



# **Talent shortage or moment of truth?**

The reality of the mainframe  
skills gap



WHITEPAPER 2021

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# 1. Introduction



Some people in technology might be surprised to see a whitepaper about mainframes in 2021 (perhaps you're one of them). Long considered "dead" but far from it, the mainframe still handles billions of transactions for enterprises every single day. Although it's still a few years before we put on our party hats, the mainframe looks to be on track for its 100-year anniversary, making it one of the most proven technologies in use.

With the risk involved in switching to cloud or hybrid solutions – plus the uncertain return on the massive investment – companies that depend on mainframes today are more than likely to run them for the foreseeable future. Far from being fossils from a bygone era, it's estimated that 80% of mainframes in use today were built in the last three years.<sup>1</sup> That means mainframe skills will continue to see significant demand even as older experts move on, giving rise to the infamous "skills gap" in mainframe technology.

But in our view, framing the challenge as a skills shortage only tells half the story – and maybe not the most important half.

The task ahead isn't simply filling seats in a mainframe department. The challenge is replacing, renewing, and motivating IT professionals with the skills and talent to run absolutely mission-critical infrastructure. However, you can't hire – let alone retain – a top-flight team if their only responsibility is minding the shop. Talent demands opportunity, which is why a reactive

talent strategy and a reactive mainframe strategy can end up leaving you in the same place – locked into an undesirable trajectory with your mainframe technology. Once you're in that situation, no amount of LinkedIn advertising is likely to get you out of it.

In this whitepaper, CPT Global explores how a shortsighted approach to the "skills gap" can mask a "strategy gap". We show how quick and easy solutions don't address the true depth or urgency of mainframe challenges, and can undermine your organization in the long term. Finally, we suggest some actionable ways organizations can strengthen both their mainframe strategy and talent strategy to secure the future of the mainframe. Ultimately, what's at stake is not a handful of job vacancies, but your organization's ability to execute on its IT strategy – and the legacy of the experts who have kept your mainframe running for so many years.

<sup>1</sup> Arcati Mainframe Yearbook: <http://www.arcati.com/newyearbook21/>

## 2. The Approaching Skills Challenge

Mainframes aren't going away any time soon. In 2020, Deloitte<sup>2</sup> asked over 260 business and IT decision-makers about their mainframe and talent strategies. They discovered:

91%

of companies planned to expand their mainframe footprint over the next year

93%

said finding the right resources and skills is moderately to extremely challenging

59%

had mainframe knowledge and skills gaps on their current team

56%

have difficulty finding skilled mainframers to fill major talent gaps

54%

plan on using mainframe consultants to achieve their goals in the next three years

Many of the experts running today's mainframes learned their craft a long time ago. As a result, organizations that depend on mainframes face challenges as these experts begin to depart. The greatest risk is disrupting a company's long-term mainframe strategy, which is often deeply connected to – and dependent on – the people that helped develop it.

<sup>2</sup> Deloitte, 2020 Mainframe Market Pulse Survey: <https://www2.deloitte.com/us/en/pages/consulting/articles/2020-mainframe-market-pulse-survey-talent-drain.html>

## The skills challenges are well-known and serious:

### Skills loss

As mainframe experts leave or retire, their skills need to be replaced. Ideally, this would be done well in advance. Yet, although some universities are beginning to step up and expand their mainframe offerings, it's fair to say demand for mainframe-ready graduates is likely to outstrip supply.

Mainframe skills can be taught, but there's a learning curve. While COBOL is very much learnable for the IT professional, it's a skill that is specific to the mainframe, which can make it a hard sell. Also, the green screen-based environments of many mainframe systems can be a barrier to entry for younger professionals in the field.

### Experience loss

While training people for day-to-day needs is one thing, replacing experience in unexpected situations is a totally different matter. People who have manually completed an initial program load, who know legacy code well enough to confidently change it, who have been in challenging situations before and know how to react – all this can be far harder to replace than skills.

### Application and performance risks

Mainframes are still around today because they're ultra-reliable. But that very reliability can mean it's some time before an unexpected issue or a need for change exposes a problem – raising concerns that a business may not be able to keep up with customer demand. In addition, the software used to create unique customer environments becomes nothing more than shelfware if someone experienced isn't there to manage it.

### Perceived lack of “sexiness”

The idea that mainframes are a fading technology has worsened the issues that companies are experiencing. While reports of the mainframe's death are greatly exaggerated – and have been for over 20 years – it's not shocking that all the negativity has turned good talent away from mainframe computing.

