HOW CAN NEW SOFTWARE IMPROVE

YOUR REVENUE AND CASH FLOW?

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LOWERING COSTS

Where strategy of reducing costs is leading your organization?

The most promising way to achieve high Return on Investment (ROI) from software projects is to increase throughput of an organization. Throughput means how fast you are producing value for your customers. It is measured in money the customers pay you. Increasing throughput has a positive impact on revenue and cash flow.

Most organizations invest in software for lowering costs. They want to stop paying high license fees or eliminate manual work done. However, do you really want to lower your costs to zero? What does the organization with zero costs look like? How much value can it deliver to anyone?

Let's make small test - which option would you choose if the initial investment in both cases is 30.000 EUR:

Which one should you choose? Project A reduces your company spendings by $40.000/year while Project B increases them by $30.000/year.

Most people will prefer reducing costs. They will pick project A. However your organization will earn more money and have better cash flow from project B. Each year project A gives you 40.000 EUR while project B gives you 60.000 EUR. Your company will benefit more from Project B. Still most people will decide on project A. Why do they do it? Because managers always have to worry about costs. Do you see where such behavior is leading your organization?

Software project	Software maintenance costs/year [EUR]	Impact on other costs [EUR]	Impact on revenue [EUR]
Project A	10.000	-50.000	0
Project B	10.000	+20.000	90.000

CONTROL POINT

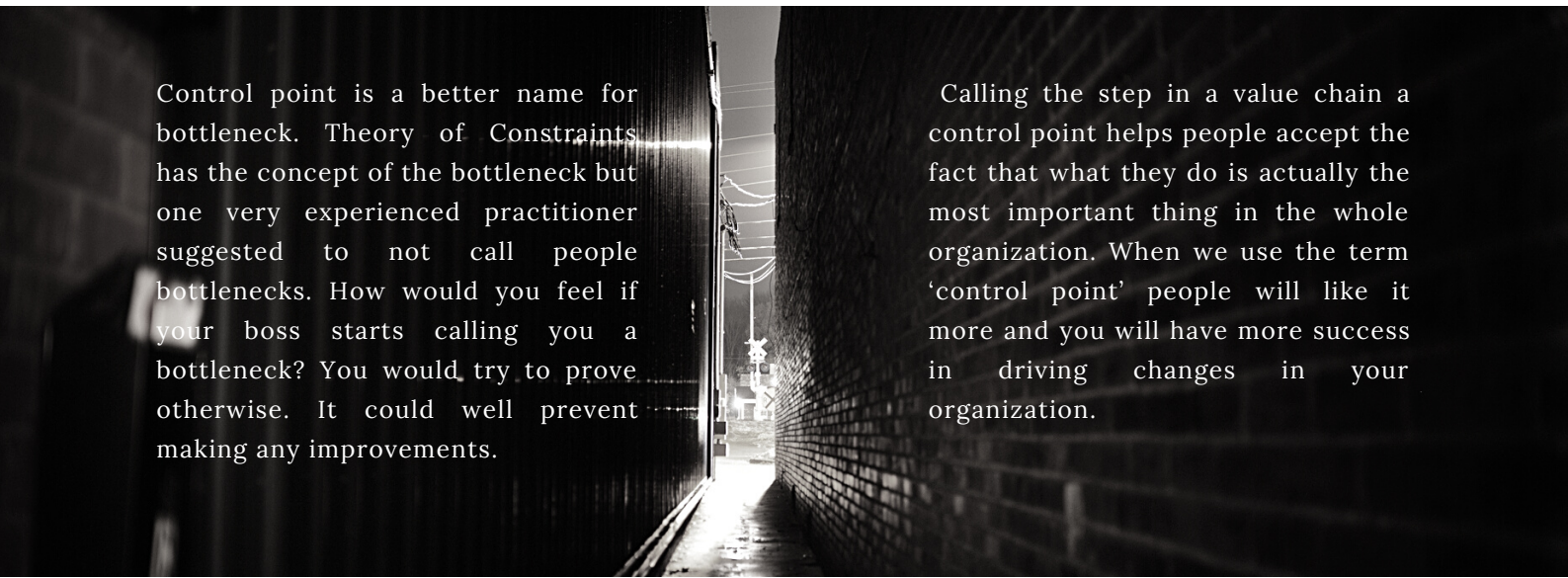How to find control point and which software projects can support it?

