Your Existing IT Strategy Won't Work
Why SMBs have to rethink their IT strategy and embrace Digital Transformation


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Executive Summary

The business world is in “Digital Transformation.” This document gives you an overview about it, and shows what this means for SMBs in the near future. I will describe the current IT situation of many SMBs running their IT on premises, along with all the challenges they have. Furthermore, I will give you a detailed overview about the cost drivers in IT departments, and constraints created by the past IT evolution.

SMBs have considerable IT environments that are permanently expanding. This results in a growing demand for excellent IT support within these companies. To keep the IT support on a high level, either a continuous investment in the training of IT teams is required, or professional support from external partners has to be purchased.

I have come to the conclusion that SMBs have to change their IT strategy now in order to be successful in the future. They have to be prepared for new competitors coming into their markets. SMBs should embrace the opportunity the Digital Transformation gives them.

The solution delivered by the IT big players for this situation is the “Cloud.” Here, I will describe the benefits that Cloud solutions have for SMBs:

- Lower Hardware Costs
- Fast Response to Disruption, Agility
- Disaster Preparedness
- Sustainability
- Mobility
- Competitiveness and Persistence

Cloud systems are generally considered unsafe, and I will deliver a realistic pro and con comparison of on-premises IT vs. Cloud solutions. This also includes the description of a gap in all current available Cloud solutions: no single Cloud solution provides everything required by SMBs.

My recommendation for all SMBs is this: incorporate your “Digital Transformation Strategy” and define your Cloud strategy. To become “Cloud ready,” SMBs have to invest a considerable amount of time in the process—we are talking about years. Hence, you have to act now. I will provide a practical explanation of what your path to the Cloud can be like.

About the Author

My name is Alexander Buschek. I have been an IT professional for many years. I started my career as an entrepreneur, providing specialized software for different industries. Later, I switched to consulting and being an external project manager for various IT projects (e.g. ERP implementation and migration). Since 2012, I have been the CIO of an SMB with 500 employees worldwide, to whom I provide IT support in many varying projects.

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Introduction

Literally all SMBs in my network have their entire IT on premises, and we all share the same pains. The pain of keeping up with all of the technologies (existing and still emerging), with very expensive re-investments (storage, virtualization, network, training you name them) every three to five years will not go away in the future, either.

At the Inforum in Paris in November 2015, I heard a quote that made me really think:

"Friends don’t let friends build data centers anymore."2

Charles Phillips, CEO of Infor, whom I met face to face in New York earlier, said this in his keynote speech. I was a bit stunned by his bold statement. What does he mean? He wants to sell his Cloud-Suite. Fine. But what is really behind this statement? I was filled with curiosity, and I went deep within to understand what he meant. If I look at it today, I have to admit: there is more to it than just advertising their Cloud products. This is the ongoing paradigm shift—the digital transformation—put into simple words.

This paper was inspired by this quote, and I will cover the following topics within:

- **Digital Transformation – Digital Disruption.** An attempt to bring some order to these concepts. I hope it will be as big an eye-opener to you as it was to me. But be warned: there is no simple definition.

- **Today’s Situation – A Practical Approach.** I will show what SMBs have to face in IT today, where they were 10 years ago, and what they will have to face regarding IT in the future.

- **How can you benefit from the Cloud?** I will present four major benefits your business will gain from Cloud technologies.

- **Risks of Cloud vs. on premises.** When I talk to colleagues about the Cloud, it is clear: they feel it is too risky to keep important data in the Cloud. I will show that the risk of keeping them on premises is very considerable, and that there is no reason to neglect Cloud per se.

- **Moving to the Cloud – A Practical Approach.** I will present a roadmap that can guide you to the Cloud. It will be a hard and long process, but is a worthwhile task.

The Digital Transformation is happening right now. Cloud technology is part of it. The least we can do is understand the opportunities and the risks and then act responsibly. This paper will give you some information to think about. Thanks for spending your precious time reading this paper.

Alexander Buschek

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1 When I mention SMBs I refer to 100 to 1,000 employees, which is the Gartner definition of Medium Business
Digital Transformation

“All organizations are on a digital journey – most have no map, no guide, and bad shoes.”

Thornton May, leader of the top membership tier at AIIM

Cloud is the most disruptive technology since the PC started to make its way into our businesses in the 1980s. Cloud is part of the Digital Transformation—or Disruption—we’re in right now. However, there is more to Digital Transformation than just Cloud technology.

But what is Digital Transformation? The report “Strategy, not Technology, Drives Digital Transformation – Becoming a Digitally Mature Enterprise” by MIT Center for Digital Business and Capgemini Consulting in 2015 says:

“Maturing digital businesses are focused on integrating digital technologies, such as social, mobile, analytics and cloud, in the service of transforming how their businesses work. Less-mature digital businesses are focused on solving discrete business problems with individual digital technologies.”

An excerpt from the Executive Summary of this report reads:

“The ability to reimagine the business is determined in large part by a clear digital strategy supported by leaders who foster a culture able to change and invent the new. While these insights are consistent with prior technology evolutions, what is unique to digital transformation is that risk taking is becoming a cultural norm as more digitally advanced companies seek new levels of competitive advantage. Equally important, employees across all age groups want to work for businesses that are deeply committed to digital progress. Company leaders need to bear this in mind in order to attract and retain the best talent.”

