

The TMC ADVISOR

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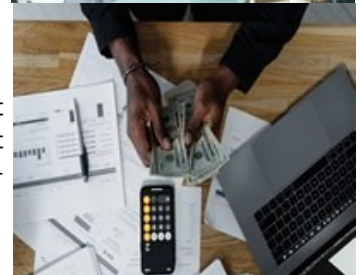
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Enhanced Safety

Managers agree that teamwork can increase productivity. When you and your coworkers participate in the tabletop exercises used to test the effectiveness of your plan, everyone is encouraged to work together to achieve important results such as enhanced workplace safety and ongoing business operations. Tabletops allow participants to consider operations from a different perspective, and to share fresh ideas about keeping your organization productive.

Future Leaders

Ever wonder about who might be a good fit for a future supervisory position or management job? Consider the performances of various employees during a tabletop that investigates the best ways to resume business after a strong earthquake. Who comes up with the most practical strategies, and refuses to shy away from the more challenging questions? In the end, who shows a mixture of intelligence and guts?

That young woman in HR could be a future CEO. That fellow who just started in the mail room might make a top-notch facilities manager. You might not have spotted their talent if they hadn't displayed it during the tabletop.



Promote DR Actions

Key clients depend on you, and need to know that your organization could deliver goods and services after a wildfire destroys substantial property and puts many organizations out of business, perhaps permanently. Promote your Disaster Recovery program.

Why should your clients deal with your competitors when your organization is more likely to survive the worst and keep delivering services? And why not let other stakeholders—financial supporters, politicians, and shareholders realize that you are better prepared for disasters than other organizations? In fact, your disaster plan could be one of your more powerful marketing tools.

Morale

These benefits can lead to better corporate morale. You and your coworkers can be proud of your disaster plan and advanced level of preparedness in a risky world. Your organization could develop a reputation as the proverbial Good Corporate Citizen—a feature attractive to shareholders as well as employees.

Security

Disaster plans can inspire better security for data as well as people. The more effective plans create ways to harden the target and to protect your organization from malefactors including data thieves, frauds, and burglars. Your insurers will celebrate the possibility of smaller losses.

But above all, along with everybody else involved in your operations, they will agree that the ultimate benefit from your disaster plan is the likelihood of your surviving the next devastating event.

If you'd like to explore these ideas further or comment on this article, contact me at guy@tmccconsulting.ca.

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Guy Robertson is a senior planner at TMC and an instructor at the Justice Institute of BC and Langara College. He has written five books and numerous articles on corporate security and disaster planning, and offered workshops and lectures at conferences across North America and in the UK.

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The Budget Process

Every year, you go through a process to decide what changes are needed to your IT estate - upgrading, replacement or net new purchases.

1. Network upgrades may be needed to redesign the network, to improve cyber-security, or to eliminate congestion.
2. Server refresh can be driven by the age of your servers—either to meet your evergreen policy, because they have aged out of manufacturer's support, or because of performance problems.
3. Cybersecurity spending can be based on a newly adopted cybersecurity program, routine penetration testing, age-related equipment upgrades or...
4. Extra IT staff may be needed to meet workload requirements.
5. Consultant assistance may be needed for IT assessments, strategy development or project management.
6. Training is often underfunded so careful wording is important for IT staff training as well as end-user training in areas such as disaster recovery tabletop exercises or cyber-security awareness.



The Real Cost

Your budget request list is likely backed up by a business case analysis for each initiative, where you've calculated the total cost of implementing a change and compared it to the cost of the maintaining the status quo. The costs of change might include cost reductions through reduced staffing such as with customer self serve options.

Review Implications

It's important that your business case looks at links between projects so that it is clear what depends on what, as well as what the cost to the business is of not doing a project. Sometimes it might be increased maintenance costs, sometimes it's an increased risk exposure. If one project requires one or more other projects in order to work

then it is your job to make that clear in the original case.

Report back to senior management to ensure that they understand the implications, not just the cost, of deferring any of your budget items. For more, see Peter's article, [The Cost of Not Doing a Project](#).

Self-Suppression

When we're first hired with a new client, we often find that their IT management have gotten into a habit of self-suppression. That is, they have trained themselves to ignore what they need and only ask for what they think that they might be able to sell.

With one client, things had gotten so bad that we were told by management when they hired us to complete an IT Assessment, that they had lost faith in their IT department to tell them the truth about the problems they were facing. Based on our recommendations, they needed to provided a one-time catchup fund equivalent to 50% of their normal budget.

If you'd like to explore these ideas further or comment on this article, contact me at ellen@tmcconsulting.ca.

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Fax is one big reason why some users don't want the PSTN to be shut down. This 1980's era technology survives against the odds. Brick sized cellphones, dial-up modems, 8" floppy disks—all are similar aged and all are extinct. Curiously fax survives—but is it time for that too to go extinct? Should we find better ways of transmitting printed material or must we keep fax on life support?