My strong suggestion is stop thinking about costs for some time and think about increasing revenue. It may be harder to calculate how much revenue you can gain. Costs seem much simpler to calculate because you know what they are at the moment. This is probably why people prefer reducing costs as they think it is more realistic. Here I want to explain to you what I learned from my 15 years in the role of mediator between business and IT and from my studies of Theory of Constraints. I suggest you try two Theory of Constraints ideas to increase throughput:

- speed up the control point
- reduce inventory of intermediate products

Let's focus first on the control point. What do I mean by that? Your company adds value in a series of steps. It also runs many support activities that are necessary or help make the value adding steps more efficient.

There is always one step or activity in your value chain which is so critical to your company that its throughput is the same as throughput of the whole company. Let me repeat: at any given time there is precisely one step or activity which is a control point.

Your management efforts would most often give no effects if you do not know where this control point is. Maybe your management work will bring benefits in the distant future but not now. If you speed up any step which is not the control point then the whole company still runs with the same speed. Let me stress it even more: if you do some local optimization anywhere else your company still delivers value to customers with the same speed as before.

Control point is a better name for bottleneck. Theory of Constraints has the concept of the bottleneck but one very experienced practitioner suggested to not call people bottlenecks. How would you feel if your boss starts calling you a bottleneck? You would try to prove otherwise. It could well prevent making any improvements.

Calling the step in a value chain a control point helps people accept the fact that what they do is actually the most important thing in the whole organization. When we use the term 'control point' people will like it more and you will have more success in driving changes in your organization.

So if the control point is so important then how to find it? There is actually a rule of a thumb you can apply to tell where the control point is right now. Please try it in practice: the control point is marked by a highest pile of intermediate products. If you run a factory you would spot it easily. If your value is more informational or intellectual then your control point is a person who has the longest list of things to do and the longest number of people who expect something from him/her. This step or activity needs more time to process a single item than any other step or it just gets more work to do than anyone else. It will get things to do faster than it can process them so the pile of items waiting for it will only grow no matter how hard it tries. You have to observe where in your organization the biggest list of items waiting for processing. This is where you shall focus all your management efforts.

Here are some ideas for software projects which will give you highest ROI:
- detecting where the control point is
- informing other people about current control point and it's queue
- automating part of control point work
- simplifying work done at control point
- monitoring quality before control point so it does not work on broken sub-products
- intelligent ordering of work for the control point
- assigning people from other places to help at the control point

BIG INVENTORY = PROBLEMS

Is it a good idea to reduce inventory of intermediate products?

This was all about speeding up the control point. There is also another area you could explore which is ...: reducing inventory of intermediate products. Every system – machine or human – has its peak performance under specified conditions. What happens when someone tries to do more with the same system? Do they actually get more, the same or less? Expediting can help you for a short while to get a piece of critical work done faster but it will actually make everything else even more delayed. You are probably already aware that it is not reasonable to expect a system to work faster than its maximum capacity. Such a system will soon look like a road which has more traffic coming in than coming out:

