

TRANS

#Resilience

FORM

Tony Scott
FORMER US FEDERAL CIO

BUILDING RESILIENCE INTO THE FABRIC OF I.T.

RELIABILITY IS KEY WHEN EVERYTHING IS DIGITAL

April
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IN THIS ISSUE, WE LOOK AT THE SUBJECT OF **RESILIENCE.**

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EDITOR'S NOTE HOW TO DODGE THE NEXT CYBER PUNCH



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As the federal executive ultimately responsible for the oversight and security of the American government's computer technologies, Tony's "punch" was the discovery that there'd been a massive federal data breach and that more than 20 million sensitive personal records had been stolen.

How he coped – and overhauled the federal cyber security systems as a result – goes to the heart of the theme of this edition of Transform: resilience.

"Most of the time you don't know where the punch is coming from," he told me, in reference to cyber security attacks. "It might be to the nose or to the mouth or somewhere else. But if you practice several different scenarios, you will be a bit more ready no matter where that punch comes from than if it hits you for the first time and it's a shock".

Practice may not make perfect but it at least attempts to keep you one step ahead of the hackers, he said, adding that the battle is an endless one. In a world in which *everything we do at home and work is becoming more connected, more complex and more digital, cyber resilience is critical to all of our lives*. And, as he advises business leaders, "at a minimum, you have as many holes as you have employees in your cyber security architecture because every employee could be a potential entry point".

As well as his claim in our discussion that "cyber security can be fun" – yes, reader, I raised an eyebrow – he also revealed who he found to be the most personally resilient public figure he'd ever met – but of course I'll leave you to watch the interview to find out who that was.

Barely six weeks into his new job as President Obama's Chief Information Officer, Tony Scott got punched square in the face.

Little wonder Tony looks back on it as "one of the worst days of my professional life."

Luckily for him the punch in question was metaphorical not literal, in line with the heavyweight boxer Mike Tyson's oft-quoted quip that *"everyone has a plan until they get punched in the mouth."*

Meanwhile the former rugby world cup winning coach Sir Clive Woodward, who also features in this edition, explains why resilience should be built from victories as well as from defeats. It's about preparing for and learning from both – and then discovering 100 things you could do just 1% better as a result.

And technology excites him because it enables a team to together measure and learn from data. But be warned: "There's no point getting measurements unless you actually get the right learnings from it." Sir Clive tells me how everyone, *from sport or business to life in general, can be personally resilient – it takes coaching, communication and teamwork*. And key is recognizing that there will – not could – be setbacks and defeats along the way. "Resilience like life isn't a smooth upward line, but" – as he indicates with his hand, "a constant up and down."

And since every edition of Transform is a rich mix of contributors we'll also hear why digital twins can make cities more resilient, review the new research linking a country's digital infrastructure to its ability to bounce back from Covid, learn why technology seems to be a more popular and effective means to managing human emotions than managers and find out how a range of international visitors to the recent Mobile World Congress in Barcelona defined resilience.

Videos, articles, interviews and insights – dive in and, as always, let me know what you make of it.

Hopefully you'll find it a punchy read.

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BUILDING RESILIENCE INTO THE FABRIC *of I.T.*

Tony Scott
Former US Federal CIO

PRESIDENT OBAMA'S FORMER CIO
TELLS US HOW TO IMPROVE
RELIABILITY IN A DIGITAL WORLD

Scan QR code
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Gavin Allen
Editor-in-Chief Huawei Technologies

Gavin Allen: Tony, thanks very much for joining us. Has resilience - this ability to respond to, recover from and, ideally, avoid altogether cyber breaches - ever been more important?

Tony Scott: Well I don't think so. I think all of us in the industry are learning lessons every day around resilience and why it's so important. More and more of what runs our businesses, government, social institutions and so on, are digitized in some form or another. And to even do the things that we do on a daily basis, requires a tremendous amount of infrastructure and applications and other things. When those things fail, because of all those dependencies that we have, you know life becomes relatively difficult and we all feel the impacts and sometimes rather quickly. The existing supply chains are all driven by technology basically, making sure that things get made, get delivered at the right place at the right time. *One small kink in that process, and wow, suddenly you can't get essential things that you need. And it's because in most cases there's not a lot of resilience built into the fabric of the underpinnings of the things that we depend on.* So I think as a society we are learning those lessons every day and sometimes in very stark ways, unfortunately.

Gavin Allen: What do you think that companies, private and public are doing to achieve greater resilience?

Tony Scott: One is you have to be constantly examining the platforms and the infrastructure, the supplier dependencies, for whatever it is you're trying to do as an organization. You have to be constantly testing yourself to understand what you would do if one of those critical things fails. I like to ask CIOs how often they practise their disaster recovery activities or how often they practice recovering from a cyber breach. And if the answer isn't very regularly, that sets off an alarm in my head because in most

cases you don't get good at these things unless you practise. None of the people that were performing at the recent Olympics were doing what they do for the first time. And cyber and resilience are the same way. I mean if you don't practice at it, it's unlikely that you're gonna perform at all well, or even be in the game, unless you have some muscle memory in particular, of what to do and how to do it.

Gavin Allen: Talking of muscle, the former heavyweight boxer Mike Tyson famously said that everyone has a plan until you're punched in the mouth. Should companies basically now assume they're going to get punched in the mouth and plan accordingly?

Tony Scott: Well I think so. And you know just to further the analogy, most of the time you don't know exactly where the punch is coming from. And it might be to the nose, or it might be to the cheek or somewhere else.

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Gavin Allen: I was quite struck by a quote at this year's Munich Security Conference by America's Cyber Defense Agency Director Jen Easterly. She said that a cyber-attack occurs roughly every 40 seconds, that cybercrime damages are expected to cost the world \$10.5 trillion by 2025, and that by then there's expected to be 3.5 million unfilled cyber security jobs globally. That all sounds as if we're on course to lose this resilience battle, doesn't it?



Tony Scott: I think her comments are really reflective of the reality of what we see going on every day around us. Whether you are talking about bank robbers in the old days or any other form, crime is always going to be there. I don't think any society has ever figured out how to eliminate it 100%. It's also historically the case that there's always been an imbalance, where the bad



Tony Scott
Former US Federal CIO

guys have the element of surprise. Only they know when and where they're going to attack and how they're going to do it. They're always also constantly learning. What's different in the digital world from the analog world is that there were things in the analog world you could do to deter physical crime. You could put bars on your windows, have alarm systems, increase police presence, all those kinds of things. In the digital world, some of those things don't exist, although we work hard at alarms. But when you can get rich, or get wealthy, by making almost no investment, that's going to attract a bunch of people. *And right now, we're in a world where the tools that the cyber criminals use are cheap and readily available, and as a society a lot of the money we're spending on cyber security defense isn't effective against some of those tools. So we're going to have to continue to evolve. I'm sure the cyber criminals and the nation states that do this will continue to evolve. I suspect it's going to be an arms race for a relatively long period of time.* I think there is some good news, which is, if we design and architect our information systems in a fairly dramatically different way than what we're doing today, then I think we stand a better chance of making that battle a little more balanced. It has to do with some of the fundamental design of information systems, starting with hardware, software and networks. *It's called zero trust. And that needs to be built into the architecture of everything, every part of what makes up our information systems today. And it's not today.*



Gavin Allen: President Biden, in his executive order last year, has effectively decreed that there's going to be a zero trust approach in government business - and by zero trust we're talking about that focused checking both internally and externally along the supply chain. But why has it taken so long?