Strategy is a CEO driven teamwork

In these concepts, we are talking about a paradigm shift. This is much more about corporate culture, customer centricity, and business strategy than about technology. Technology follows your business strategy and Cloud is a tool we now have in order to bring the Digital Transformation to life. Of course, the CIO knows Digital Transformation and the opportunities that come with it. But to execute this shift requires a lot of persuasion and learning on many levels.

This has to be a teamwork of the C-levels in your business. The CIO can and will bring this to attention, but the entire C-level team has to drive the process. The CEO must be the primary driver. The Forrester Study, “Digital Transformation In The Age Of The Customer,” gives a clear recommendation at the end of their study. Although addressed to 1000+ businesses, it is also valid for SMBs.

“Advocate digital transformation and the customer experience at an executive level. Digital transformation can only succeed as a companywide initiative, which requires strong collaboration and evangelism from company leaders. No one person alone can drive all of the changes that are required for an organization to operate as a customer experience machine. Our study found that the company culture and organization lag behind process and technology when it comes to digital readiness; this has to be fixed in order for companies to mature effectively. Therefore, don’t downplay the cultural change and educational aspects of transformation; instead, make them a highlight of your plan.”

You cannot use the Cloud and apply the same business strategies you used to five or ten years ago! If you are not willing to go for Digital Transformation, you better think twice before introducing a Cloud strategy. Cloud requires a different approach to business processes and working-culture, and won’t leave your business unaffected.

**Why bother with Digital Transformation?**

New businesses, startups, and your future competitors will use Cloud technology like Lego® bricks, choosing only the components they need to support their business. They will attract Generation Z, who has a totally different mindset than Gen-X or Gen-Y, let alone the Baby Boomers. They expect to work from coffee shops or home, and want to use modern technology fluently. They don’t accept that you ban Dropbox, Skype, Evernote, Facebook, LinkedIn, or other tools. You don’t like that? You better think twice! Who do you want to hire: the smart but demanding guy, the real digital natives, or the normal guy who accepts everything? By 2025, Millennials will supply 75% of the workforce.

Look at the following chart I borrowed from inhumedia.com. It gives you some idea of why it is important to look at different generations and understand their unique needs and capabilities for your business.

![Talking a different language](chart.png)

Today’s entrepreneurs and your future competitors will start their businesses by keeping their initial investment as low as possible. Why set up, run, and pay for a data center with redundancy, backup systems, and storage that last at least for the next three years? Buy Microsoft Server licenses that they don’t need because they are not productive? Set up complex Exchange servers? Hire specialists that need ongoing specialized training?

What today’s entrepreneurs need is access to ERP, CRM, Office, Presentations, etc. wherever they are. Small but capable startups may not even rent offices that stay deserted most of the time. They rent office space ‘per use.’

- Use SaaS Cloud software. ERP, Microsoft Office 365, Exchange, collaboration tools, everything will be in the Cloud.
• They will be able to work with an internet connection and minimal IT infrastructure. They may not even run a single server on their premises. This dramatically lowers their risk.

• They even hire design offices instead of hiring their own engineering staff. Buying the expertise from others makes them flexible if they need to switch to another product. Would you work like that? Probably not! You see the risk of losing your products to competitors. They see the opportunity of starting immediately with little risk!

• They won’t even rent expensive offices in the beginning. Today, you can rent office space on a daily basis, for instance: www.sharedesk.net.

• Production will be done where it’s most affordable, in places like South East Asia.

• I know a company that doesn’t even see their products anymore. They are directly shipped to Amazon, who handles direct distribution to the customer.

The above scenario is emerging in B2C businesses, but it is a question of time until B2B will follow. They can survive in a most disruptive market, since they have more flexibility.

**Why bother with Digital Transformation? Because your competitors will!**

**Changes in the Digital Business**

Until now, IT systems had to be customized to fit the business process. I know a lot of companies who have severe customizations in their ERP systems. The deeper we look, the clearer it becomes that many of these could be removed if they would dare to change their business processes. How much do you have to pay just for your customizations if you want to move to the next major update of your ERP system?

Cloud technologies give us a means of simplifying our local IT technologies significantly. The big mind shift is that we use Cloud-based IT opposite of what we are used to: instead of streamlining our IT and software, we need to streamline our business processes so that they fit best with what is available. This is what our competitors do. This will give us the flexibility and scalability we need. It is not an easy approach. On the contrary, this is a highly demanding approach that requires considerable time and effort.

Accepting the challenge of Digital Transformation is a bold step with broad and helpful consequences. The question is: who is responsible to initiate this paradigm shift, to accept the challenge of Digital Transformation? Is it your IT department (because they want to use new technologies)? No. This is a corporate cultural shift that will change and challenge the entire business. **Only the CEO or the board can initiate the move in this direction.** If the CIO convinces the CEO to move down this path, and the CEO executes it half-heartedly, you can actually jeopardize your business.

**Prediction**

I am convinced that businesses who accept the challenge and are willing to change will gain a major competitive advantage in the future over those who don’t, choosing to stay with what they have. The book about change, *Who Moved My Cheese?* by Dr. Spencer Johnson, is a classic today. The message is simple: you cannot avoid change. You can either embrace change or die from hunger.
Businesses cannot avoid this paradigm shift. We can get the facts, understand the consequences, and act accordingly. Many will ignore it and hope that this Cloud hype will disappear as quickly as it came. Your new competitors who play this instrument of Cloud and “pay-per” with perfection will sooner or later teach you. Do you think these words are too harsh? Let’s see!