We can actually use this road metaphor to qualitatively understand how much we want to process at any given time. Here is quantitative research on how the increase in the number of cars decreases their speed and comfort of driving:
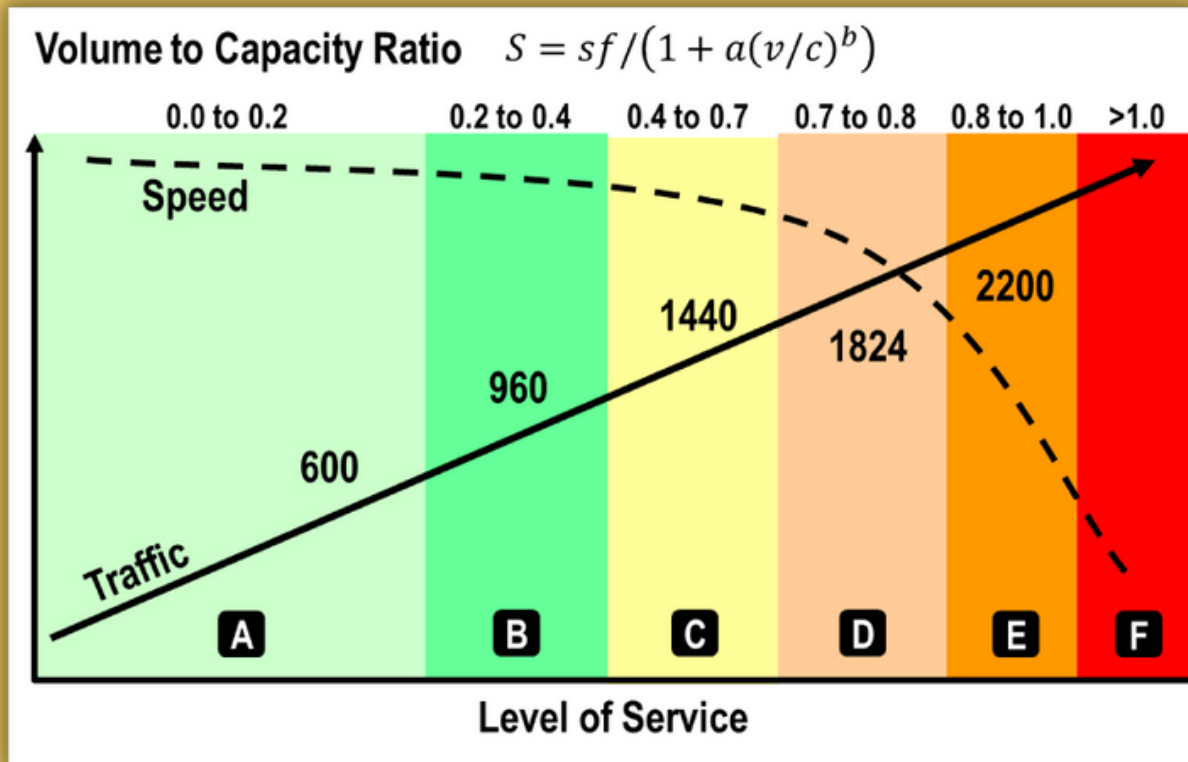

Source: Transportation Research Board (1994) Highway Capacity Manual, 3rd Edition. sf = free flow speed, v = volume, c = capacity, a = 0.15 and b=4.

When traffic increases drivers have to mind other cars. At a company employees have to decide which tasks to do first. Instead of processing tasks with their optimal speed they have to think what to do next. If someone throws them even more work to do they actually start switching contexts and the number of finished tasks drops down. Nobody is happy. It just doesn't make sense to overload the people because at some point the speed will drop to zero. This will eventually happen when some tasks have huge delays or are lost in the pile of work to do. Employees instead working have to explain to managers why the job takes so long and the next thing they know is more bureaucracy and more meetings.

It can only mean one thing – even less time to work and less things done. Big inventory just breeds problems. To speed up you have to start managing your value chain by using buffers. Buffers will be piles of intermediate products which are waiting for the next step of processing. Buffer has to be there to protect your control point. There always has to be some work to be picked by the control point to reduce risk of not working at all if something breaks before the control point. This buffer size shall be calculated and monitored so it is not too high and not too low.

Let's get back to software which can help you. You can benefit from investing in software which:

