

Athar



PANDEMIC STRATEGIES AND SOLUTIONS

Athar Management Consultancy L.L.C.

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STRATEGIES
AND SOLUTIONS**

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IN THIS ISSUE WE WILL DISCUSS

1. The effect of lockdowns in the near future
2. Remote work challenges and increasing productivity
3. Metric timing
4. Office air contamination

CURRENT STATE

And the most likely future

April 7th, 2020

Lockdowns are working and starting to show positive effects in slowing down the virus spread in countries like Italy and Spain and Portugal. But the virus is accelerating its spread almost everywhere else in the World.

We now know that we can contain and control the pandemic locally, albeit at great cost.

Now we need to prepare for the future because the pandemic is here to stay for the next 12 to 18 months. The pandemic has geographically spread to a point where it can't be contained globally. We will continue to see new cases of infections every day in most countries and this means the local risk of "hot zones" of infection will continue to appear until a vaccine is successfully deployed.

We need to adapt to this new reality and redesign our organizations' strategies, goals and metrics so we can move forward instead of struggling with the "normal" but now unsuitable work practices, or worse, being paralyzed and waiting for things to change. We have to be the change.

CHAPTER 1

WHAT'S GOING TO HAPPEN NEXT

Our country's lockdown will get the spread under control. But that by itself isn't enough to eradicate the pandemic.

Lockdowns are not sustainable over the long term, but resuming life and business as usual without updated precautions can cause the few pockets of infection that persist to rapidly spread to a number of people that is too high for our healthcare system to handle at once.

This is not an easy compromise to balance, but once the country has the spread under control, it is possible, with new policies in place, to return to somewhere between the lockdowns of today and our previous lifestyle as a society and business as usual at work.

This is what we currently assume will most likely happen.

Once the number of new cases drops to a number that our healthcare system can handle, while ramping up capacity specialized in this pandemic, the lockdown can be lifted in stages. But this is not business as usual. Constraints will remain in place and risk will still exist.

So we need to adapt and prepare for a future that's somewhere between today and what our life used to be like, as this will be our reality for the next year and half if we consider an optimistic scenario.



What do you need to adapt?

The strategy you designed prior to the pandemic is very likely in dire need of adjustment. Even if your main strategic direction is still the same, **execution and targets must need adjustment.**

You have also had to change some core policies already, related to office attendance, remote working, HSE, networking access. But how deep, if any changes did you make to adjust actual work practices? There is a reason why, in the age of email and phones, we still go to the office. Work processes and procedures in practice today are designed

with direct access to people and face to face interactions. Remote working requires process redesign, entirely new metrics and a different work flow. I'm sure you've noticed how your organization, as well as everyone else, is working weekends and overtime just to keep up. Everyone is super busy. But why? They have less demand for work because demand dropped in general and they're probably focused only on priority tasks.

Being busy and being productive are two entirely different things. Staff is trying to keep up with new work practices and work flow, not with extra work. and that causes delays, especially in data retrieval and communications. You can surely testify that the more boundaries of accountability there are, the harder it is and longer it takes to retrieve a piece of data. From within your team, to inter-department. And don't get me started on communications between organizations. This is all a symptom of a failing work environment that can be cured by simply redesigning the work flow, it's processes and metrics. And eventually, you will have to face this reality. I urge you to consider these changes sooner rather than later.

If the virus disappeared tomorrow, with this new work flow redesign, you'd be able to successfully introduce flexible timing with increased productivity, maintain remote work as an option increasing your access to staff with **fewer delays on decision making** and data retrieval and overall have more flexibility and availability of resources at no extra cost. And we know the virus is not going to disappear tomorrow. These are changes we all need now and in the foreseeable future.

REMOTE WORKING

Increasing productivity and redesigning work flows while being super busy and having no time for anything else

The most common answer I hear in interactions these days is "We're too busy. We're already working weekends and evenings. We can't meet (virtually)."

We need to improve and overcome challenges when we are struggling most. So how can we take the time to increase redesign processes, work flows, metrics, adjust strategies and targets when we're already so overburdened?

In my career, over 90% of cases where an organization needed our help, it was because they couldn't keep up with their current situation. They were overburdened, suffered from a lack of resources and suffered from cost overruns. In our story with Boeing, the plant had so much demand that they needed to double capacity. But they had no extra time to spare. They were already behind schedule! And we were asking them to redesign entire assembly areas and work practices. But because we did those changes, they were able to increase labor efficiency by 75% and reduce lead times from 180 days to 50 days per aircraft (the time since a plane enters the plant to be assembled until it leaves as a finished good). Not to mention the cost savings. Or a food processing

plant here in AD, which was behind schedule to meet its target for the year. They were already working 24/7 and had been trying to increase capacity for the previous 3 years. And we started the project in early November. They were not just busy. They were in a tight spot. But after 10 days redesigning the processes and scheduling, we increased production from 110 tons per day to 240 tons per day, without any expenditures.