### Increased competition for talent

The upshot of all these trends is intense competition for the skilled people that remain within the industry. Even if your organization wins the battle for talent, that only sets you up for the war of long-term retention.

Facing just one of these challenges would be tough for any business to deal with. Added together, they create a perfect storm that will either drive companies to rethink their mainframe strategy to attract new talent, or if the problem goes ignored, have it decided for them.



**If “business as usual” continues, the next generation of would-be mainframe experts will turn to new opportunities, while organizations running on mainframes approach the point of no return in creating a pool of experts.**

### 3. The Catch-22 of Mainframe Strategy

Competition for today's experts is already fierce, leading companies to look at other alternatives for securing tomorrow's mainframe talent. This has resulted in companies outsourcing mainframe expertise to fill gaps while searching for candidates, drawing talent internally from other IT departments, and reaching out to promising students and new graduates.

But not all solutions are created equal, and "doing something" doesn't mean "solving the problem". Long-term investments in capability and talent are more likely to yield lasting value. Band-aid approaches create the illusion of addressing the problem – while potentially concealing it until it's too late.

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*Most companies that use mainframes will still need them running in 20 years, only they may not have the people to do it. If skills and knowledge transfer doesn't happen right now, the problem becomes more critical, and many companies could end up paying the price – whether in terms of steeper IT costs or by limiting business growth.”*

**Luke Tuddenham**

*President of the Americas and Europe*

# How the quick fix becomes a slow burn

As talent becomes trickier to find, it becomes tempting to pay someone else to find it for you. But outsourcing core mainframe competencies creates two problems.

First, outsourcing doesn't solve the talent problem – it just moves it from one place to another. Outsourcing companies also need to find people to run your mainframe – and just like yours, their challenges will only grow over time. In addition, outsourcing offers you less visibility than hiring and managing your own team, while any benefits you gain by having them on board only last for the life of the contract.

Second, outsourcing disincentivizes everyone – internal and external – from going the extra mile. Outsourcers simply aren't paid to make incremental improvements or to pursue a side project. Internal staff that remain are sent a powerful signal to direct their attention elsewhere. People with talent and initiative get the message and will move to other fields or companies where they can make a difference.

And if you're one of the 91% of companies that, according to Deloitte, are planning to expand your mainframe footprint, a lack of talent and initiative makes these problems much more imposing.



# Setting a new strategy

Even if you would never consider outsourcing, many of the same challenges still apply. You need people who can absorb the experience of hardened veterans, learn new skills quickly, and bring their own abilities and ideas to the mainframe. But then the question becomes: Why would talented people come and work for your mainframe department, if the mainframe department isn't going to make use of their talents?

This is the catch-22 of mainframe strategy: for strong mainframe capabilities, you need an infusion of talent. But to acquire and keep that talent, you need enough depth in existing mainframe knowledge to create the learning opportunities those people expect.

There are two consequences to this:

- 1 The talent shortage is more than a skills gap: putting people in seats will not solve the strategic aims of the most mainframe-dependent companies.
- 2 The issue is more urgent than you think, and the **time to prepare is now**. The more mainframe talent is lost, the less the mainframe department becomes a place where exciting things are happening, and the harder the talent becomes to replace. Waiting to fill the gaps as they open up is a risk – a risk that only grows and costs more as each year passes.



***Fresh ideas are essential to any IT ecosystem. But sometimes these ideas are getting deprioritized in the mainframe. If companies want to attract new talent, they'll need to give them time to explore, innovate, and change things around. Otherwise, mainframe skills just become shallower, and people start avoiding the mainframe areas"***

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**Luke Tuddenham**

President of the Americas and Europe

## 4. Accessing Mainframe Mastery



Mainframe technicians are in high demand, so putting a team together takes more than finding the right experts – it also means creating a plan to retain them long term. And few (if any) companies are in a position to throw money at the problem. In establishing successful strategies for developing and maximizing mainframe talent, you'll need to adopt a range of tactics.



## Pay (a little) more for new mainframe talent

As tight as mainframe budgets sometimes are, dipping into the coffers to acquire new talent can be a worthwhile investment, especially if they come with mainframe skills that can help them contribute right away. Mainframe technicians already earn higher pay on average than many of their IT peers, so paying more for a strong candidate is something to expect.

Fortunately, the talent pool is growing thanks to IBM's push to help IT students and professionals acquire mainframe skills, which aims to turn the tide on the expertise shortfall. In addition to releasing browser and GUI-based development and administration tools that help simplify mainframe management and appeal to a younger generation, IBM has launched a series of partnerships and programs designed to educate tomorrow's experts as part of its Academic Initiative. And after years of neglecting the area, some universities are beginning to step up and introduce mainframe programs.