I am personally convinced that we won’t be discussing the question of whether businesses should use Cloud systems five years from now. I am also convinced that SMBs who focus on the opportunities Digital Transformation gives them—sooner rather than later—will be more efficient, more successful and, finally, more competitive compared to those who stick with on premises IT systems.

Today’s Situation – A Practical Approach

Running an IT system on premises is much more complex today than it was only ten years ago. It will be even more difficult in terms of money and manpower to run a streamlined IT on premises in another ten years. If you are a CEO, you need to understand the challenges your CIO has.

In 2011, when I became the CIO of an SMB with about 500 employees worldwide, I faced a severe backlog in the IT. We experienced a considerable business growth, but the IT could not support it. I started with two IT employees, one responsible for infrastructure and one for ERP. We had a local system house, which was mainly responsible for the infrastructure. We were their biggest customer.

Cloud was not really an issue in 2011. Some were talking about it, but it seemed far away. Our ERP system, Infor LN, was not available in the Cloud at that time. Everyone in the company, including myself, was more than reluctant to look at Cloud solutions at all. They were considered inherently unsafe; the information was thought to be prone to data theft by literally anyone; nothing to think about. Investing in hard- and software was out of question.

Hardware / Systems

I composed an IT strategy for the next five years. We needed to strengthen and improve our infrastructure, to support our subsidiaries all over the world, and improve our ERP system to make it ready for international usage. At that time, many of our servers were still physical machines, dedicated to certain services or systems (file server, ERP server, Exchange…you name them). Occasionally, we had to face considerable downtime because of hardware problems.

To eliminate downtimes, implementing VMware virtualization was the next logical step. We had to install highly capable ESX servers, as well as add a highly capable storage system. We built a second
data center to give us redundancy. The data centers were equipped with UPS systems as well as automatic fire extinguishing systems.

We looked at the storage situation and found that the industry rule of thumb—that growth of data in is roughly 25% to 30% per year—was true for us as well (we actually had 31% growth over the last 20 years). That means you must triple your necessary disk space roughly every five years.

To make a long story short, let me point out a couple of other things we had to look at as well:

- **Firewall systems** had to grow with your data usage. Had to be ‘HA’ (high availability) with the complexity that comes with that.

- **Virtualization** is both a blessing and curse: because it is so easy to install a virtual server, the growth rate of these servers is considerable. You need a new service? Set up a new server! Test system? No problem, you need one or two? The following chart shows the server development from the last 10 years of a typical SMB with today 500 employees worldwide.

  ![Server Development in 10 Years](chart)

  - How can you **backup 30 TB** of data? How many tapes do you need to store this amount of data? How much time does it take to write 30 TB to tape systems? We decided to implement three NetApp systems that are located in three different locations spread over the premises, a tape backup system that can manage this amount of data was financially out of reach.

  - We had to upgrade our **internal network to 10 GB** to allow our servers to communicate fast enough.

  - We had to replace our outdated phone system to a state-of-the-art **VoIP system**, now running on a virtual Microsoft Server.

  - We started to **integrate our subsidiaries** over the world into our Active Directory.

  - We had to catch up with Microsoft server systems and **train our staff** to handle new server systems, migrate from Windows Server 2008 to Windows Server 2012.

  - The same was true for Active Directory, Microsoft SQL Server, Exchange Server, our ERP system, etc. **Ongoing training is necessary**.

  - There are many more systems we had to take care of: ECM, HR, CAD, time tracking, monitoring, anti-virus, etc.
Maintenance and Staff Considerations

My team has to deal with a rising number of systems every single year. Today we have four IT administrators taking care of a remarkably complex IT infrastructure. We’re not only responsible for the infrastructure, such as servers, switches, storage etc., but we are also responsible for the systems that run on this infrastructure. If users have a problem accessing a certain system, they want a fast answer from our IT team. Autodesk Vault has a problem: ask IT!

When I started in 2011, I asked for 10 days of training for each administrator per year. I still consider this indispensable. The team needs to catch up and keep up with technology. Unfortunately, we have to accept budget cuts, so we are unable to provide the necessary training.

To sum it up: as technology moves forward, maintaining staff skills, both vertically and horizontally, is becoming more difficult for SMBs with limited resources. Many of my colleagues face the same: no budget for proper training to keep up with technology...let alone hire more specialists. On the contrary, many of my colleagues from other SMBs have had to reduce their IT staff.

But we changed something. Instead of conventional trainings, we went to the Cloud:

Budget considerations

IT systems don’t last forever. We have clear rules in the form of a lifecycle management I introduced long ago: Servers will be used 5 to 6 years with 24/7 maintenance, switches up to 6 years etc. We maintain a list and plan our budget for necessary replacements based on that.

If business declines (and it does from time to time), IT investments have to be stretched, jeopardizing the stability and efficiency of our systems and, with that, the overall efficiency of our business.

How can you benefit from the Cloud?

The main question you often hear is, “Is it cheaper to use Cloud systems?” From all the information I’ve gathered so far, I say yes. But in order to really benefit cost-wise, you have to prepare a model that allows you to also get rid of a considerable part of your IT infrastructure. Moving one system to the Cloud is a necessary first step, but that alone won’t cut your IT costs significantly.