Tony Scott: Let me tell you a story from my past. *When I was a federal CIO, a few weeks after I assumed the role, we learned of the Office of Personnel Management breach. 21 million identities were compromised.* These were people who had filled out very detailed information about their personal lives and backgrounds, so that they could be cleared for security oriented positions in the government, way beyond just your name, your birthday and some of those kinds of information that would be revealed in a normal breach.



When we did the investigation, we discovered it had been a compromise of credentials. No surprise. Lots of breaches start there with the compromise of credentials, but what was alarming to me was, 10 years earlier, the government had decreed that two-factor authentication was the law of the land for government systems. Ten years earlier. And when we did the survey of the whole US government 10 years later, we discovered there was around 45% adoption of two-factor. And in the case of OPM, that was guarding all of this really sensitive information, they were about the same, about 45-50% two-factor, and the credentials that had been compromised, they weren't using two-factor. While we can say go to zero trust I think the lesson learned is it can take some time. Now, the end of the story is, upon learning this, we launched a 30-day cyber security spread, and I asked all agencies to get to

as close to 100% as they possibly could in 30 days in terms of two-factor. *At the end of the 30 days, we got the government up to about mid 90% adoption of two-factor, so it does prove the point that never waste a good crisis for getting things done. Absence of crisis, it takes a long time sometimes.*

Gavin Allen: But the very fact you got it up to 90% two-factor authentication, and yet here we are again, issuing executive orders asking for zero trust. It suggests it hasn't moved on that far, right? I remember back at that time in 2015 you said "we've sometimes failed at even the most basic preventative measures". Do you think governments globally are still failing at that kind of level?

Tony Scott: I think everyone has significantly upped their game since that time. So on the one hand, I'm heartened by the progress. But I think the larger problem is, until we do two things, we will still always fall behind. The first thing is replacing outdated technology. This is fundamental. Technology is the foundation of everything that our government basically does in terms of the way it operates and delivers services to citizens. If that's built on a creaky crumbling foundation, it's never gonna be secure, and it's never gonna be safe. And then second, when we do replace with more modern systems, we have to build security into the very fabric of what we do using zero trust principles and other things as well.

That's got to be a continuous process. It's something I practiced at Microsoft. We had a useful life of everything in our environment. Sometimes it was 3 years. Sometimes it was 5 years. Sometimes it was 10 years. It had nothing to do with the financial economics, and had everything to do with constantly upgrading so that we always made sure we had the best technology that was available to us to serve our customers and also to protect our precious assets. Now that would be a very different strategy.

Gavin Allen: But should that be left at the door of individual organizations, or is there a place here for regulation and enforcing resilience and cyber security? I was struck in the first edition of Transform, Bruce Schneier, the security expert from Harvard University was saying that one of the key problems is tech moves faster than regulation and the governments are always slow to catch up. But is there a place for regulation to drive cyber resilience?

Tony Scott: I think there is but let me explain the problem with it from my perspective. Organizations are really good at layering in new technology on top of old technology. But unless you completely replace everything with that new whatever shiny object, it's layering a new layer of paint on top of old paint. And you just build up layers of paint over a period of time which in and of itself is a security risk. Because these things often don't subscribe to the same security mechanisms and schemes, and it's hard to architect

“ WE HAVE TO BUILD SECURITY INTO THE VERY FABRIC OF WHAT WE DO USING ZERO TRUST PRINCIPLES AND OTHER THINGS AS WELL. ”

good cyber security when you have these multiple layers of paint and so on. So it's true that the technology moves fast but it's just that top layer. It's not necessarily everything that's under it. *If you've ever gone swimming in a lake on a hot day, the first inch or two of the water gets very warm, but you dip your toe in and about 8 inches down, it can still be pretty cold. And that's just like the technology layers in a lot of organizations. The top layer might be pretty, but underneath often not so much.*

Gavin Allen: What about ransomware? Again a comment recently from the deputy attorney general in America Lisa Monaco, saying ransomware and digital extortion only work if the bad guys get paid. Obviously enough. So should we ban paying ransoms, stop paying the bad guys because that has an impact on everyone?

Tony Scott: I think that's a hard one. It's easy to say I'm in favor of banning paying the bad guys, until it's your stuff, your crown jewels. And then there's a business judgment that will enter and you'll say is it better for me to pay, or is it more costly for me to resist? But I'm generally in favor of banning payments to the bad guys. I think we've learned that works with hostage takers and other bad activities. But I'm certainly sympathetic that individual cases may tilt one's opinion. What I would be in favor of, though is mandatory reporting. So there should be transparency in terms of you know, we were hacked we either paid or didn't pay. And I think organizations like the FBI and other law enforcement organizations should be informed when those activities are occurring. So they can understand the patterns, the methods and tools that the bad guys are using and then help catch them in the case where that information is useful. And I'm encouraged that we've seen some examples recently of ransomware guys getting caught through their use of crypto currency and so on, which I think ultimately means there is no outrunning the law forever. So I'm encouraged by that.

Gavin Allen: Talking of outrunning the law: global cyber conflict and state-sponsored cyber conflict. Should there be the equivalent of a Geneva Convention for cyber conflict, parameters set for what is and isn't acceptable?

Tony Scott: I agree. I think there should be. And you know *it's very clear today that if a nation state blows up some building or some part of a city, or attacks beyond the borders of another, that constitutes an act of war. But we don't have the equivalent of that in the cyber world.* I think the reality going forward is war will be a combination of kinetic and cyber. And often, what I think we'll see is the cyber will be a precursor to the kinetic war. Taking out the other guy's infrastructure, telecommunications systems, will be the first thing that happens, it will be the first indication that something else is going to happen, including kinetic warfare. So, you know, welcome to our new world, but I do agree there needs to be much more clarity and global agreement on the rules around that.

Gavin Allen: And now as CEO of INTRUSION you're using AI to provide companies with intelligence about cyber threats, including zero-day vulnerabilities. Is it good news or bad news for us if your business is thriving?

