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Selling Speed

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Abstract

According to Calvino (1988) the experience of high speed in our age has become a basic fact of life. Virilio's statement is even stronger when he claims that our society worships speed (Virilio 1986). In our society there is at least one machine that produces speed: the roller coaster.

Amusement parks form a part of the experience industry, which through the coming years is predicted to occupy a growing number of employees (Wolf 2001). In the first part of this paper I describe an amusement park as a plant and a roller coaster as a machine. If the roller coaster is a machine – then what is it producing and what is the value being added? The second part of this paper deals with this question. The proposed answer is that the added value is "change of speed in 3-D".

Introducing the phenomenon

Someone who visits an amusement park for the first time might be confused by the phenomenon. People travel to amusement parks, areas with different giant machines and tents, and after having paid an entrance fee they stay for a day or at least some hours to climb into and out of the different machines. Sometimes there is a sweet and maybe a bit sticky smell in the air that comes from the tents and the nourishment taken in. It seems to stimulate the activity in the park – and there certainly seems to be lots of activity. While waiting in queues in front of the different machines people jump up and down, wave with their hands and talk over-excitedly to each other using loud voices. When it is their turn and they go on a ride they scream, laugh and scream even more. All of a sudden the machine stops and the people climb off. In some cases just to move on to another or even the same queue they just came from.

There are phenomena that seem natural to us in our culture although they for an outsider are not easy to understand, e.g. the phenomenon of amusement parks. It might be difficult to understand this phenomenon if you have an understanding of the human as a rational being. I believe amusement parks are for fun – they are not popular to visit for a rational reason.

Amusement parks form a part of the experience industry, which through the coming years is predicted to occupy a growing number of employees (Wolf 2001). This paper is about the amusement park Gröna Lund of Stockholm, Sweden, about its attractions and more specifically about the roller coaster in general and at Gröna Lund. As one of the oldest and most known attractions, the roller coaster is chosen to be a representative for the growing family of attractions.

In the first part of this paper I describe Gröna Lund as a plant and its roller coaster Jetline as one of its machines. If the roller coaster is a machine – then what is it producing and what is the value being added? The second part of this paper deals with this question.

My empirical material has been extracted from interviews with park & ride manager Peter Osbeck and financial manager John John Lindgren at Gröna Lund, and from my part time employment at Gröna Lund during the summer of 2001.

A plant and a coaster machine

What is a machine? Where does a biological organism end and a machine begin? This question of the limits of life and engineering seems to lead to the more fundamental question of how life differs from and is similar to a machine (von Wright 1996). It is not my purpose to discuss this matter and to come to conclusions as to what fits the description of a machine or not. In my world and in this paper a machine is some kind of a constructed, mechanical device, which is intended to produce something. According to its design it processes raw materials, often with the help of cogwheels, screws and screw nuts. The machine is without an own will and has to follow the program it has been given. According to the Swedish Work Environment Authority's notification for machines an attraction is classified as a machine.[1]

This is a story of the amusement park (here: plant) of Gröna Lund in Stockholm, Sweden. Different plants are subject to different conditions. The sea forms the park boundary on the west and south sides of Gröna Lund and there is no spare land on the remaining east and north sides. For this reason the conditions for adding a new machine are special: the new machinery has to be squashed into a very small place. Gröna Lund is an open air plant. Because of the weather conditions in Stockholm, the machines are only running from April until September every year and the plant is closed during wintertime.

Peter Osbeck is responsible for the entire plant with all its machines. The mechanical department employs ten mechanics (2000) with specialized competences in hydraulic, welding, pneumatic and mechanics. The workshop is equipped so that welding and cutting[2] in different materials and CAD-technology are different instruments that can be used to repair and maintain the machines.

Machine minders are employed for the duration of a summer. They get an introduction to the machine park and the rules that have to be followed. They are responsible for the starting up and running of the different machines. To obtain satisfactory operating security, certain routines have to be followed. There is an operating book where all occurrences and production stops are entered and at every day's starting up a so-called "control A" is carried out.

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[1] It is said that the notification on rules for machines is valid for every machine but for those *machines* of an amusement park, i.e. the attractions are seen as machines.

[2] Shearing and sawing are common methods of cutting materials, such as metal, wood and plastic. (Lindbeck, Williams, Wygant 1990)

The machine is checked according to a long list of issues that have to be controlled. (Osbeck 2001)

In a plant the normally high operating cost becomes less if you work with your eyes open and take care of the problems before they occur, the minders learn during their introduction. Maintenance in advance saves the plant money and a final production stop, a temporary shutdown or a minor machine problem that must be taken care of can be more expensive than the preventing maintenance.

The machine minders work in shifts according to a rolling timetable. They have to wear a uniform. In the summer of 2001 the uniform included beige shorts or trousers, a white t-shirt with the park's logotype and a green[3] sweater. The trousers were not very comfortable and quite ugly, but the minders had to wear them everyday anyway.