Example: We run 80 virtual machines in our data centers, and only 7 are related to our ERP system. Moving merely the ERP system to the Cloud wouldn’t help too much. In order to benefit largely from the Cloud, the approach must be a bigger one that takes all systems into consideration.

1. Ongoing Hardware Costs

A data center costs hundreds of thousands to build and maintain. Power, cooling, administration, and the fact that your hardware needs replacement every four to six years add to this, yet, the fallacy of sunk costs often seduces us into throwing good money after bad. Cutting the cord on costly data centers can be a painful decision to make; but in many cases, the money devoted to supporting them can be used more productively.
2. Fast Response to Disruption, Agility

In today’s world of instant communication and viral markets, it is essential that you are able to respond to unforeseen events. The report “Strategy, not Technology, Drives Digital Transformation – Becoming a Digitally Mature Enterprise”\(^5\) points it out precisely:

*The ability to adapt quickly to change also stands out as an important capability. Perry Hewitt, chief digital officer at Harvard University, says agility is more important than technology skills. Emory professor Konsynski concurs: “The 21st century is about agility, adjustment, adaptation and creating new opportunities.”*

3. Disaster Preparedness

Many of us like to think that disaster won’t happen to us. I will present some examples later, where even small problems caused a major disruption in business. If your premises are in an area where you may expect floods or hurricanes, you better think twice. Even a fire in a data center can provide an irreversible business disruption. Backup won’t help here since it takes too long to repair the damage and rebuild your systems. This risk is next to zero if you have your data in a capable Cloud.

4. Sustainability

The pressure for our businesses to reduce our environmental footprints is growing, and it’s becoming increasingly difficult for us to justify the cooling, power, space, and resource demands of data centers when their solutions could easily move to the Cloud. Cloud hosts can optimize resource consumption by virtue of greater scale, and then reduce the impact even more by spreading it across hundreds of customers.

5. Mobility

This is more or less an inherent result of Cloud technologies, if done with capable partners. Mobile access to your data at the airport, in the café, at the customer site is something that will give you the flexibility you need in the future, and will attract the newer generation to your organization.

6. Competitiveness and Persistence

There are businesses—maybe your competitors—who already work on their Digital Transformation strategy. I predict that the companies who accept the challenge right now will be the ones who win, while those who are not open to change, may fall behind enough to fail. Embracing the Digital Transformation will give you a tremendously competitive advantage.

7. Concentration on the core business

Running data centers and complex systems also means that you have to have a team of specialists that run, maintain and improve them. These IT specialists need ongoing training which is expensive. Yet they do not contribute directly to your business.

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Risks of having your data in the Cloud vs. on premises

One of the major concerns that prevent many IT heads from even thinking of the Cloud is security. When I talk with colleagues about safety and security regarding Cloud systems, I often hear the notion that our data are not safe in the Cloud. They say, “I have control over my data on premises. They are safe and sound there.” I have to admit that I said exactly the same thing half a year ago before I started looking into Cloud solutions and Digital Transformation. Severe problems like hacking of Dropbox (2014), Evernote (2013), and Sony (2014) seemed to prove this to be true.

Let’s take a sober look at it.

Is it really true that my data are safe on premises?

First, let me mention a couple of incidents that I heard from my IT colleagues and that we experienced. If you start to pay attention, you will find similar stories in your circles as well.

1. The IT department of a smaller SMB (<200 employees) was working on their storage system and needed to do some maintenance. The risk was considered minimal. The system was highly overprovisioned. When they applied the changes, their storage system immediately went down. It was a firmware problem that could have been avoided if they would have taken the time to update their systems on a regular basis. In the course of this, they lost data of roughly two days, and the entire company was down for three days since the ERP system was highly affected. There was no production and most of the employees had a compulsory leave.

2. Another company (2,000 employees) had a fire in a storage hall on the premises. When the firefighters came, the first they did was to cut off the entire electricity of the plant. Since the firefighters prevented the IT staff to access their data centers and other facilities, the servers and storage systems went down one by one after the UPS systems were drained. It took a couple of days until the entire IT system was up again. No office was harmed; the employees could have worked.

   Fortunately, the fire did not damage any core systems of the IT. Besides that, the fire started on a Friday evening giving them the entire weekend to restore the systems.

3. We had a major issue with our two core switches that connect our data centers. There was a tiny configuration change that the system engineer from our system house did on both switches. The firmware of these switches was not up-to-date (If it ain’t broke, don’t fix it).

   This idea turned out to be wrong. The problem with the firmware eventually led to the situation that both core switches stopped responding after two days. The result was a total downtime of six hours since none of our systems were accessible anymore. Everything had to be shut down, firmware had to be upgraded, and three external specialists plus our entire team were working hard to solve this.

What can we learn from this? Big enterprises don’t allow casually changing configuration of core systems. They have implemented ITIL processes. SMBs can’t afford these kinds of procedures since a considerable amount of employee support is necessary.

How safe is our data on premises? Am I sure our storage system won’t fail while we are doing some maintenance? Is my NetApp partner capable enough to see the risks and handle them properly?
**There are risks when running your IT on premises.** They can be reduced by training staff, hiring well-trained staff (I take that back—can’t afford), hire a system house that helps you if your knowledge and experience is insufficient. If you can afford it, implement ITIL processes. This helps a lot, but you have to put in much effort. Everything you do to improve your situation on premises has to be paid for.