Tony Scott: We have the world's biggest historical database of IP addresses and domain names and data that's attached to that. So our entree into the cyber security business is historical reputation. When we see traffic in the network that's going to or coming from reputationally bad places, we block it. That's different than signature-based or other methods that are used to determine good or bad in terms of network traffic. *If we see, for example, your thermostat talking to your bank or a bank anywhere, we know that's probably not a good thing and you shouldn't do that.* That's the AI part. If we see your refrigerator talking to some place in Iran or North Korea or whatever, we know that's not a good thing and we block it. That's the world we're in. We don't claim to be the all-singing all-dancing cyber security solution. Our claim is that our technology combined with several other things that you are probably using will give you a better chance at avoiding zero-day attacks than without it. The game I think that we're all in is getting a little bit better all the time. The bad guys will go find somebody who's a little less difficult to attack.

Gavin Allen: And as a leader, how do you foster a resilience culture and relentlessly drive what's being called "cyber hygiene"? How do you keep people constantly battening down the hatches and looking out for those threats?

Tony Scott: Every role in the organization plays a part in your organization's cyber security. A good friend of mine used to quiz CIOs and he asked them how many potential holes they had in their cyber security architecture. Everybody would look at him and be like, "why are you asking that question?" And he would say, "Well, at a minimum, you have as many holes as you have employees in your cyber security architecture because every employee could be a potential entry point."

So let's start there and then add on top of that all the other things that are known entry points." And that often made people sit up. You know, they were shocked. But I think he was right. So as a leader, I think you realize *it is important to keep your team engaged and informed as a part of your defense. But I think you can also make it fun.* And it doesn't have to be this dreary "oh I have to watch another video, and check the box that I did my cyber security training", and so on. And then I think the third thing that we have to do is make whatever cyber security we put in place easy to use. One of the best CISOs I ever had working for me said if really good cyber security is

really hard to use, nobody is gonna use it, and you have everybody in the organization finding workarounds that will completely negate the benefits of whatever it is you try to put in. So he said my job is to make good cyber security the easiest thing to do, the most pleasurable, the fastest, the most rewarding way to behave. If I do that, we'll have good cyber security. And I love that approach.

Gavin Allen: *I can understand looking out for the thermostat talking to the bank manager, or the fridge talking to Iran. But how do you make something that's so inherently serious and precise and complex an enjoyable experience?*

Tony Scott: You can reward people. You can celebrate success. You can do gaming kind of things. When I do town halls, sometimes we have a fun cyber security quiz. We give out prizes to people who score the best. I think it's all about making it right here for people instead of something that's a distant thought pattern in the past or whatever.

Gavin Allen: You've served one president, and have met three others, and you've worked alongside the likes of Bill Gates, and met Warren Buffett and Steve Jobs, etc. *Who is the most personally resilient public figure you have worked with or know of?*

Tony Scott: I would say President Obama to me is probably as good at that as anybody I've ever seen, or had the opportunity to work with. There are just not many roles that are as tough personally as being president of the United States. And I think we've seen how fast those guys age while in office. And so I always found his attitude and resilience probably the most inspirational, even in the middle of some of the hardest problems we had. He was always personally engaged. He would ask really good questions. He never got mad at people. It's easy to be dismissive, and sort of lose yourself in the moment. And I always admired his presidency's awareness of the importance of the situation, and the sort of reflective nature of how he would look at decisions, and make decisions. I thought that was always probably the best example I've seen. And if you watched him play basketball, you knew he was as good a trash talker as he was a basketball player.

Gavin Allen: All part of the charm.

Tony Scott: Exactly.

Gavin Allen: Tony, thanks very much for joining.

Tony Scott: My pleasure.



HOW CAN DIGITAL TWINS MAKE CITIES MORE RESILIENT?

THE EMERGING TECHNOLOGY CREATES CITIES
THAT BETTER BOUNCE BACK FROM DISASTERS

by **Safder Nazir**

*Senior VP of Digitalizing Industries
at Huawei, Middle East*

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apid urbanization is an established trend. As older cities try to adapt in order to provide essential services, new cities have the benefit of zero legacy infrastructure, allowing them to cater for expected needs in a better way. However, both new and established cities can benefit from greater use of technology, not only in planning but in all city operations including crisis response.

Cities became digital as broadband internet connections drove the adoption of e-services and e-commerce. They became "smart" when sensors in streetlamps, electric towers and countless other pieces of infrastructure combined to form the Internet of Things (IoT).

The next step in this urban evolution will be "cognitive" cities powered by artificial intelligence. Making this happen will require a host of technologies, including one that's already being adopted by forward-looking cities: the digital twin.

AN IDEA WHOSE TIME HAS COME

Digital twins are visual models of real-world objects. When the concept first arose 20 years ago, early applications focused on manufacturing. If you wanted to build a jet engine, for example, a digital twin gave you a visual model to work with. You could design the engine, stress-test it, and perform any other calculations you wanted before actually building the real thing.

Manufacturing is just one application. *Used for urban management, digital twins can help cities do a better job in providing public transport, electric power, emergency services and more.* This can be especially beneficial for new cities without legacy infrastructure, potentially shaving decades from the time they need to become modern metropolises. And because cities compete globally for talent and investment, the right incentives can catapult laggards to the front of the pack.

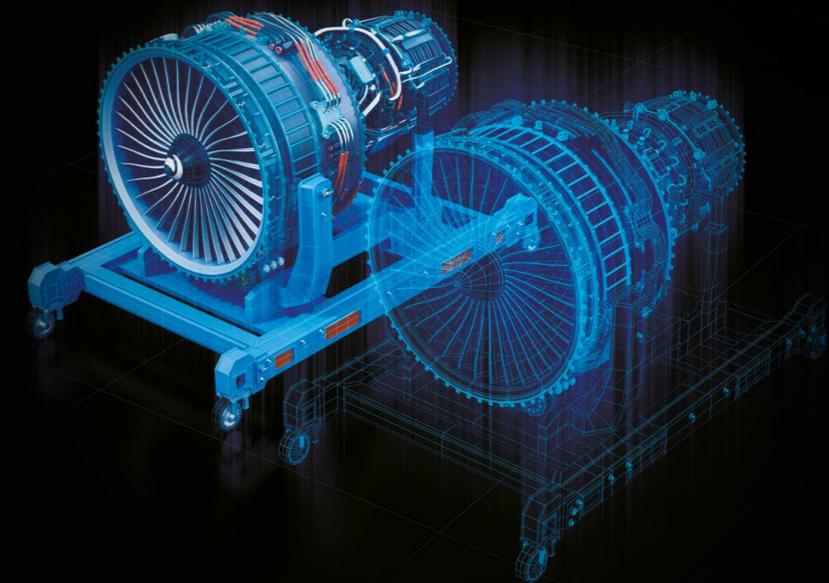
The logic is straightforward. Instead of twinning a jet engine, we can now build a digital model of an entire city. Every streetlight, every power station, every manhole cover can be monitored with a sensor and incorporated into a giant digital replica that provides a comprehensive view of the city in operation.

