Scientific Management:
Article 1 for Agile Leadership Pre-Work

Limit Engagement, Limit Success – Scientific Management Problems

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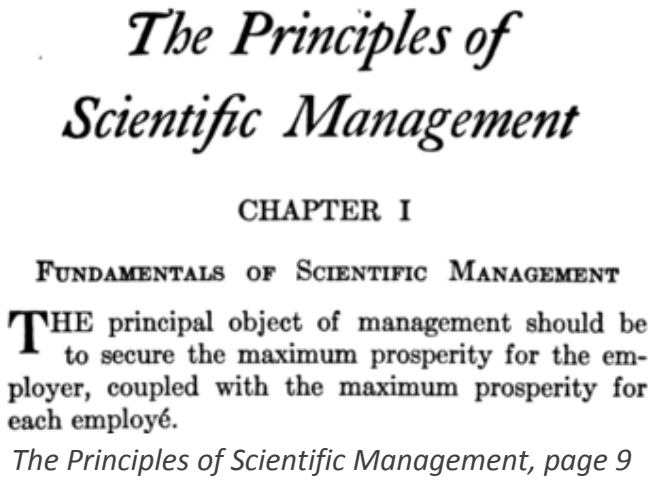
We require environments where people can provide input and ideas. **If we limit engagement, we limit success.** We still have organizations who either believe or act like they believe some types of workers are "stupid." This idea dates back to the ideas surrounding Scientific Management, Fredrick Taylor, and Henry Ford. The concept of the stupid or unskilled worker that I mentioned was common in the early 20th century. In various writings about agile and agile ideas, we often refer to or see references to avoiding Scientific Management, Classic Scientific Management, or Taylorism. These management ideas limit engagement from people, which is going to limit success.

Understanding the past can be quite helpful to see where you might be able to improve today.

Scientific Management Overview

I will not attempt to summarize every detail of Scientific Management *{SM = Scientific Management for sources}*. There has been a ton written on the topic and **you can read the book** for more depth.

Fredrick Taylor published "The Principles of Scientific Management" in 1911 after working on the concepts for many years. Taylor focused on standardizing work processes so they are faster and more productive. He built on work that others had done before him. While Scientific Management did not survive, core ideas persist in today's organizations.



The Principles of Scientific Management

CHAPTER I

FUNDAMENTALS OF SCIENTIFIC MANAGEMENT

THE principal object of management should be to secure the maximum prosperity for the employer, coupled with the maximum prosperity for each employé.

The Principles of Scientific Management, page 9

The opening of the book sounds like something many people would agree with.

- Management should maximize prosperity for the company and employees;
- Employers and employees have their destiny linked;
- Employers can't prosper over the long term if employees are not prospering.

Taylor also talks about the benefit of training for employees so they can perform at their best. He championed breaks for workers so that they could be more effective and good pay for good work. He also focused on removing any waste from work processes. His recommendations derived from studying what people did. He observed, measured, and created the 'most effective' way to do work.

Some examples include:

- Instructing a bricklayer to pick up a brick with their left hand and trowel of mortar with their right is more efficient and reduces waste.
- Analyzing and experimenting with shovel design, to allow workers to work longer without a break.

He believed that his focus on the best way to do a task would result in a better living for workers. Taylor begins the book with a reference to a speech by President Theodore Roosevelt in 1908. Excerpts of the speech, titled "**Conservation as a National Duty.**" is below.

"We have become great in a material sense because of the lavish use of our resources, and we have just reason to be proud of our growth. But the time has come to inquire seriously what will happen when our forests are gone, when the coal, the iron, the oil, and the gas are exhausted, when the soils shall have been still further impoverished and washed into the streams, polluting the rivers, denuding the fields, and obstructing navigation. These questions do not relate only to the next century or to the next generation. One distinguishing characteristic of really civilized men is foresight; we have to, as a nation, exercise foresight for this nation in the future; and if we do not exercise that foresight, dark will be the future! ***[First half of section 31]***

Finally, let us remember that the conservation of our natural resources, though the gravest problem of today, is yet but part of another and greater problem to which this Nation is not yet awake, but to which it will awake in time, and with which it must hereafter grapple if it is to live–the problem of national efficiency, the patriotic duty of insuring the safety and continuance of the Nation. . . ***[First half of section 54]"***

Taylor saw in this speech that we must conserve our natural resources and importantly he saw the "waste of human effort" as a major issue {*SM page 5}*.

Problems with Scientific Management

There is value in ideas like reducing waste and experimenting to find ways to improve. However, the core of how Scientific Management accomplishes these is problematic and limiting.

Hierarchy

Scientific Management requires a "much more elaborate organization" {SM page 70}.

Scientific Management (and Ford's River Rouge Complex – below) reminds be of German Film Metropolis (1927) – Watch the beginning and you get the drift (link to youtube via image)

By Taylor's calculations, spending extra money for overhead and management was cost effective. He saw that workers could produce more and make more money, even with the overhead costs. So he saw this as a beneficial approach {SM page 71}. We see remnants of this with hierarchy in organizations today. There are many layers between upper management and the people actually working to deliver value to customers. We see remnants of this with **hierarchy in organizations** today where there are many layers between upper management and the people actually doing the direct work to deliver value to customers.

