how much space your solution takes up horizontally. The number of blocks you have vertically does not affect this score.

Blocks are how many blocks you are using in your solution (not including platforms). The difference between this and Footprint is that Blocks counts all of them and Footprint counts the spread of your solution. This means that you want to use as little blocks as possible, whether you're taking up horizontal space or vertical space.’

A concept for our output system

Since we don’t have a theme properly defined yet, I will base my concept on the generic food theme prototyped in an earlier design stage of our game.

I like the idea of having properties that affect the quality of the output product. So I think having a temperature and freshness property will allow for more flexible gameplay. The reason behind this is that in games like Big Pharma, concentration is set in stone unless modified by a machine, it doesn’t change dynamically with time or other aspects of the environment. Having properties of elements that do react to the environment and change over time will add depth to the management layer, and will add more focus to the planning of systems to produce an output of high quality.

I think having money being gained from the quality of products will be a nice feature as this will allow buying of different machines and modifying your production line, or even cosmetic items. It could also serve as a currency for progression in the game.