In sprawling megacities (Tokyo, Jakarta, Manila), this unified view is hard to achieve. But it's extremely valuable. It can help planners design better cities, run them more efficiently, and plan for their future expansion. It can also help make cities more resilient, enabling faster recovery from a crisis.

BOUNCING BACK FROM THE BRINK

Imagine that a city's complete physical infrastructure – parks, roads, water supplies, power grid – are all modeled in real-time. *Besides better planning and management of typical chronic issues for a city, such as traffic congestion, a digital twin also allows better coordination and management in emergency situations due to the availability of real-time awareness and feedback.*

If a city is struck by an earthquake, tsunami, or other catastrophe, ambulances, firefighters, police and other first responders will be needed at different locations. Traditionally, each service will respond with the information it has. A collective understanding of the situation will emerge gradually as personnel arrive at the scene. Digital twins provide integrated information in a richer format enabling authorities to allocate resources in a more coordinated fashion.



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**DIGITAL
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ALSO HELP
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SCENARIO
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OCCURS.**
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Making it more likely that cities will be prepared for large-scale emergencies, should they occur.

One good example is Virtual Singapore, a 3D platform that integrates data about physical infrastructure with information about demographics, population movement, climate, and other factors. The government has used Virtual Singapore to simulate an incident in a sports stadium as a way to formulate the optimal evacuation plan. It has also analyzed patterns of vehicle and foot traffic to plan the construction of a new pedestrian bridge.

The U.K., meanwhile, is building a national digital twin, an interconnected system of digitally modeled cities. It has also created what it calls a digital twin hub, a Web-based community for early adopters of digital twins to share information.

Shenzhen, a city in southern China, points the way to the next level of digital twins. Shenzhen is on its way to being a “cognitive” city. With a population of 17.5 million, traffic management is crucial. Using digital twins imbued with AI capabilities, Shenzhen has reduced traffic congestion by more than 10% without building any new roads; while its



international airport has eliminated unnecessary shuttle-bus trips for about 5 million passengers annually. All of this was achieved through better real-time scheduling of resources at a speed made possible by advanced AI technology.

One significant factor in making both cities and countries resilient is data availability. After major natural disasters or wars, loss of land records and other data can create almost unimaginable legal headaches that can stretch on for years as litigants try to figure out what belongs to whom. Digital twins can make the recovery process significantly more efficient, so long as there is sufficient resilience in the data centers through backup and disaster recovery strategies.

THE FUTURE OF DIGITAL TWINS

In the past, airplanes were flown with mechanical controls; today, they use electronic flight-control systems supported by advanced computer technology. Similarly, today's cities have gone from simply being digital to being “smart.”

The cognitive cities of tomorrow will rely on AI, creating intelligent twins that connect entire ecosystems and enable the gigaverse. In this way, they can continuously realize the true potential of this powerful technology to make cities cleaner, safer, and more resilient.

**PRETTY
DAMN QUICK**

—
THAT'S HOW FAST COMPANIES CAN MOVE WHEN THEY USE
TECHNOLOGY TO MANAGE HUMAN EMOTIONS.

The name says it all.

FixPDQ is a Shanghai-based start-up that promises to fix problems “Pretty Damn Quick.” Launched by Alistair Ritchie, a Scot who landed in China in 2007, its goal is straightforward: “to take the emotion out of problem-solving” in a way that gets everyone working together.



Alistair Ritchie
Chief Executive Officer at FixPDQ

After stints at Morgan Stanley and other corporate jobs, Ritchie observed that fear and other negative emotions often keep people from sharing information and collaborating effectively. He wondered if smarter procedures and a dose of machine learning might help.

His company provides what Ritchie calls a task manager: a piece of intelligent software designed as an inquisitive chat-bot. The bot asks people a series of carefully designed questions to make sure they understand the tasks they’ve been given – and can accomplish them with the resources they have.

“When I encounter an obstacle, I need to be able to tell my manager, ‘X doesn’t make sense, or ‘I need to change Y,’” Ritchie says. “That’s a potential area of tension. But

“**ONCE ALL PARTIES UNDERSTAND THE MOTIVATION FOR THE CHANGE, THE TENSION CAN BE REDUCED.**”

FixPDQ’s software “creates a contract” between the parties involved, Ritchie says, and helps remove the negative emotions that can arise between managers and those who report to them. The company’s product demonstrates how technology can play a critical role in managing the inconsistencies inherent to human impulses. The software also helps organizations to learn from their failures.

The psychology seems sound. But why do you really need this technology? Can’t the manager and the subordinate just talk?

Yes and no. Let’s say a deadline is looming and the manager wants to make sure it will be met. She asks her subordinate, “You are going to get this done on time, right? No problems?”

Maybe the subordinate has encountered problems but doesn’t want to admit it. Instead of telling the truth, he tells the manager what she wants to hear – a recipe for trouble.

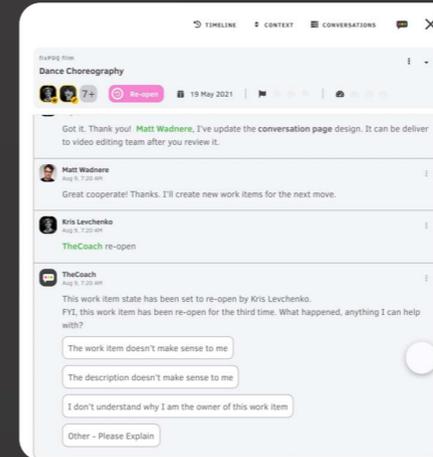
With FixPDQ’s methodology, companies use the bots to ask the questions instead. This happens at the start of each assignment, and then at various milestones throughout the project. That creates an automated process ensuring that the right questions get asked of the right people, in time to take any necessary corrective measures.

Talking to a bot may sound impersonal and cold. But a 2019 study by Oracle and Future Workplace found that 64% of respondents would trust a robot more than they would trust their managers (perhaps because robots are immune to office politics). One-quarter said they would generally prefer to ask questions of an AI than of their boss.

Ritchie says some banks and insurance companies in New Zealand are using bots to help manage operational risk. Many have found that they get more balanced, more factual information from bots than from traditional interviews with employees.

“By inserting the bot in between the humans, you’ve removed the potential for an emotional interaction that might cause the communication to fail,” Ritchie says. “The bot removes the emotion, focuses

on the facts, and aligns both parties on how to solve the problem. This helps reinforce positive, collaborative behavior.”



USING FAILURE TO CREATE A RESILIENT CULTURE

How innovative an organization is depends, to a large extent, on how it copes with failure.

“Companies that aim to be innovative should expect failure – that’s inevitable,” Ritchie says. “But you want to prevent small failures from becoming big ones. By getting used to recognizing small failures, you increase your odds of creating something innovative.”

