

Technology Forecasting for Strategic Decision Making – an Introduction
Professor. Bala Ramadurai
System Function - What's the Function 3 Pancake (Dosa) Batter

Hello and welcome back. So, this is the second part of the function of a technological system module. So, I talked about in my previous part; I talked about the evolution of a mosquito repellent or a mosquito, keeping mosquitoes away from your home system. We saw that the function can be defined in two different ways; and then determine what kind of a system evolution are we talking about and we can track it that way. In this I am going to talk about a different system that I loved keeping track of.

This is the preparation of batter of pancakes, salt pancakes. Here in India it is called dosa; so dosa is what batter is what I am going to track . I find it to be very exciting, because it is going through evolution as we speak this particular system. So, in the good old days again I am going to go back to my childhood is we had wet grinding of soaked grains.

(Refer Slide Time: 01:28)



And this soaked grain could be was done by manually on a piece of stone, actually two stones; one with a hole in it and the other one which went inside this hole. I am sure this design is popular all across the globe and we I remember my mom, my grandma used to actually use this. And and sometimes they took turns, sometimes I helped out; I found it very exciting.

And so the center stone had to move had to be moved manually, and the water added occasionally or some other ingredient like chilies are added, salt was added. All that was added to grind this into a paste; so the stones were used, the two stones, pairs of stones were used to grind the soaked grain to a paste. So, and that is how you got the batter; at the end of it you got the batter. Now, the one thing that I remember was that this had to be if it was smooth; because frequent operations the the surfaces used to get really really smooth.

And so it had to be made rough again; so there is to be a service for that. So, a guy used to come home, he used to make it rougher; and then we would go back and make it again, start making the batter again with the roughened stones. So, that was one technology that was there for really really long time again. Now, that evolved into mechanization, so I remember this particular machine called wet grinder.

(Refer Slide Time: 03:23)





That is what it is called very very exciting times for for our home, because we move from this extremely time consuming, arduous sort of procedure, which involved lifting heavy stone moving them around. And and cleaning them up is a is a it took easily 3 to 4 hours of continuous labor into that; 3 to 4 hours easily. Now, this wet grinder was interesting design as well, so it mimicked that system absolutely to the last T, except that you could see the presence of an electric motor.

Now, that electricity was at many homes, we could use that to our advantage; we hooked up a motor electric motor to that, and rotated the big stone. And then you would have the secondary stone on top of that, and the wet the wet or the water and the soaked grain used to go into the crevice with the. Now, it had a aluminium or steel drum not aluminium steel drum to go to hold the batter; and that really helped in grinding it.

So, it would and there was used to be a spatula which would send the instead of human hand, which it kept sending the wet soaked grains into the grinding place. There is a spatula which you could even change the angle, if you wanted it to be faster or if it is at the core stage of the fine stage, you could do all that. And of course it was very noisy and much shorter in time and the effort involved manual effort involved in the grinding process was definitely reduced.

The place where some consumers needed customers needed help was in the lifting of the large stone, the secondary stone into the slot and out of the slot. So, this is the only place where they needed help, other than that it was quite easy to operate. It just involved switching on/off a button,

and delivering the grains into the soaked grains into the drum the steel drum; so, that got very exciting.

But, then the next part of evolution in this particular machine was that taking after the batter was ready taking it involved a lot of time. So, you have to scoop it up, it will remove the stone and then scoop the whole thing up. So, then came in India at least we had the tilting grinders; so that was also an exciting sort of step. In this is the entire grinding assembly became smaller now, because it had to be tilted it became smaller the.

And in the super system as we call it also there was some changes, where we did not have to feed 7 or 8 people in the home, but it became 3 or 4 people maybe max 5 people; so the size of the grinder became smaller and so it could be now tilted also. The whole assembly could be tilted, so that the batter could be poured out. So, became a lot more smaller more compact; in fact we saw the evolution of a table top grinder as well, which is much easier to handle, the secondary stones became lighter, in fact they became many more in number.