**Technical Risks on Premises vs. Cloud**

Here is a small list of the risks that you encounter on premises or in the Cloud. Of course, the list is incomplete. You may add your own risks in the blank lines I provided. The risk on premises can only be lowered by investing regularly in hardware, staff, and training. It is possible that you may come to different conclusions, but you might come to understand that your actual gut feeling is deceptive.

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<thead>
<tr>
<th>Risk</th>
<th>On Premises</th>
<th>In the Cloud</th>
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<tbody>
<tr>
<td>Data loss due to technical problems</td>
<td>HIGH</td>
<td>LOW</td>
</tr>
<tr>
<td>Downtime due to technical problems</td>
<td>HIGH</td>
<td>LOW</td>
</tr>
<tr>
<td>Downtime due to internet problems</td>
<td>MEDIUM</td>
<td>MEDIUM</td>
</tr>
<tr>
<td>Problems due to outdated systems</td>
<td>HIGH</td>
<td>LOW</td>
</tr>
<tr>
<td>Inefficiency due to outdated systems</td>
<td>HIGH</td>
<td>LOW</td>
</tr>
<tr>
<td>Severe fire or disaster in the datacenter</td>
<td>HIGH</td>
<td>LOW</td>
</tr>
<tr>
<td>Data theft</td>
<td>MEDIUM</td>
<td>MEDIUM</td>
</tr>
<tr>
<td>Virus infection, ransomware etc.</td>
<td>HIGH</td>
<td>MEDIUM / LOW</td>
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<tr>
<td>CSP proves incompetent, hence you need to switch</td>
<td>LOW</td>
<td>LOW</td>
</tr>
<tr>
<td>CSP goes bankrupt</td>
<td>LOW</td>
<td>LOW</td>
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1. **Data loss due to technical problems:** The big Cloud service providers (CSP) can afford redundant systems, and in the case of some hardware breakdown, you don’t even realize it. Plus, they have a team of specialists to take care of the things that an SMB cannot afford. They usually get the best-trained people directly from the manufacturer of their systems. No storage producer, for instance, wants to see his name in the press when a big Cloud system fails due to their storage system. Remember: small Cloud providers may not be able to work the way that prevents most of the risks like the big ones can. So choosing the right CSP is crucial.

   By the way, do you have a DR (Disaster Recovery) strategy? Did your IT team ever perform a DR exercise? What will you do if a fire destroys your data center?

2. **Downtime due to technical problems:** SMBs usually cannot afford full redundancy. That means: technical problems will lead to downtime and user impact. Big Cloud providers do afford and prepare for redundancy, and that’s why you most likely don’t experience downtime in your business if some piece of hardware breaks down in the Cloud.

3. **Downtime due to internet problems:** You may think that this is a big point against the Cloud: if your Internet goes down, you can still work with your systems on the premises. That is only partly true. If you have subsidiaries, for instance, they cannot access your systems anymore. Your sales persons in the field can’t either. And you are cut off from email access, resulting in undesirable NDRs (non-delivery reports) on your customers’ side. This leads to a loss of reputation. On premises Internet problems will still affect your business, though maybe not severely.
Regarding the Cloud, the situation is controllable: You can still use 4G to access the Cloud. This may be less comfortable with less speed, but it is possible. Your employees can work from home. If you prepare yourself with intelligent Wi-Fi access points, you can counteract such a problem at reasonable costs.

4. **Problems due to outdated systems:** many of my IT colleagues and SMBs work to the rule: “If it ain’t broke, don’t fix it.” Where does this rule come from? It comes from the idea that you cannot oversee the consequences of the changes you make. SMBs, unlike big enterprises and big Cloud providers, cannot afford intense testing before they apply updates. They have to rely on the fact that an update will not harm their systems. Since nobody knows for sure, they assume it’s better to not update.

You run into a risk if critical updates will not be installed. Your systems may break down if an awkward combination of circumstances applies (see above). Big Cloud providers and big enterprises can afford to follow the ITIL processes, do the necessary testing, and have backup systems in place. This is why the risk for SMBs is much higher.

5. **Inefficiency due to outdated systems:** How often do you update your ERP system, your CAD system, or other systems on a regular basis? You should, because a good ERP system does not only provide bug fixes but also enhancements on a regular basis. If you don’t install them, you cannot benefit from them as your start-up competitors do in the Cloud.

A lot of my SMB IT colleagues are very reluctant to update their ERP system. ERP updates require a lot of testing with the key users, and it gets worse, the longer you wait. A problem we face here is that many of us have too many customizations that interfere with updates. Processes are not implemented to the rules of the ERP system. Instead, the ERP system was customized to handle a non-standard business process. Many SMBs I know have done severe coding in their systems sometimes with their own developers.

Infor ERP LN, for instance, addresses this challenge by providing customization tools that do not alter the standard. New releases can be applied without interfering with customizations. Using just the standard gives you the most stable system. And to be honest: customizations are a big pain and sometimes a showstopper of new processes. So better think twice before customizing your ERP system to serve an awkward process.