- reports in real time the work in progress
- prevents people/units from producing more intermediate products when buffers are full
- informs people/units they need to produce intermediate products because buffers are not full
- alerts you when buffers are below low threshold level
- measures throughput of every unit and the whole organization
- visualizes amounts of work done in different parts of an organization
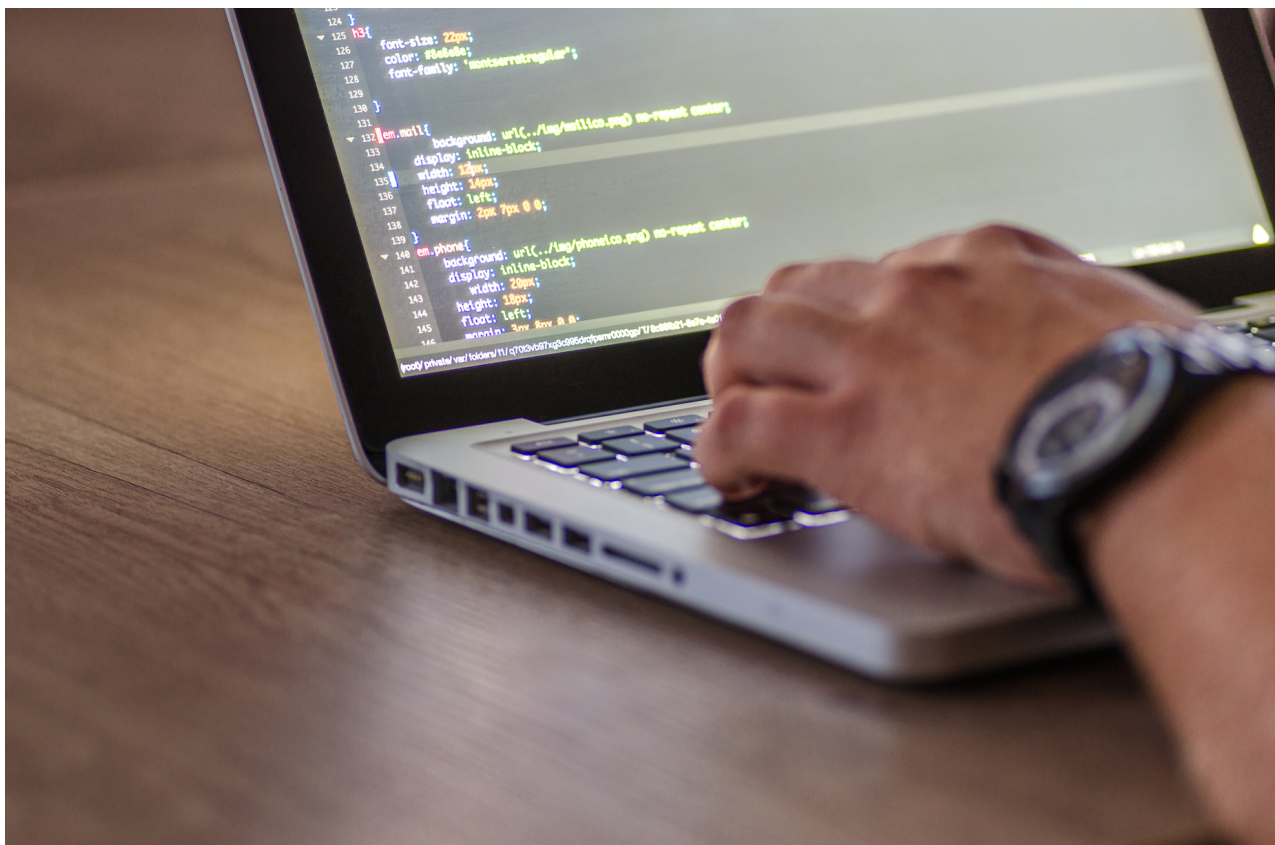
SLOW DOWN

Stop treating your employees as children.

As you probably noticed I am advocating for not working. This is counterintuitive but please listen for a while to the devil advocate. Many managers often behave like babysitters. They think that their job is to make all employees busy. If employees are not working on something they can make trouble instead. One such risk may be that someone important in an organization will start asking questions why these people are not working. However the company is not always the same as kindergarten. It isn't about keeping employees busy but to produce value for its customers.

Imagine that all the people would work at top speed all the time. Please observe that roles inside a company are different. Various tasks require different amounts of effort and time. Some people are responsible for tasks which take more time and it is not because of a specific employee. It is a nature of the world, it was always like that and will always be like that because of the laws of physics.

Do you see what starts to happen when there is a big discrepancy between a control point and other less time consuming places? More and more orders are not finished and more and more orders are in progress. The amount of raw materials used increases and cash flow plummets.

Now what if we explain to everyone the paradox of getting most value from being lazy.

To maximize throughput of an organization you need to ensure that most of the employees spend some part of their time doing nothing. It may be 5% or 50% of their time. It all depends on their speed vs the speed of the control point. At the control point nobody takes breaks. However, everywhere else people should just do nothing for some part of the day but be prepared to work at their top speed when they are told to. Once you increase throughput at the control point the lazy time for everyone else drops down. Eventually the control point becomes faster than some other step or activity. This means that you should change your focus to this other unit as you observe that the pile of work is rising in front of it.

Just do it without worrying about employees. They are not kids that should be occupied at all times. You can safely leave them alone and they will not start painting on walls nor making fires in the CEO office. They will actually have time to think how to speed up the control point once they know where it is and they see buffers in action.

This is not just another wonderful theory. It was practiced with success in many organizations. Now you know it, be your best friend and just try it. Start observing what is really happening in your company.