You need to make the changes in order to catch up with backlogs of work that are falling further behind. You are not facing a temporary demand spike or a seasonal peak that will go away in 2 weeks or a month. You are facing a new work environment that's akin to piloting an aircraft using a manual to sail a boat. Your staff is not being lazy because they're home and no one is watching. They're struggling with comms and data and don't know how to proceed.

How to go about fixing this?

First, you need to acknowledge this needs to be improved. You can do it now, or you can do it next month, but this will need to be addressed. Hiring more people won't solve the problem. Given the nature of the bottleneck being interpersonal communications, hiring more people may actually increase the problem due to the increase in complexity of data generation points and increased number in communication nodes.

Second, you need to look into your Value Stream process chain. See what's repeatable and what's discrete.

Contact us to help with your improving plans. But if you can't reach us, we are providing tips in the following sections and you can always contact us for more details.

Processes or tasks are divided into two categories:

<p>Repeatable/Transactional Outputs</p> <p>- focus on efficiency</p>	<p>Discrete/Tailored Outputs</p> <p>- focus on effectiveness</p>
<p>Characteristics:</p> <ul style="list-style-type: none"> • Customer/stakeholder requirements easier to define • Inputs and outputs clearly definable • Clear performance measures • Process can be standardised 	<p>Characteristics</p> <ul style="list-style-type: none"> • High levels of discretionary effort • Need for tailored response • Complexity of stakeholder environment • Performance measurement difficult
<p>Process Drives People</p>	<p>People Generate & Drive Process</p>
<p>Success Factors:</p> <ul style="list-style-type: none"> • Standard operating procedures • Continuous improvement – empowered teams • Clear targets – visual measurement 	<p>Success Factors:</p> <ul style="list-style-type: none"> • Individual goal clarity important • Prioritisation of resource allocation • Clarity of customer and requirements and role of team • Managing interfaces

In the service sector, 80% of tasks fall under the first category of repeatable and transactional tasks or processes.

Standard Operating Procedures (SOP)

Once you know which processes are repeatable, you can start redesigning the work flow around these principles and improving them using simple tools like PDCA (Plan, Do, Check, Act) to address over processing, work in progress inventory (pending work), rework from defects in work like mistakes or decisions made based on incorrect or outdated information. Then create a SOP to serve as a manual for everyone to follow. This ensures repeatability, reliability and predictability in the way work is conducted, which means you can predict where and when this task is taking place and at what pace, making it clearly measurable.

SOPs create your foundation for performance to be reliably tracked, so you can preemptively take corrective actions as you see your metrics moving out of their deviation limits for variation. This way you can assist your teams to stay on track and be aware of their progress, which it itself alleviates problems with communications.

METRIC TIMING

Using metrics to take corrective action and how often to get updated to improve efficiency

With the current circumstances and the changes that had to take place, your current metrics are probably outdated and possibly counterproductive both in their targets as well as the metric itself. A simple example is the classical on time arrival of staff to the office, tracked biometrically. First, you can't use it for most staff at this point and second, when someone has to spend 2 hours waiting for an email reply in order to proceed with their work, how relevant is the metric that tracks their starting work time?

So metrics and tracking methods need to adjust or be entirely reconsidered, both for your strategic targets and operations (production metrics within the departments).

A large impact of the pandemic has come from a very fast changing environment, with new policies and laws being issued by world governments on a daily basis, it is very difficult to keep up, much less stay ahead. This is the main reason why it's crucial to move decision making from reactive to preventive. For this, you need metrics to be correct and to be on time. The best metric in the world won't help you make decisions, if the last update was 2 weeks ago and the next update will be next week. Real time metrics aren't necessary

and tend to be more cumbersome on productivity, outside cases where it can be automated, but most process related metrics can and should be updated twice a day or daily in many cases, so long as the update system is integrated with the process itself. This requires a bit more setup time in the design of the process and SOP, but once it's implemented, the efficiency is greatly improved in decision making, workload distribution, availability of resources and corrective actions, rather than fire fighting.



A Daily Management System using Primary Visual Displays has been very effective in organizations with critical operations like Airbus and Rolls Royce, with whom we've implemented before. In a PVD (primary visual display), you can run your dashboard, or create

one with the critical chain of metrics from strategic level to daily operations related to your teams, keep the metrics and tracking system for your improvement efforts. You will also include in this PVD key operations points and issues to be addressed the same day. These points are discussed daily, usually first thing in the morning, with the team to instruct them on what to focus on today in their tasks, what was accomplished yesterday, what's falling behind and requires corrective action or load reassignment and what's expected for tomorrow.

This seems like a simple tool, but it allows you to stay ahead of your problems and on track to your assigned targets. It also increases transparency within operations.