**General Risks on Premises vs. Cloud**

The risks I compared above are mostly technical related. There are some risks that go beyond technical issues:

1. **Severe fire or disaster in the datacenter:** This quite unlikely event is very hard to judge. If it happens on premises, it depends on how much money you spent on DR (Disaster Recovery), redundant systems, and fire extinguishing systems.
What I saw when I visited a huge datacenter from Strato in Berlin recently, made the difference obvious: they have all kinds of security we as an SMB can never afford. Literally tons of batteries are maintained, diesel generators are heated 24/7 in case they need to come to life. Tests are performed on a regular basis. It depends very much on your CSP though. When selecting one, this is one of the questions to ask.

Big CSPs deal much better with disaster than we will ever be able to. For instance, AWS will mirror your data across two different sites, miles apart.

2. **Data theft:** OK, this is something where we are *really* safe on the premises, right? In the Cloud we just don’t have an idea who has access to our data. Anyone could probably steal our data from the Cloud provider. On premises we have full control. We are in charge!

Let’s take a closer look:

What about colleagues in your company who have already mentally cut ties with their job? It is actually very easy for anyone to copy most of what he or she has access to. We had a sales person who applied for a job and he offered a CD with the data from his last job. Did we hire him? You, of course, know the answer.

We tried to limit the access to USB drives, SD cards etc. with special software as part of our DLP (Data Loss Prevention) strategy. We don’t allow free mail services like Gmail or others and we block FTP so our employees cannot upload data to the web. But honestly: you can’t prevent people from doing this. You can make it hard, but cannot prevent it.

In the old days, you had to carry literally tons of file folders out of the front door to load it into your van. A 64GB SD card, which is only as big as a stamp, can carry 15M pages in Word format. Printed out, they would weigh 75 tons. You better get a couple of trucks! The files in the picture consume 7.5MB when stored on an SD.

How about that? Microsoft has implemented a brand-new feature in Office 365 where you have to be authenticated against your Active Directory to open an Excel sheet or Word document. That means that even if you have the files, you cannot open them unless you are properly logged in to your AD.

As you can see, switching to the latest systems will also benefit you in these cases. I personally consider data loss probabilities on premises at least as high as in the Cloud. Cloud providers cannot afford data losses to unprivileged employees or anyone else. They do everything to prevent this from happening. And they have the means SMBs don’t have. As a result, you sign a contract, make sure that these issues are addressed, and if you find irregularities, you can sue them.

3. **Virus infection, ransomware, etc.** are only the tip of the iceberg of cyber threats. Today’s hackers try to exploit security holes in your systems to gain control. Look at your firewall in the intruder detection log.

What do you do to prevent hackers from getting control over your systems? We actually hired a company that tried to hack into our systems from the outside. The result was that we discovered that our systems were pretty safe. Another result was that we were also vulnerable from within our network. Once some kind of malware can start working within the network, it has all
the privileges of other users. Besides that, malware can also exploit security gaps in our servers. The experts suggested implementing a second ring of defense in the form of a second firewall that also secures the most important servers from within the network: more systems to maintain and to pay for.

A big Cloud provider does a lot more than we do to ensure safety and security against these threats. Honestly, we just can’t afford doing all the things we actually need to do—whether regarding the systems we have to buy, or the manpower it would take to maintain this.

If you use Cloud systems or have your IT on premises: the threat stays. But Cloud providers do much more to protect their (your) systems than most SMBs can afford on their own.

4. **CSP proves incompetent, hence you need to switch**: If you run into this situation, although you went through all the examinations, presentations, reference customer inquiries, etc., it is as difficult as switching to a new ERP system (for instance) on premises. I personally see the same risk here. The only way to minimize the risk is to do your best in finding a capable partner. If you have chosen a trustworthy partner, you can move your data just as you would on premises.

5. **CSP goes bankrupt**: This would be Super-GAU. If your software company busts but you have the software on premises, you can still work without support. It’ll give you time to act and find a new partner. It will be very expensive though.

Whether or not your system will still be available in the Cloud depends very much on the entire constellation. Where are the systems hosted? Our ERP system for instance, Infor ERP LN, would not be hosted by Infor itself—they contracted AWS. The chances that the lights go out at AWS are not really high. There will probably be investors standing in line to take over the business if it ever comes to this.

The risk with small Cloud providers is much higher though. If they have 100 to 500 employees, I would still consider them SMBs as we are. But why would you choose an SMB Cloud provider anyway?

**Conclusion**

Looking at the situation from an elevated view, my conclusion is that keeping our data on premises is at least as dangerous, as unsafe, and as risky as keeping it in the Cloud. Maybe the Cloud has even an advantage here. In both cases, you have to look at the situation, evaluate your partners or systems, and come to a decision.

Most importantly, it is extremely important to choose the right CSP. If you choose an SMB startup as a provider, it is most likely that you just shift the risks to the provider you have at the moment. In this case, you gain nothing. You want get the advantage of the big scale, of highly redundant data that are spread over distant locations.
When I consider the “Cloud” safer than “on premises,” I assume that:

a) The SMB does not have the required budgets to get the necessary redundancy and well trained staff to keep the systems up and running.

b) The CSP is not an SMB. It does have the necessary redundancies, spreads the data over multiple data centers miles away and, of course, has sufficiently well-trained administrators.

It is evident that the scaling effects must come to action. You want to take advantage of huge IT systems. Otherwise, there is no point in moving to the Cloud.