With the idea today of the 'knowledge worker', we know people who are doing work, from farming to developing software are intelligent and creative. People who are doing the work obviously have ideas and insights on how to improve how the work is done. Management does not exist today to simply figure out better ways for others to do their jobs – that is an outdated idea.

Insulting Views — Bad Implications

Taylor's views of workers were often insulting — being condescending to workers he viewed as less intelligent, calling them stupid, and comparing them to animals.

Now one of the very first requirements for a man who is fit to handle pig iron as a regular occupation is that he shall be so stupid and so phlegmatic that he more nearly resembles in his mental make-up the ox than any other type. The man who is mentally alert and intelligent is for this very reason entirely unsuited to what would, for him, be the grinding monotony of work of this character. Therefore the workman who is best suited to handling pig iron is unable to understand the real science of doing this class of work. He is so stupid that the word "percentage" has no meaning to him, and he must consequently be trained by a man more intelligent than himself into the habit of working in accordance with the laws of this science before he can be successful.

The Principles of Scientific Management, page 59

Taylor also has ideas that start off as something sounding more positive, such as training workers and helping them. However, a key part of his approach was based on his analysis of the persons intelligence, such as in the passage below.

When one ceases to deal with men in large gangs or groups, and proceeds to study each workman as an individual, if the workman fails to do his task, some competent teacher should be sent to show him exactly how his work can best be done, to guide, help, and encourage him, and, at the same time, to study his possibilities as a workman. So that, under the plan which individualizes each workman, instead of brutally discharging the man or lowering his wages for failing to make good at once, he is given the time and the help required to make him proficient at his present job, or he is shifted to another class of work for which he is either mentally or physically better suited.

The Principles of Scientific Management, pages 69-70

We all have different skills, passions, and abilities in different areas. In management today, we still have some who discount workers as lazy or worse, without engaging with them to understand or help. We also see assumptions about people limiting the value they can bring to the organization and team.

Individual Focus

Another issue with Scientific Management is it's focus on individual measurement and not on teams. While focusing on teams was not common, Taylor was specifically focused on studying work that could be measured, broken into individual tasks, and reoccurred frequently. This type of approach does not hold up well in today's team based environment's where we know that people generally perform better if they are in high-performance teams.

'Improvements' were often mandated, implementing changes without input or ignoring input from workers. People were "managed" with heavy control. In some cases this meant adding in steps such as "over-inspection." In others it resulted in practices that pitted workers against each other. This is another breakdown from idea to implementation. These tactics fly in the fact of helping workers and do not support what we know today about motivation.
These problems also point to a **core premise of Scientific Management, that "intelligent" managers make changes, not workers.** *{e.g. bricklayers SM page 84-85}*.

Henry Ford

Ford did not cite Scientific Management as a source of inspiration. Yet, you can see the dark side of this same thinking play out at Ford with the Model T. People making the Model T were doing the same repetitive tasks. Henry Ford said knew the number of distinct motions (7882) it took to make a Model T {PBS1: **PBS American Experience Henry Ford**}. The thinking centered mechanizing humans.

River Rouge 1927 Source: Wikipedia

Ford engineered skill out of the process, so "anyone" regardless of skill, could fill a position on the line. The process was so exhausting and monotonous, people would quit after a few days. If they needed 100 men, they needed to hire 1000 men to address turnover *{PBS1}.*

Ford was focused on creating processes that would work for unskilled workers, training them on one small operation. *"Our foundry used to be much like other foundries. When we cast the first "Model T" cylinders in 1910, everything in the place was done by hand; shovels and wheelbarrows abounded. The work was then either skilled or unskilled; we had moulders and we had labourers. Now we have about five per cent of thoroughly skilled moulders and core setters, but the remaining 95 per cent are unskilled, or to put it more accurately, must be skilled in exactly one operation which the most stupid man can learn within two days." {**My Life and Work, by Henry Ford**}*

Years later (1928), his largest plant, the **River Rouge Complex** appeared like a machine.

You see Henry Ford trusting his security chief, Harry Bennett, to patrol the plant and force people to comply with rules. *"Bennett surrounded himself with a group of street fighters, athletes, ex-convicts, and underworld figures. With their weapons often prominently displayed, his men roamed the factory enforcing strict workplace rules. Workers were not allowed to talk or even sit down while on the clock. {PBS1}"*

None of this is specifically what Taylor was calling for, yet **the idea that people needed to function as machines or resources was the same**. If management believes that workers don't know anything, how will things not deteriorate to a place where they are not trusted? How will the culture not simply turn into one of 'listen and obey?'

We Need Engagement to Succeed

The idea that workers are stupid and can only perform simple tasks, as well as the idea that management are the only ones who can think does not hold water. It is this kind of thinking, whether people call it Scientific Management or not, that leads to organizations failing to adapt. It leads to organizations getting beat by competitors (which is what happened to Ford when he would not listen to anyone).

We need engagement from everyone if we are going to continuously improve! We can't afford to discount people simply because of the type of work they do. In Lean Thinking we have the idea of 'going to the gemba' or 'actual place' that the work is happening. If we empower the teams doing the work to improve and engage, we gain so much more to drive results and build community.

Leadership must be focused on how to create the environment where people have the foundational safety and space to innovate, speak up, and be creative. At least if leaders want to continuously improve, deliver value, and compete. **How are you creating an organization that reduces fragility by engaging and learning from everyone? How are you limiting your options?**