Nearly 20 years ago, an article in the Harvard Business Review observed that “big projects fail at an astonishing rate,” delivering disappointing results well over half the time. Much of this can be attributed to “misperceptions, insecurities, and communication difficulties that often take place on project teams.”

FixPDQ helps to prevent big failures from happening by making it more likely that staff will report at an early stage when projects are on the wrong track. This has the side benefit of improving what companies learn from their failure.

“The root causes of failure are people and process,” Ritchie says. “For the people part, it’s usually down to, ‘I can’t tell my boss the truth.’”

Yet as a method of encouraging innovation, failure can be transformative. “When we fail, we understand what works well. Let’s say you want to test a hypothesis. You have to see what happens if it works, and what happens if it doesn’t. You have to look for the benefits of the failure.”

Some organizations get this. They have “failure parties” to help people jettison their negative view of failure and recognize its value.

Silicon Valley famously celebrates failure as a rite of passage. But Ritchie says that even this viewpoint is often misunderstood.

“When I first heard ‘fail fast,’ I found that most people didn’t know what it meant. Fail fast actually means that you test something as quickly as possible to see if you should go to the next step. Once you start doing that, you get in the habit of asking ‘What shall we try next?’ It’s an optimistic approach that tends to lead to better ideas.”

Obstacles can seem insurmountable, even small ones. This causes people and companies to get stuck. Ritchie hopes his inquisitive, emotionless bots will build organizations’ ability to circumvent those obstacles and get on with the business at hand.

“You have to keep moving ahead so that failure doesn’t stop you or slow you down,” he says. You have to keep asking, ‘What do I do next?’”



LEARN FROM WINNING AND DON'T LET THE FAILURES CRUSH YOU

Sir Clive Woodward was the Coach when England won the Rugby World Cup in 2003. But before they got there, he also led the team to a devastating quarter-final defeat in 1999.

Scan QR code
to watch the full interview video



Sir Clive Woodward
Former England rugby
union player and coach





Then the third D is do. Once we know our key points, how do we practice it? How do we rehearse it? How do we do it better than anybody else?

I applied 3D learning to many subjects.

Gavin Allen: It seems what you're talking about is about communication, perspective, and time. But also I was struck by something I've heard you talk about in the past. You said we shouldn't ignore learning from a moment of great celebration. Is learning from a win as important as learning from failure for you?

Sir Clive Woodward: Absolutely. Before rugby, I was in business. I worked eight years at Xerox where I was in leasing and finance before becoming a full-time rugby coach. What happens when you win a big deal? Typically, it's Friday night, down to the pub, have a few beers, pop open the champagne.... You know, life's great. And then, what happens when you lose a big deal? Well, it's everyone in on Monday morning, 8 o'clock, for a massive analysis on why we lost the deal.

What I learned to do is to flip that. *When you lose a big deal, go down to the pub, and don't overreact. This stuff happens. What happens when you win the big deal? That's when you get everyone in Monday morning. We need to figure out why we won.* It's the 3D. Discover, distill, and do. People tend to have the other way around, have a bigger reaction to losing.



Gavin Allen
Editor-in-Chief Huawei Technologies

Gavin Allen: In this edition of Transform, we're looking at the subject of resilience, not just resilience against cyber attacks, but also personal resilience: how people cope with setbacks, and how people recover and sustain their professional careers, even in the face of real adversity. You've been in business, a famed rugby coach, you're an author, and you were director of Sport at the British Olympics Association. Let me first ask you, does everyone have resilience within them? Or is resilience taught through coaching?

Sir Clive Woodward: *I don't think you are born with resilience, I think it's something you may gain through experiences, through life and through childhood. But you can definitely coach it.* Resilience is all about talking about things and documenting things. I have a learning process called 3D learning. What is 3D learning?

The first D is discover. Discover is try to document everything about this subject that you need to be resilient about. After it's documented, you keep adding stuff to it, so you're always learning about the subject. The second D is distill. What are the key points? What makes the boat go faster? Out of all the discoveries around resilience in this particular area, what are the four or five things that, if we do them really well, then we know we're going to be fine?

Gavin Allen: Thinking about your coaching, the biggest win-lose contrast that springs to mind is your 2003 World Cup final victory, preceded by the 1999 quarter-final defeat for you and the England rugby team. Were both those things for you equally valuable experiences in terms of learning about resilience?

Sir Clive Woodward: Well I enjoyed one a lot more than the other, put it that way.

Gavin Allen: Me too.

Sir Clive Woodward: 1999, it was just awful. You know you've not delivered. To be fair, we've never thought we'd actually win the World Cup deep down. We weren't ready to. By 2003, however, we were. But

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IN 1999,
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ABSOLUTELY
PRICELESS.**”



Sir Clive Woodward
Former England rugby union player and coach

I learned three key things. One, you've got to look at your actions prior to that setback. That's the biggest thing. You need to ask yourselves: Did we do everything humanly possible to win this thing?

Secondly, you've got to look at your team, your players. Your real top players will stand up and say, look... Some won't. So you get to see the players who stand up.

And, thirdly, that's the time when you can really just assess what's going on. It's okay to grieve. But there comes a stage where you go, okay let's get back on the horse now. I kept my job and looking back, I learned so much from that. At the time you hate it, you don't know you're learning.

There's a great quote from Nelson Mandela: "I never lose. I either win or I learn." That's one of the best quotes I've ever heard. It's on my desk.

Gavin Allen: But that must have been incredibly painful. I mean you've talked about it almost like a scar that's still with you.

Sir Clive Woodward: *You've got to plan for losing. It is a realistic thing to do. So when you do lose, you can handle it. We won the 2003 World Cup, we won by a drop goal in extra time. If we lost that game, it would have been a bigger loss than 1999 by a mile. Why? Because we were favorites to win it. But would we have handled losing it? Yes, we would have, because we prepared ourselves for losing.*

The more you talk about losing, the more you don't lose. Losing is part of resilience. It's not about talking of losing all the time, but you've got to plan for it. I personally had to plan that with my family, with my kids. My kids were all at schools. They too had to become resilient to deal with the fall outs. But the more we talked about it in advance, the better they handled it. Looking back now, the way they handled it was actually amazing. Losing toughens you up.

Gavin Allen: I'm sure. You use a lot the words "we" and "the team". That's clearly critical. I know you've spoken in the past about teamship, and this obviously is central to building resilience. Is teamship difficult to develop?

Sir Clive Woodward: I managed a Xerox leasing company before being a rugby coach. I think running a small firm was the best preparation for me. It was my company and we built it up to ten people. About ten people in the room. Looking back, that was key.

You probably heard the term psychological safety. I was massive on this. Basically, you are in the team room, and when the doors are shut, I want everyone to say whatever they're thinking, whatever they're believing. That's what high-performance teams do. If you've got an idea about the team's performance, I expect you to stand up and say it, even if it's criticizing me, or this person or this person.