In most plants the production process is carefully planned and the batches are sent from one machine to the other according to a certain schedule. In "Manufacturing Technology" Lindbeck, Williams and Wygant (1990) introduce the fundamentals of industrial production and manufacturing. According to them a production process independent of systematic organization is no good at all. A non-planned process may lead to a product, but seldom one that meets the requirements of measurable quality or cost-effectiveness.

The process at Gröna Lund may be seen as one of those rare cases. Firstly, it cannot be systematically organized because of the very special raw material, the guest. This special kind of raw material is not dead like the machines and the raw material of the traditional manufacturing industry. It is alive and has its own will, so there is no use for the management to make up a strict plan.[4] The guest product will decide for itself which machine to go to and in which order. Secondly, it is rare that two pieces of raw material take the same way through the plant.[5] The processed material leaving the plant in most cases still meets the requirements. Maybe one can even say that *because* two pieces of raw material do not have to take the same way through the plant they comply with the

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[3] The translation of the Swedish "grön" as in "Gröna Lund" is "green", and so is the company colour.

[4] The management can of course try to and even succeed in influencing the guests. For example the toilets can be placed so that the guests have to pass by the candy shops to get there. But in the end the final action (to buy candy) is individual and is performed by the guest.

[5] This might happen when the guest products arrive to the plant in batches, but this is no rule that is followed. After a batch of guest products arrive to the park, it is most likely divided up in smaller batches.

requirements. Some of the guests are satisfied after one run in "X", "the first dual direction, inverted, floorless, flying, flipping, vertical dropping, rotating roller coaster" (Sakowski 2002, p.22), others need to ride several times to be satisfied.

It is of interest for the management of a plant to have a control of quality of the raw material it is processing. Having an entrance fee that has to be paid to get into the plant of Gröna Lund performs a quality check. People, who do not enjoy the kind of thrill being offered (and therefore would not be satisfied and meet the requirements of quality), do not come to the park. But this check is not sufficient. People may be on a first visit at Gröna Lund and get disappointed, so Osbeck and the management check the quality further by moving around the plant when the attractions are running. They watch the guests' faces after a ride – are the guests laughing and having a good time or are they feeling sick? – and they simply ask the guests what they think about the different rides. These random samples constitute an additional surveillance method. While the first method sorts out certain guests, they during the second quality check remain in the park and are further processed. A guest who is already in the process is only discarded if he or she gets ill (or dies). The machine minder then calls 112 and the incident can lead to a temporary shutdown or even a final production stop. Of course the management is very keen on avoiding incidents like these, since they are really no good for the plant.

One of the machines in the Gröna Lund plant is called "Jetline". This roller coaster machine was one of the last ones built by Anton Schwarzkopf and designed by Werner Stengel, big names in the amusement park industry. The machine was taken into use in 1988. It was rebuilt for the season of 2000 and new elements[6] were added. Jetline is going to be rebuilt one more time: The new Gerstlauer-built "Wild Mouse" will add new elements to Jetline's existing structure and will be presented for the park's 120th birthday and the season of 2003 (van Ekström-Ahlby 2002).

The capacity of a roller coaster machine is "the theoretical number of passengers a ride can carry in one hour. This is based on the capacity of each train, the number of trains that can run and the amount of time each run can take."[7] The capacity of Jetline today is 1300 persons per hour. The

[6] An element is a section of track that can be added to a ride to increase its thrill factor.

[7] http://www.coasterforce.com/terms.htm

construction with the added elements, called "Wild Mouse", will have a capacity of 800 persons per hour.

A coaster machine can be loaded with its raw material in different ways. The "loading platform" of a coaster machine is the area of the station from which the passengers board the coaster trains. It usually consists of automatic gates that open when the train arrives at the station. According to the roller coaster terminology "empty loading" means that a train is empty when it is loaded because the previous riders have exited at a different platform. "Flush loading" is when riders exit from one side of the train and load from the other, and with a "full loading" coaster, riders load on and off the train from the same platform on the same side of the train. Jetline is of the flush loading type.

Guests are loaded into the machinery and the coaster machine is put into operation. After certain processing steps – with the machine minder as a surveyor in the background – the machine stops, the loading magazine (the wagon) is in the same spot as at the start and guests are unloaded to leave space for new, untravelled guests. How are the exiting guests different from the entering ones? What happened to the raw material in the machinery? What is the function of the machine?

The product

Osbeck, park & ride manager at Gröna Lund does not need much persuasion to start talking about the function of his attractions. "It is as with airplanes, trains and buses. Our business is transporting people. Up, down and around", he explains. I never did see the business like this and I still do not. While airplanes, trains and busses take the passenger to a new place, the guest travelling by roller coaster does not really get anywhere but exits at the same spot he or she entered. Of course there is the possibility to return to the same spot with other means of transportation as well. Take Circle Line in London's underground, for an example. If I enjoy it or have any kind of other reason for wanting to, I can run a lap. Passing by all the stations along the line I watch people moving in and out of the train wagons. I enter at Victoria Station and when I exit two hours later, I exit enriched with a new experience. And I do it at the same station as I entered, if I so like.