“Everybody said it was impossible until someone came along who didn’t know that and just did it…”

You may encounter doomsayers who will emphatically point out that this won’t work:

- We are not a startup!
- We were successful for so many years using the technology we have!
- Why should follow this trend? It will be over before we really started!

No doomsayer has ever changed the world. Instead, let’s get working and prepare for the future.

Moving to the Cloud – A Practical Approach

Let me sum up what we’ve gone through so far. Running complex IT infrastructure and systems will sooner or later become a problem for SMBs. I am experiencing this pain at the moment.

- Keeping your IT up with your business is getting more and more difficult to do from the administration, sustainability, and cost perspectives.

- Safety and security issues have to be addressed.

- Agility means you can respond to a wide variety of unexpected internal and external disruptions.

- Competitors will use Cloud systems sooner or later, and will have an advantage. They will perfectly use the “Pay-per…” approach, keeping their IT costs way below yours.

- Rapidly aging workforce: by 2025, Millennials will be 75% of the workforce. They want to use up to date technology like Dropbox, LinkedIn, Office 365. They want to work from the coffee shop. Like it or not, you need to be prepared if you want your business to survive.

It is undeniable that the paradigm shift is running under full steam! Digital Transformation is happening right now. Moving their systems to the Cloud will benefit SMBs since they can take advantage of the greater scale.

This chapter will give you a rough outline of where to start with this endeavor. It is by no means a recipe you have to follow and, after all steps are fulfilled, you’re done. Every SMB has to find its own way and its own pace. SMBs have different challenges to face. At the same time, there are questions every SMB has to answer. It will take considerable time and, depending on the starting point, perhaps many years.
The general steps are:

- Assessment of your IT Systems
- Cloud Strategy
- Preparation and Planning
- Selection of your CSP
- Contract Design
- Implementation and Migration
- Go Live / Operation

You most likely won’t be able to move all your system to the Cloud in one big bang! Instead, you will do it one at a time according to your Cloud strategy step-by-step, having many “go-lives.”

**Assessment of your IT Systems**

A full assessment of your IT systems is mandatory and will give you a comprehensive overview. You might be surprised by how many different systems you already have. You should have this kind of information already but, if not, this is a good opportunity.

- Name all the different software you have in place, including IT systems like anti-virus, storage, file services, domain controllers, etc.
- Write down who is using the different systems and how they contribute to your business.
- Qualify your systems in three groups:
  - A | Essential to your business
  - B | Supporting systems
  - C | Nice to have (to get rid of soon)
- Show all the different interfaces you have that connect your systems. It is a good idea to use Visio or other tools to represent them graphically.
- Prepare a list of your servers and what they do.
- Make an assessment of your network topology, including your internet connection and firewall. This is necessary in order to evaluate your Cloud readiness from this perspective.

You will most likely figure out that a lot of your programs and Excel sheets are interconnected with other systems in one way or another. It also gives you a first clue of what you may be able to get rid of by changing business processes, or you might find out that nobody uses them anymore.

Getting rid of unused or sparsely used systems is essential. You can start this immediately. Don’t move systems to the Cloud that are dispensable just because you don’t find the time to eliminate them.

**Cloud Strategy**

Preparing your Cloud strategy is your key to success. The better prepared you are, the better the results will be. I do not really need to mention that.
Go to IT trade fairs, meet the experts, gather all the puzzle parts and fit them into place. The picture will eventually appear in front of your eyes. And...take your time. It is crucial to take time with your strategy. You will need to hire experts, making sure they actually are as skilled as you need.

Infor has an advertising campaign running that states, “No two Clouds should be alike.” There is a lot of truth in it, and the campaign makes it clear that you need to find your individual way.

Your Cloud strategy will cover questions like:

• **Scope of your Cloud activity:** Which systems do you want to move? How much infrastructure do you want to keep? See your assessment. This is only a first view. During the preparation phase you will gather more information and the picture will become clearer.

• **Private Cloud, public Cloud, or hybrid Cloud (a combination of both):** From what I propose here, a private Cloud won’t help you in regard to eliminating IT infrastructure and complexity. You merely move your IT infrastructure to a professional datacenter. All Cloud systems that don’t give you technical access to the infrastructure should be considered a public Cloud. Hence “public” by no means stands for publically accessible, like Dropbox is, in a way.

• **SaaS, IaaS or PaaS?** These are “Managed Services.” The definition below will give you an idea of what each stands for. In the end, you want to use SaaS, since it will allow you to concentrate on your core business rather than IT systems.
  
  o **SaaS – Software as a Service:** Use a provided software and fill in your data. No need to take care of any infrastructure besides your network. Updates will be implemented by the provider. Typically access using a browser. Most desirable for an SMB. It will give you flexibility, since you have no dependencies like infrastructure to take care of.

  o **IaaS – Infrastructure as a service:** You will get all the resources you need to run your own systems: servers, storage, network. You will install your own Windows servers (virtual of course) and maintain them. Advantage: scalable hardware, you pay per CPU time, RAM usage, allocated storage. You still have to run and maintain everything besides the hardware. The benefit for an SMB is limited.

  o **PaaS – Platform as a service:** This is in between SaaS and IaaS. Web hosting is a typical example: they provide web space, a web server with i.e. PHP, ASP, MySQL and take care of updates etc. You run your application (website) on this platform.
Cloud Considerations for SMBs

- **Cloud Project plan**: Which systems you want to move to the Cloud in the different steps. With this, the big picture will become clear. Resources will be considered and budget planning gets started.