In rugby, we were aiming to be the best in the world. We weren't messing around. To achieve this, it's about creating an environment where people feel psychologically safe to actually put forward ideas and thoughts, not just about playing rugby, but the way we operate the team, our behaviors, our standards.

Gavin Allen: It's interesting. Huawei as a company sort of has talked a lot about resilience actually, and talked about it as a way of overcoming some of the challenges it has faced. This is described as a sort of culture of resilience running through the organization. Do you think that's critical?

Sir Clive Woodward: Yes, it's the whole team. In my team, my rugby team, for example...I can give you an example of team culture. *Time. I'm absolutely radical on time. I think time says more about an individual or a person than anything you can think of. So I wanted this to be a team culture.*

At the very beginning, I told them my views about punctuality and I left the room. When I came back, they had come up with "10 minutes early." That was their new definition of being on time. It's actually called Lombardi time, after a famous American football coach, Vince Lombardi. It's become a culture. If you speak to any England player, anyone who played for me in those 8 years, they just go Lombardi time, 10 minutes early. And I can promise you, no one was ever late.

Progressively, you create a teamship rule book. It used to be an actual book. Today, it's on our mobiles. Wherever it is, that creates the culture. This creates great resilience to people who understand. And when new people join the team, the first thing is to read this. You can't join the team unless you've agreed to every teamship rule. At the first team meeting,

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I BELIEVE IN
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WE BREAK DOWN WHAT
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OURSELVES HOW TO DO
EACH THING 1% BETTER.
”

you're asked to stand up and explain what could be done better. So you actually involve everybody. You start to create an environment. It's not a one-way, top-down set of instructions. It goes both ways.

Gavin Allen: It's also interesting that you see resilience as being about lots of different things. That file isn't small. Timing is a sort of small marginal gain, but an important gain about respect. I know when you took over as England coach, I think you talked about 40 different things that needed to be done over the course of perhaps 2 years. In other words, quite a long time and a lot of myriad things that could all be marginal gains and therefore improved overall. Does it sort of surprise you that there are still leaders who come in with a one Big Bang idea and want it done now. Does that just simply not work for you?

Sir Clive Woodward: There's no right or wrong. *If I could think of one Big Bang idea, that would be great. But I've never been able to do that.* I believe in doing a hundred things 1% better. It's more realistic. We break down what we do, and ask ourselves how to do each thing 1% better. It adds up.

Sir Dave Brailsford, the cycling coach, talked about marginal gains. I first met Dave when I got the Olympic job in 2008. He rang me and I had heard of him but never met him before. He asked me to present my ideas. So I made a presentation about a hundred things 1% better. About a week later, he rang me again. He said I was brilliant. A hundred things, 1% better. He wanted to use it, but saying it differently. He said, I am going to use the term "marginal gains." I told him, it will never catch on. But it's now in everyone's language. I promise you, he got it from me. And everyone loves it.

Gavin Allen: I'll give you the credit. Don't worry, the credit is yours. What part do you think technology can play in building resilience? We saw, obviously, through COVID how technology helped a bit there. But in terms of business, for sports, what is the role of technology? And is it a growing role?

Sir Clive Woodward: *Technology is huge! If you can't measure it, you can't coach it. So technology allows you to measure things. It's as simple as that.*

I'm also involved in a ski academy down in the south of France called APEC 2100. We've created a program called Perform Better. This Perform Better is about eight areas. It's not to do only with skiing.

This is a ski academy for some of the best skiers in the world. We coach them to perform better at skiing, but it's involving things like nutrition, sleep, health, brain fitness, digital wellness, life skills, et cetera. This is all about creating mental and physical wellness, basically.

Every single one of those is measurable. It's been done with various tools over the years but now it's largely done with wearables. And I absolutely believe that if you can't measure, you can't coach. That's always one of my favorite lines. We are going to measure, measure, measure, measure. And once you measure, can we get that 1% better?

But the key is trying to get every member of your team involved as well. So they use the technology. They study the data. They come back with thoughts and ideas. The measurements shouldn't be any secrets. What is it showing us? What is it telling us? Not just me, the leader of the team, but what are you learning from this? Involving the coach, the athletes, and other experts is key. There's no point getting measurements unless you actually get the right learnings from it.

Gavin Allen: Great, thanks very much. And I'll make sure you get the full credit for 1%, not marginal gains.

Sir Clive Woodward: Marginal gains, I now wish I thought about it myself. It's a much better saying than hundred things 1% better

Gavin Allen: Very good. Thank you very much for joining us. Really appreciate it.

Sir Clive Woodward: Pleasure.

THE STRENGTH OF WOMEN LIES IN NEVER GIVING UP

STARTUP DEVELOPED AN APP TO
HELP PREGNANT AFRICAN WOMEN

Jaqueline Rogers

Programmer of app
My Pregnancy Journey

S

outh Africa's Jaqueline Rogers embodies resilience. She's a programmer, a profession notoriously dominated by men. And she's both a single mom and an entrepreneur. In this interview, she talks about the challenges she faced in launching her app My Pregnancy Journey.

Why did you develop this app?

One day, I came across shocking statistics about pregnancies in Africa. The African continent has got some of the highest rates of adolescent pregnancies, HIV infections and deaths during births. One out of four women actually has a fatal pregnancy outcome. So, several things contribute to this, like socio-economic conditions, bad healthcare services, and a lack of information. So those are the things that motivated us to create our educational pregnancy app.

What challenges did you encounter?

The biggest challenge was to just get this project completed. We had to find ways to self-fund it. I sold my first business, I sold shares, I sold my car. I did a whole lot of crazy things to just get the project over the line, baby steps at a time.

What do you want to say to other women developers?

The development industry is very male-dominated. I just want to tell people that females can do the job just as well. And yeah, I think women are going to change the world one day.

What do you expect from the Huawei Women Developers Program?

Female entrepreneurs are still new in this industry. We need training, workshops, information about building an app, and all the other things that go into it. A learning school for women entrepreneurs and developers is what we need.



Watch the video here.



RESILIENCE IS CRUCIAL FOR TECH ENTREPRENEURS

PARTNERING IS ONE OF
THE BEST WAYS TO STRENGTHEN STARTUPS

by Adi Gaskell

We tend to have something of a complex relationship with creativity and innovation. This creates a strange paradox whereby uncertainty prompts us to seek new ways of doing things while also craving the comfort blanket of familiarity. It's perhaps no surprise, therefore, that meaningful change is often driven by the proverbial "burning platform" that gives us little option but to change.

The Covid pandemic has been a perfect example of this, with Microsoft chief Satya Nadella famously remarking in April 2020 that we have seen 2 years' worth of digital transformation in 2 months.