The more your organization is plugged into these kinds of programs, the easier it will be to find a qualified candidate for an open position – perhaps even more than one.



## Look for positive, adaptable people...

If there aren't enough candidates with a background in mainframe, people will need training and development. But after a long stint in another IT department or a demanding technology program, not every employee or graduate is excited to start learning an unfamiliar system – much less one which isn't shiny and new. While a can-do attitude and a persistent desire to learn and grow are always positive attributes, they are particularly important here.





## ...but be ready to sell the mainframe – and the position

If you're asking people to dedicate their career to an older technology, you need to prepare a pitch that doesn't just sell the role, but also sells the mainframe's future and importance. Younger millennials and members of Generation Z tend to look for jobs that enable and empower them to bring enthusiasm and fresh ideas to the table.

The fact is, there's a lot to like about the mainframe. Aside from continuing demand, mainframes offer an opportunity to think more deeply about application programs, liaise with other people and teams, own the availability of truly business-critical applications, and develop analytical, problem-solving, automation, and innovation skills that transfer across the IT spectrum. In short, if you can handle mainframes, you're well set up to succeed almost anywhere.

Designing a pitch that genuinely demonstrates your willingness to think outside the box can go a long way in making the case for joining your company and staying for the long haul.



## Launch an apprenticeship program

Navigating a mainframe can feel like sailing into all-new territory, even for skilled IT practitioners. An apprenticeship program can provide a baseline of mainframe knowledge before specializing further. This program would serve as an introduction to z/OS, mainframe databases, transaction processing, messaging, automation, job scheduling, networks, and application development, as well as cross-disciplinary essentials like TSO, ISPF, and JCL.

In addition to providing team members with a general overview of the mainframe's inner workings, it's essential to help your team learn specific skills that fit their interests and abilities, with the added benefit that it might deepen – or even awaken – their inherent talents.



## Facilitate knowledge transfer

It's important to remember that mainframe people got into the business to work with mainframes, not to be deputized as teachers. So, leaving it up to the experts on your team to decide when and how knowledge transfer happens will likely offer mixed results.

For knowledge transfer to be effective, it must be well-planned and include both formal and informal teaching. That means creating a schedule and making specific requests of your team, as well as creating less-formal mentoring relationships. Finally, it's important that you communicate to your existing experts the importance of their mentorship: it's their opportunity to ensure their legacy extends decades into the future and all their hard work continues to make an impact.



## Challenge your team and let them explore

This goes back to the challenge we discussed earlier: you can't keep good people without good work. Challenging your best people sooner will grow them faster.

That said, no one has the time or budget to create busywork for the sake of engaging young or promising mainframers. But what you can do is give them the time and flexibility to explore improvements, work on side projects, or start new initiatives that can build confidence in their skills and help them acquire new ones that ultimately benefit the company. If your goal is to deliver a better customer experience, boost efficiency, or reduce operating costs, it's projects like these that help make it happen.



## Supplement in-house skills with additional expertise

We've discussed why outsourcing is no solution to the mainframe skills problem, and that having a skilled, talented, and dedicated in-house team is a must. But if you're calling in external help to solve especially tough problems, use it as an opportunity to facilitate knowledge transfer and upskill your own people. Additionally, automation tools may be able to help eliminate gaps in certain areas, giving your company the flexibility to run a leaner, more specialized mainframe team.

**Finding and developing new mainframe talent may be challenging, but the need is more urgent than ever. However, there's still plenty of time and opportunities ahead for companies that make smart, strategic, and timely decisions.**

## 5. About CPT Global

As we've seen, there's no substitute for maintaining key mainframe skills in-house. But CPT Global can help ease in generational change with unique mainframe skillsets that supplement and support your in-house teams.

Consulting in all areas of mainframe optimization and modernization, CPT Global draws on a pool of 150+ global mainframe experts, each with over 20 years of experience. Our role is not to run your mainframe for you, but to help you achieve peak performance in any way we can. We're passionate about finding undiscovered savings, risks, and opportunities in mainframe technology, and we're a truly independent partner committed to succeeding on your terms.

With close to three decades of experience and perspective, CPT Global brings its expertise to global enterprises. As mainframe experts, we solve complex business problems for many Fortune 500 companies and 80 percent of the world's largest banks, enabling them to create more resilient, reliable, and connected mainframes.





## Key Contact

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### **Matt Rakoff**

Director Sales & Client Relationships –  
North America

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[matt@cptglobal.com](mailto:matt@cptglobal.com)