History of Fax

Facsimile as we know it today dates to 1964 when Xerox introduced what they called 'Long Distance Xerography'. Our current machines operate on ITU standard G3, which was introduced in 1980. Fax rapidly replaced telex as a way of transmitting printed messages. In turn, e-mail has replaced most fax use, yet some uses persist for many reasons, most of which are spurious.

Positives

Back in the '80s it was an attractive selling point to be able to drop a sheet of paper into a fax machine and push the speed-dial button for a pre-set destination—knowing that a near perfect copy of the paper would print out at the remote site. Answerback codes provided legal proof that a document had been sent and received. Entire business structures evolved based on that simple concept, with the largest being the medical community.

Negatives

Most fax machines basically convert the image into pixels by scanning. The pixel values are transmitted to the remote machine using a 1980's era device called a modem. It is assumed that a high quality 4kHz analog path exists over the phone network link.

VoIP technology introduces two errors that make new technology PSTN-replacement paths less than perfect.



VoIP packets are delayed in transit by a variable amount thanks to the way IP packets are passed through routers in the network. This results in 'jitter', where some packets arrive out of order. If the analog termination devices cannot compensate for this, the fax modems will suffer errors and the received fax will be distorted. Also the digital bandwidth in the PSTN is 64kbit/s, while VoIP usually works at around an eighth of that—again introducing more distortions.

What Actually Happens

Internally the fax starts with analog brightness values of the pixels. They are converted to digital and compressed to remove redundant white space. The digital information is then converted back to analog by the G3 modem to be sent over a nominal 4kHz audio phone line to the far end, where a similar modem converts it

back to analog pixel brightness for printing.

Add in the fact that the 'nominal 4kHz audio phone line' is usually converted back to digital for transmission between telco central offices and it becomes clear why 'old school fax' often suffers problems even using what should be simple PSTN lines.

What Can You Do?

You need to face the fact that the days of PSTN dial-up fax are numbered.

Analog IP adapters can be made to largely compensate for VoIP issues—but why spend money doing that (they are not cheap).

Ideally your services need to evolve into a networked data solution that avoids intermediate paper. If you have a paper source document, scan the document to a file, send the file, and print it (or not) remotely. If not, just send it.

For most applications, a basic PDF document image is acceptable. Legally, the lack of a fax 'handshake' can be a problem—but even lawyers are now happy to use digitally signed PDF files.

If you'd like to explore these ideas further or comment on this article, contact me at peter@tmcconsulting.ca.

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Peter Aggus, as an engineer & technology management consultant, has developed innovative & cost-effective solutions for clients in many industries.

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It Will Soon Be Over

Around the world, many nations have mandated that the PSTN, as a network, will be turned off at some point. New Zealand has chosen the end of 2023, the UK 2025. The world target is 2030.

The copper wires of the PSTN will no longer connect your phone to the telephone company CO. Instead, the connection will be an IP network of some sort, such as the public Internet, likely over fiber optic cable.

All these dates are proposals and could change as the implications are better understood. North America, including Canada, is working towards a non-PSTN future but there is no deadline to actually remove existing PSTN service and the associated copper cable.

Reader Concerns

Last month, Peter wrote about the problem of PSTN fax and other analogue services (read [here](#)). We asked our readers about where they currently use services where an individual PSTN phone line is used for network access and what they thought about life without the analogue PSTN.

Elevator Phones: Older emergency phones in elevators were powered from the central office over the PSTN. Without local electrical power, newer VoIP phones will not work.

Fire and Security Alarms: Fire Security Alarms: Older systems use PSTN power and special signaling that simply does



not work over VoIP.

Fax: Fax lines are everywhere. Pharmacies require faxed prescriptions, medical offices send medical records by fax, builders fax back and forth to City Hall, small businesses accept product orders by fax. Ironically, the high-tech FBI accepts Freedom of Information requests only by fax.

One reader, the President of a SMB telecommunications service provider said “Today 90% of our base of over 3500 clients are still on analog lines.” IP-based voice connections introduce distortion.

Mitigation

Elevator phones: Part of the answer is new phones with backup batteries but without a PSTN line, you also need to keep your internet gateway running (UPS + generator) or else calls will not

leave your building. Also, the network provider will need to ensure their broadband network is power-fail safe—which is not currently assured.

Fire and Security Alarms: Since many older systems just will not work in a non-PSTN future, you will need to discuss upgrading equipment with your alarm service providers. New systems use combinations of IP network connections, sometime with cellular backup.

Fax: The solution here is to migrate your ‘fax service’ onto a more modern system that will work over an IP network. Peter looks at this problem in [his article](#) this month.

Your Role

Head-in-the-sand isn’t a recommended approach. The future will arrive some day soon and you need to be ready. Look now at what changes you will need to make—seek help if needed. Then plan those changes over a reasonable time period.

You have been warned.

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Roban Chahal is the editor of The TMC Advisor, a researcher, and oversees TMC benchmarking studies.