Tech entrepreneur Jacqueline-Amadea Pely, founder of the German startup Loyee.io, which provides culture-as-a service, agrees. "The pandemic saw a huge investment in digital technologies in a really short space of time, with companies simplifying and streamlining their procurement process to enable them to adapt to the rapidly changing circumstances," she explains.

These observations might suggest that now is a golden age for innovative technology start-ups. But that would be the wrong conclusion. More than ever,



Jacqueline-Amadea Pely,
founder of the
German startup
Loyee.io

we are in a world where the strong survive. To make it, start-ups need to be resilient and, in many cases, to work with partners.

A survey from Startup Genome revealed the intense pressure many startups were under in the initial wave of the pandemic, with nearly half stating that they had enough cash in reserve to maintain operations for fewer than 3 months. These cash flow problems prompted significant changes, with 58% of the entrepreneurs surveyed laying people off.

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**RESILIENCE
IS THE KEY
QUALITY
REQUIRED BY
ENTREPRENEURS
TO SURVIVE.**

”

According to recent research from the UK's Durham University Business School, the survey found that whereas pre-Covid, qualities such as self-confidence were key to entrepreneurial success, this was not the case during the pandemic. During Covid, resilience was key, especially among those operating in highly adverse environments. In more challenging conditions, entrepreneurs needed to adapt to rapidly changing circumstances and have the resilience to cope with those changes.

A recent study from the World Economic Forum echoed that, highlighting the importance of being able to adapt effectively to changes. Firms that have been able to pivot during the pandemic have actually emerged stronger and better able to capitalize on new opportunities.

BUILDING ENTREPRENEURIAL RESILIENCE

So, being resilient is obviously important, but how do you acquire the trait? One approach is to generate enthusiasm among investors so that they constantly fund your company. There is evidence that this can be a viable strategy. The Covid pandemic has seen record levels of VC investment, and research from the University of California, Davis shows how this can provide resilience by allowing firms to weather whatever financial storms await them.

But constantly finding new investors is obviously not a viable approach for all start-ups. A more sustainable solution is to team up with a corporate partner. One company that has been enjoying great success that way is the German startup BioNTech. The firm is highly innovative in vaccine research, but is far from having a global reach of its own. By teaming up with Pfizer, it quickly gained muscle in manufacturing, distribution, regulatory affairs, and even brand recognition.

Huawei is another example of a company that helps others punch above their weight. For instance, the non-profit organization Rainforest Connection

(RFCx) has worked with Huawei to automate the monitoring of highly complex rainforest ecosystems. By tapping into Huawei's Cloud AI, RFCx was able to develop automated monitoring systems that detect and distinguish natural sounds, such as from spider monkeys, from man-made sounds, such as from trucks or chainsaws. This enables the NGO to protect endangered species and their habitats.

Collaborating with others at the individual level also boosts resilience. Research from the University of Notre Dame indicates that having a support network helps leaders cope with the challenges of entrepreneurship.

Pely, of Loyee.io said she gained network support through Seeds for the Future, a Huawei training program for promising university-age students. Through the intensive three-week program, which is designed to provide insights and exposure into the Chinese market and culture, participants forge bonds that last long after the program officially ends. This gave Pely a support network who knew well the challenges involved in entrepreneurship. Seeds for Future alumni report that they regularly communicate via messaging apps and in-person get-togethers.

In stormy seas, developing the resilience to sail through a difficult period is crucial. *Partnerships can be a source of support for smaller organizations, such as startups, because they do not come with the strings attached to VC funding.*

Unlike investors, partners are less likely to dictate the strategic direction to be taken or mandate that startups pursue scale at all costs. Instead, they will together develop solutions that create a win-win for both parties. This support can be vital in ensuring that start-ups emerge from catastrophes like Covid stronger, both at the individual and organizational level.

THE POWER OF AN IDEA: ONLINE ADVERTISING THAT DOESN'T TRACK USERS

IT TAKES A LOT OF PLUCK TO SET YOURSELF AGAINST
THE WORLD'S LARGEST TECH GIANTS.
BUT IT'S EXACTLY WHAT MICHAEL HAHN IS DOING
WITH REVERSEADS, A STARTUP THAT AIMS TO
REVOLUTIONIZE ONLINE ADVERTISING.



Michael Hahn
 Founder of ReverseAds

“
BIG TECH
 IS MAKING
HUNDREDS
 OF **BILLIONS**
 OF **DOLLARS**
PER YEAR
OFF OF US.
 ”

ReverseAds was launched in Phuket, Thailand, on the strength of a compelling idea: online advertising that doesn't spy on people. Until now, digital advertising has been dominated by tech giants that make you feel like you're enjoying free services when in fact, you're providing them with your personal data. ReverseAds is dedicated to protecting user privacy.

“90% of the digital advertising spend every year goes to three tech giants,” Hahn says. “They are literally tracking and surveilling every website that you go to, every store that you go to. They're tracking your physical location. They're monitoring everything you do online.”



Reverseads.com is a keyword advertising platform for the open web. It differs from similar platforms in that *its technology is not based on tracking everything a user does online, but on predicting what a user will do next*. It utilizes an AI, trained with anonymized user data, to anticipate user actions based on initial keywords. This approach ensures privacy while improving the relevance of adverts.

In late 2021, Hahn won the Huawei Spark Ignite competition in Singapore. He had entered to get exposure, a way to promote his fledgling startup. He got way more than that from the contest. After the win, ReverseAds secured US\$4.2 million for their Series A funding. The firm moved from laid-back

southern Thailand to the thriving international city of Singapore. And since then, major venture capital firms have been in touch, bringing ReverseAds closer to the big league and realizing its ambition to change digital advertising.

But Hahn's journey with ReverseAds is only starting. To learn more about the startup, watch Re-imagining Advertising, a striking documentary produced by Huawei's award-winning filmmaker Susie Song. Scan the QR code.



Watch the video here

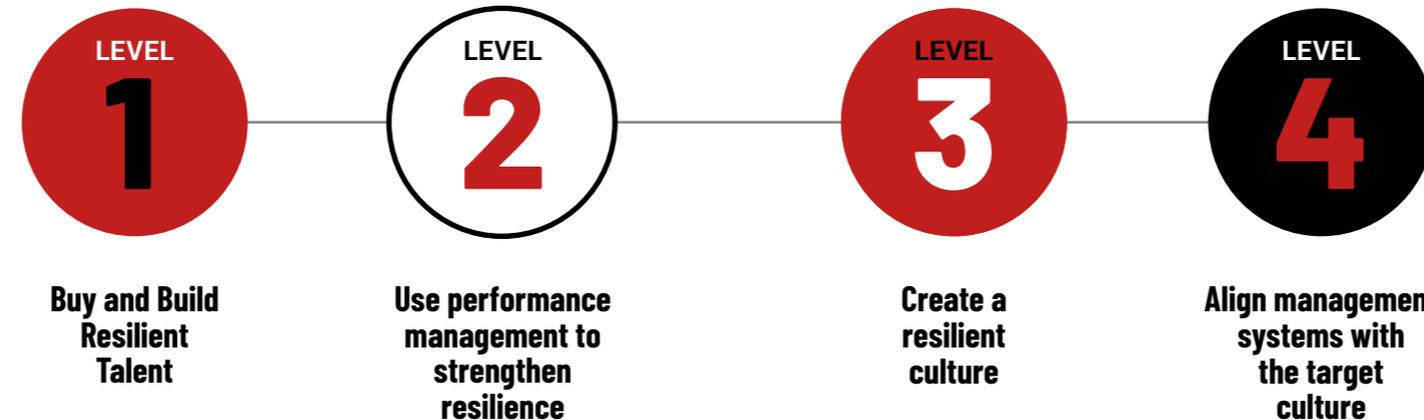
FOUR WAYS TO BUILD A RESILIENT ORGANIZATION