But there is a difference between airplanes, trains and buses on the one hand and attractions of an amusement park on the other - and I am not thinking about the obvious difference in time to get back to the same spot. No, the difference is the kick of adrenaline I feel during the roller coaster ride. The expectation in the queue, the nervousness when it is finally my turn and it is

time to take a seat, the jerk when the train starts, my head thudding to the back of the seat, me supporting myself against the wagon sides, the wagon climbing to the highest spot and slowing down. Then the sudden drop. The feeling in my stomach, the kick of adrenaline and my blood flushing through my veins.

Before starting with the analysis of what the roller coaster machine's processing is about, I want to make one thing clear: What do I mean by "processing"? To me it is to add a value that was not there at the starting point. So - how are the guests at the exit different from those at the entrance? What is the value being added? I get a clue from watching the people entering and exiting Jetline at Gröna Lund. The guests waiting in the queue can see the processed guests laugh and cry while they leave the wagon. The waiting might be seen as a preparation of the raw material before it enters the machinery. After the ride I hear people laugh and see that some of them look dizzy. Others feel sick and after the unloading have to unload themselves further in the nearest dustbin.

What happened during the minutes the guests were in the machine?

> "A roller coaster gives its riders an experience that nature never intended humans to have. Passengers can go faster than most people can in cars, sometimes upside down, all on a track that is smaller than a highway lane and higher than most office buildings. These marvels of human ingenuity make the daredevils crave more and at the same time make the faint of heart woozy."[8]

The interesting history of roller coasters shows that "speed" has been one important thing about them. First there were ice slides, later unsafe roller slides and coal trains gave birth to the wooden roller coasters (Bennett 1998). In 1926 Harry Traver designed a roller coaster known as the Cyclone, at Crystal Beach at Ontario. The ride was very extreme and people who rode it often suffered serious injuries. "In fact this was the case with all the roller coasters he designed. People flocked to see his creations, but would not ride them. [...] This ride was the most evil roller coaster ever designed and nurses had to be employed to look after ill riders at the station exit!"[9]

Now we have electromagnetic motor-powered steel coasters designed with the help of computers and "roller coasters will continue to develop with the rest of the world. They will continue to go faster and higher with more tricks. With new materials being developed and new safety programs being made, there will undoubtedly be even better roller coasters to get thrills from (or be sick

[8] http://www.usc.edu/dept/engineering/illumin/archives/fall2000/design/roller/index.htm

[9] http://www.coasterforce.com/history.htm

over).”[10] The faster a roller coaster, the more exciting, seems to be the widespread opinion among many coaster enthusiasts and Osbeck informs the visitors of Gröna Lund’s homepage that Jetline is faster when it rains.[11] But on coasters inertia[12] limits the speed at which a train can be launched - too high a speed can kill instantly.

> “Roller coasters must balance between thrills and safety. The ride should be as safe as possible. On the other hand, passengers ride a coaster for the death-defying thrill. The key to a successful coaster is to give the rider the thrill of speed and acceleration. It all comes down to speed control.”[13]

The value being added by roller coaster machines seems to be speed. But there is also a matter of *change of speed*, acceleration. People on Earth are travelling in a high speed through space every day, without thinking about this fact. It is the change of speed that is an experience and an attribute that sells. It is not a matter of transportation, but a matter of change of speed. But even the term “change of speed” is not enough to describe what is being sold. It is not just speed in two dimensions. It is “up, down and *around”* (Osbeck 2001).

Among the different elements of a roller coaster are different types of loops and inversions. There is the “vertical loop”, the simple loop of a roller coaster, but also more advanced constructions. The “barrel roll” is an inversion that twists the car through 360° without changing its elevation, and the “batwing” element has two inverted half loops facing each other at 45°. The different loop and inversion elements give a kick of adrenaline. The value added seems to be not just change of speed but “change of speed in three dimensions”.

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[10]http://www.usc.edu/dept/engineering/illumin/archives/fall2000/design/roller/index.htm

[11] http://www.gronalund.com/inrekretsen.asp

[12] “Inertia is the effect on any given object of rapid acceleration or change of direction. The best example is the classic one - if any solid object were to reach the speed of light, it would cease to exist. In lesser cases, humans can be imploded by rapid changes in movement, such as in a fighter jet.” (http://www.coasterforce.com/terms.htm) Maybe “the best example” is to be seen as a relativistic rather than as a classic one, though…

[13] http://www.funderstanding.com/k12/coaster/help.html

At last

I have described the amusement park as a plant, the roller coaster as one of its machines, and the guests as the raw material being processed in the machine. The value being added to the raw material can be seen as change of speed in three dimensions. I visit an amusement park because of the thrill. I do not do it because it is expected from me, or because a norm says so. Not because I ought to, but because it is fun. To me a roller coaster run is fun because of the change of speed in three dimensions.

> "The motor age has forced speed on us as a measurable quantity, the records of which are milestones in the history of the progress of both men and machines." (Calvino 1988, p.45)

According to Calvino the experience of high speed in our age has become a basic fact of life. Virilio's statement is even stronger when he says that our society worships speed (Virilio 1986). In our society there is at least one machine that produces speed: The roller coaster.

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