For the sake of the example, the picture above shows a physical PVD in the VC-10 aircraft maintenance facility in DARA, the largest covered facility in Europe, but PVDs can be digital and are easily implemented with most software based dashboards today.

OFFICE AIR CONTAMINATION

Research & Solutions

I spend a lot of time thinking about the future. And in my future, we have to return to the offices sooner or later. In stages, but probably before there is a vaccine and a permanent solution to eradicate the risk of viral contamination. There will likely be pockets of infection in most countries that we'll keep trying to fight off, which means that, to return to the office, we have to make the office as safe as possible. You already are, following public health guidelines, disinfecting surfaces and observing the minimum physical distance between individuals and disinfecting hands. That addresses contamination of surfaces, skin and clothing.

But air contamination and main source of viral propagation has largely gone unaddressed, mostly because whatever harms viruses in the air also harms humans. So we've been researching practical technical solutions that can be installed inside the offices to shield workers and visitors, so long as the other above mentioned practices are followed.

Technology

These solutions include UVC air sterilization systems and particle ionizers. I'll conclude with a word on air filters and why their effectiveness is limited in elimination of the contamination, though they can be helpful if combined with ICV sterilization.

UVC

UVC is being used in labs and hospitals in China to disinfect air and surfaces from the virus, but there are a few problems with most current approaches. The first problem is that UVC (short wavelength ultra violet light) used in most germicidal lamps is in the 253.7nm wave length, which is very good at breaking everything DNA, the virus, bacterial and ours, so these lights can only be used when people are not within the same room (at night for example). Then some of the lamps also emit 185nm wave length which produces ozone, which is good to remove chemical smells, but harmful for human lungs, so it shouldn't be used in closed environments even in the presence of HVAC systems. We also have to take into account the inverse square law in light irradiation, which means that a UVC lamp significantly loses effectiveness after a short distance, so it needs to be ON for long periods of time if used in an open space like an office room.

This solution is useful to kill the virus once per day, but we also need to disinfect the air when people are inside the building during office hours. As you can see from above, the present solutions aren't suitable for virus disinfection with office needs in mind. There is a less known type of lamp far-

UVC light in the 222nm wave length that has been demonstrated to kill viruses and bacteria without harming human cell (both skin and eyes), but unfortunately this discovery dates back to 2018 and it has not been yet possible to certify this type of UV light as human safe, by the FDA and other equivalent authorities, so we can't recommend their use while people are within line of sight.

Ionizers

Particle ionizers have generally been available as part components of air purifiers to aid the reduction of air particles by adding negative charge to air molecules, which then bond with particles in the air weighing them down and accelerating their natural decay. Although it is important to note that ionizers do not kill viral contamination, it does effectively transfer aerosols created by people sneezing from the air to the surfaces, which, when regularly cleaned, can then be disinfected, thus removing the threat of air contamination.

Our solution to implement the technology

We use UVC systems to sterilize the air within HVAC ducts, installing UVC 222nm and 254nm lights inside the HVAC air-ducts and considering irradiation over 1190 W/cm^2 at 161 cm upstream from the lamps with an airflow of $0.93 \text{ m}^3/\text{sec}$,. Under these levels of irradiation, studies have found that bioaerosol (bacterial and viral) inactivation efficiencies are up to 99.96% (100% with 95% confidence limit) before recirculation.

A word of caution towards current HVAC UVC solutions. Currently available solutions are used to keep the AC coils free from mold. They are usually between 14W and 20W lamps and are meant to disinfect coil surfaces. For rapidly flowing air disinfection you need **960W high output lamps**, for the above mentioned flows because the time the air passing the duct is exposed to the UV light is much shorter than the continuously lit AC coil. Beware of this very important point when considering this type of solution, as they are very different systems built for different purposes.

Given that ionizers are effective within a 3 meter radius for personal ionizer units. We recommend the distribution of ionizers along the staff working area to create effectively ionic shields around workers, while the rest of the air being circulated into the HVAC. Studies have found that these apparatus can remove airborne particles by 90% in 90 min, for particle sizes of 0.1 to 0.5 μm , respectively at a distance of 3 meters, thus significantly reducing the possibility of viral contamination into the lungs.

Although we are here sharing these solutions, which can be implemented by your engineering teams, we offer these system installations as part of our services from now on, in an effort to accelerate air decontamination inside office areas in the UAE, to further limit the spread of the pandemic and protect its people and economy.

CONCLUSION

We all want to go back to our normal lives and I believe we'll have to face the reality of having to return to the offices before the virus is eradicated by a vaccine, so we are researching and offering solutions that not only help organizations deal with the current environment but also prepare to support its staff when they start gradually returning to your office buildings.

If you have any questions or comments regarding any of the contents of this document please contact us.

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