- **Simplify your environment**: Use your assessment to get rid of systems and software you don’t really need. Ask yourself: can your ERP system or other systems be used instead? The fewer systems you have to deal with, the better. KISS has to be a central point in your Cloud strategy.

- **WIIFU – What’s in it for us?** The strategy must clearly state the reason why moving to the Cloud is both desirable and inevitable. Competitive advantages, cost considerations, stability, availability, reliability, agility. Install some metrics you can use during the project to measure its progress and success.

**Preparation and Planning**

You already did the assessment of your systems—you have your Cloud strategy at hand, know what you are talking about. There are no surprises because you are well prepared.

- **Set up a Cloud-project-team** in your company. Make sure that they can find the time to work on it (easier said than done in an SMB).

- **Analyze which business processes** will be supported or affected by your Cloud strategy. Keep in mind: you want to modify your business processes to fit your IT standards and not vice versa. This will give you the results you ask for. Use the software “as is.” There will be some minor customizations. In this phase, your IT staff and key-users will work together.

- **Analyze and qualify the different systems** from your assessment:
  - Can be moved to the Cloud
  - Can be replaced by a Cloud based system
  - Can be discarded
  - Must stay on premises (keep this number as small as possible)

- **Prioritize the systems** you want to move to the Cloud. This will add to your timeline or project plan.
  - Which systems can be moved independently?
  - Which systems depend on others?
  - What can be done pretty easily to gain experience? I suggest looking at email (Exchange), Mobile Device Management (if you have), your VoIP system, maybe antivirus, etc.

- **Prepare ‘Cloud readiness’** of the systems you want to move to the Cloud. Look at the customizations in your ERP system, for instance. Look at awkward solutions you inherited from many years ago and supersede them. This step is extremely important and feels a little bit like housekeeping. Take the big broom and wipe the dust out of the corner. Having clean and tidy systems will allow a smooth transition to the Cloud.

- **Most important**: make sure the Cloud strategy is understood and accepted in the company.
Selection of your CSP – Market Survey

There are thousands of CSPs on the market. First: prepare a list of requirements for all Cloud systems you want to use, like:

- Size
- Time in the market
- Reputation (search for information on the CSP).

It is evident that an SMB wants to use scaling effects. A CSP that is an SMB as well won’t fit your needs. The big players like AWS, Microsoft, Infor, and SAP are the ones to consider.

One of the greatest challenges will be connecting the different systems. What is easy on premises may be a real challenge in the Cloud. The flexibility of the CSP and the support you can expect from them is crucial to your success. You need to dig deep here and find the right partners.

Keep in mind the big picture. Make sure you have as few companies involved as possible. Remember the KISS principle.

Contract Design

A question most businesses first ask is, “If the CSP busts, what chances do I have to get hold of my data?” The simple answer is this: the contract must state that you are the owner of your data (btw Facebook and others say the opposite in their terms and conditions: whatever you post there will become their property!). If any circumstance occurs that leads you to need your data, make sure that the contract always gives you the right to get a dump of your databases or whatever is necessary.

The same is true for access to your data. The contract must clearly state that only your business will have access to your data.

There is a lot of literature on the market that covers this subject. It is a highly legalized subject, so I don’t want to get too deep into it here. However, it is obvious that the contract design requires your full attention.

This is also all about trust. Can you trust your CSP? If you have a gut feeling that you don’t, be persistent and keep asking the questions until you are satisfied. It is important that facts override feelings.

Implementation and Migration

Implementation and Migration depends highly on where you come from and what your project plan looks like. Regarding this, there are a couple of things that are worth mentioning:

- You have already set up a proper project with a team, a project manager, a steering committee, rules and roles, and all other relevant tools.
- You split your project into digestible parts that can be well monitored, bring clarity, and bring motivation by not overstraining your team.
- You ensure that your team finds the time to do what you expect from them (I have seen many projects in my career that fail because this simple rule was ignored).
Finally: Have a party when the first system has been successfully moved to the Cloud! Celebrate your successes. It is quite an achievement that you and your team can be proud of.

Go-Live / Operation

You will most likely have a couple of go-lives. There is no way to do what Stephan Scholl, president of Infor, said in a keynote speech, “Give us your data centers!” and expect the work to be done in one step.

Every go-live will need sincere preparation. This process is absolutely no different than normal IT projects. When moving to the Cloud, the data transfer can turn out to be critical. The same is true for any interfaces you have to other systems.

Every Go-Live has to be well planned and rehearsed. This can take a couple of times until you are confident that all your data are accessible in the Cloud just as you expect.

Conclusion

Digital Transformation is something SMBs have to accept. It is a paradigm shift and, as such, can be hard to digest. Paradigm shifts force you to rate a situation from a totally different perspective. Since this paradigm shift affects your entire industry, you cannot avoid it for long.

SMBs that accept the challenge now, see the opportunities, and act accordingly will be the winners of this Digital Transformation.

Although many SMBs see only slight risk in running their IT on premises and great risk in Cloud solutions, we have to recognize that this notion is deceptive.

We now have the task of carefully evaluating Cloud options, assessing our existing IT, and preparing a Cloud strategy. Being perfectly prepared it still is a long way off, but we will eventually manage this challenge with success.