I remember seeing at least 3 or 4 secondary stones; it was just one big stone in the center. It still had that big one stone; but, it also had secondary stones. So, it was started it is this started evolving as well very very rapidly. I think the from the motorization of the old assembly, the grinder assembly to this tilting was hardly 15 to 20 years. I do not remember it lasting a lot longer than that. And now we have a completely different evolution in that particular system. Yes, people do have of course in between there is one more thing that happened is the mixer grinder; which is the blender.

(Refer Slide Time: 07:45)



Essentially it is a blender used for multi-purposes; it was used for dry, blending as well as for wet blending. So, this started being used also for batter preparation. Interestingly, much more compact multi-purpose, it sort of took on another purpose also; which is the batter preparation. So, this is the evolution in terms of the next step, which is the same. Now, you can see that the quantity of batter was much lesser compared to the even the grinders; where the table top grinders and the tilting grinders much lesser in quantity.

So, probably I am guessing the this I haven't done research, probably the size of a the size of the family is now exactly 3 or 4; or alternatively they are just thinking about one day what can I use. So, that that became the ideal size, so people managed with the blender. And the blender what also got powerful and quieter, compared to the grinders. The grinders started moving away from homes; because now the space occupied was much lesser by the blenders.

Now, the ultimate evolution has happened as I can see in many many shops in the last decade at least. It started around a decade ago and now it is almost ubiquitous any general mart store. A general store seems to hold them; so you do not have to make batter at home any more. You can just when you are and then do this at a moment's notice. Even a blender you have to soak the grain for a few hours and then start the blending process; which probably took less than 10 minutes; so, this total of sum total of still about 4 hours. Now, all that is going to be shrunk into your walk or

drive to the store and get it; and you could store it in your refrigerator for 3 to 4 days. And that is the evolution into these packaged batter.

(Refer Slide Time: 09:58)



So, you got readymade packaged batter and you could add; so the usual salt to taste and all that could be done. So, this is the last phase of evolution as far as current, not last but the current phase of evolution of the batter. Itself is that just walk to the store or drive to the store, ride to the store; get a pack of this and you are ready to go. So, this is all the time that it took; in fact you can even get it home delivered.

That means it is available at that instant, express delivery within 30 minutes; you have the batter ready for making it at home. So this is the, I was trying to illustrate the evolution and now the function; that is the most important part of this is what is the function of this system, which is which is the point of the store the two stories. And I have of course illustrated that in my earlier example of the mosquito repellent, and now we have it for the batter.

So, the earlier function as we saw in the previous devices, the manual wet grinder to the motorized wet grinder to the tilting wet grinder to the table top wet grinder; and of course, the blender was to crush the soaked grains into a batter. So, to crush soaked grains into a batter; so this is what our functionality was and the evolution sort of went into that. But, from a point of view of the person who needs that final output of a prepared batter; it is to have a prepared batter and to be to be used for preparing pancakes or dosas.

So, this is the function at a larger level like in a mosquito case there is a larger level, which is to have this particular function delivered to you. So, if you look at a smaller level to grind or to grind the soaked grains into a batter; you will get solutions, the evolution in one way. And if you were to expand the functionality, the function to be the preparation of a pancake batter ready to be made into prepared into a pancake, then you would get a different kind of a evolution that you can track.

So, if you expand it even further, as I imagine some of you already done that is to have a prepared pancake; which is the ultimate goal of this whole operation itself. Then you get a different sort of evolution of packaged food and delivery of food and all that comes in. So, that is the even larger picture of this is to have the pancake at at home. So, you will have the pancake and eat it too; so, this is what you can do with this. So, my point of this second example is again to look at the function.

But, not only at the specific function that your product or service is delivering; but also to expand it to see what kind of evolution can you track. So, that then you can keep track of which part of the evolution are you in. So, this will largely help you in defining the function, and it is not a simple exercise. It requires you to think about what function are you doing, what function are you delivering; and think about the larger picture as well.

So, this is our trial to give you that examples, two examples; so that you can figure this out for yourself. So, think about more examples for yourself and post it in the discussion forum; so it will

be fun to look at what all you can come up with. And can you (track) keep from history, I mean from your childhood days or even before. If you can see what it was, what it became and what is it right now; even this these 3 stages are good enough. Just post it on the discussion forum; we will be happy to take a look at it. Thank you and see you in the next module.