AS SIMPLE AS IT MAY SOUND,
FALLING DOWN AND GETTING BACK UP
AGAIN IS THE FOUNDATION OF
PROFESSIONAL SUCCESS



by **Brad Hall**

Brad Hall is Managing Director at Hall & Company, an organization that consults on talent development strategy for technology companies. From 2010-2019, Dr. Hall was Huawei's senior HR expert and personal advisor to the company's Chief HR Officer, helping design the company's overall approach to talent management.



Resilience is the ability to bounce back from failures and adapt when things don't go as planned. Recent research indicates it's critical to professional success.

Resilience is an accurate predictor not only of the likelihood of graduating from high school and college, but also of superior performance in stressful jobs such as sales, the academic Angela Duckworth wrote in her bestselling book *Grit: The Power of Passion and Perseverance*. Other researchers found that being resilient boosts the likelihood of making it through West Point's tough military training program, more so than strong academic or athletic results.

Clearly, resilience is important. After spending more than nine years advising Huawei's senior management on talent development strategy, I concluded that there are four levers organizations can use to become more resilient.

LEVEL
1

BUY AND BUILD RESILIENT TALENT

BUYING RESILIENCE

One efficient way to improve organizational resilience is simply to “buy” it by hiring the right people. As a basketball coach might look for a foundation of athleticism when recruiting new players, managers can seek a similar foundation of emotional resilience in employees.

How can they identify this trait? One way is to ask external hires (or internal transfers) the following three questions:

Question 1: Tell me about a time when you had to switch projects before the first project delivered results. How did you feel about the switch?

Right Answer: “I don’t like to switch to a new project until the first project delivers results.”

Resilient employees despise unfinished business. Once they set their sights on a goal, they will not let up until expectations are met.

Question 2: How and when do you measure performance?

Right Answer: “I obsessively look at our stated objectives and then measure them against actual results.”

Resilient people continually want feedback. Once they get it, they adjust their approach to improve performance.

Question 3: Tell me about a painful professional failure.

Right Answer: The candidate should talk about an obstacle or setback, then explain how he quickly recovered and bounced back from it. The real questions you’re asking are, “Does the interviewee accept his mistakes? How quickly does he adjust his approach – and influence his colleagues to adjust theirs?”

BUILDING RESILIENCE

What if you can’t (or don’t want to) go shopping for the ideal candidates? In that case, you have to build resilience in your organization. But how?

Companies can cultivate resilience in their employees in essentially the same way that parents foster it in their children:

- Encourage children to leave their comfort zones
- Praise effort as well as accomplishment
- Teach that trying and failing is okay – but that failing to give one’s best effort is not
- Allow children to feel frustration – in other words, don’t immediately step in to help



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THE CONDITIONS THAT ALLOW PARENTS TO RAISE RESILIENT CHILDREN ALSO AID MANAGERS IN STRENGTHENING IT IN THEIR EMPLOYEES. THE LAWS OF HUMAN BEHAVIOR DO NOT CHANGE AS WE AGE.”

LETTING PEOPLE FAIL

An important finding in behavioral science is that people gain wisdom through “adversity and diversity.” Adversity means nasty, painful experience; diversity means many different kinds of experience.

Every leadership program aims to accelerate employees’ professional growth. The main way to do that is to put colleagues with high potential in adverse and diverse roles.

Let them fall and pick themselves back up. Failing, then fighting your way back, are the best ways to accelerate professional growth.

LEVEL
2

USE PERFORMANCE MANAGEMENT TO STRENGTHEN RESILIENCE



The primary value from performance management comes from clarity: telling people clearly what you want them to do. *Management must ensure that employees deeply understand project goals, timing, measurements, responsibilities, and expected results.*

In addition, every team member must know the expectations their teammates have of their work. If a team member cannot meet these expectations, colleagues should encourage that person to fight his way back until he can meet them.

Several years ago in Western Europe, Huawei sales teams consisted of a 50-50 blend of Europeans and Chinese.

Because sales team meetings never precisely defined how each member was expected to contribute to team success, sales teams did not work as an integrated unit. They weren’t really teams at all – they were groups of individuals, each of whom worked hard, but often at cross-purposes.

The problem was that there was no common understanding of the “plays.” For example, one play could be, “Strengthening the customer relationship.” Another was “Selling the product.” Another was “Fixing a customer problem.”

Which play took priority? Who was the leader, and who played supporting roles?

Without clear plays, team members bickered incessantly. For example, one member thought the team’s main purpose was to build market share, while another thought it was to maximize profits. Members of the “Market share” team worked on the basis of their own assumptions; “Profit” team members thought their behavior completely illogical.

Finally, a two-day meeting was held to define the plays and assign individual roles. Daily conflict vanished; customer satisfaction improved.

Huawei fosters a culture of *fen dou*, or dedication. Stories of failures turned to success are myriad. Repeating those stories has strengthened Huawei's culture.



LEVEL
3

CREATE A
RESILIENT
CULTURE

“**BUT**
“**ALL POLITICS IS LOCAL**” —
A COMMON
SAYING IN U.S.
POLITICS THAT,
IN THIS **CONTEXT**,
MEANS THE
CULTURE WITH
THE MOST
IMPACT IS THE
ONE **INCULCATED**
BY **EACH MANAGER.**”

For example, managers must set and enforce standards. At AT&T, a VP of Sales made a rule that if a salesperson failed to make their quota for two years running, they would be let go.

Georgia was a new employee who failed to make her sales target in her first year at the company. In her second year, her biggest account relocated its headquarters to a different country, causing Georgia to miss her quota in Year Two as well. As promised, Georgia lost her job.

You can argue that this was completely unfair: How could a U.S. sales rep sell to a company that was moved abroad? But that was the rule: commit and deliver, without making excuses.

Brutal though it may seem, that particular rule created a clearly understood performance metric. Rigid adherence to that metric strengthened the company culture – and would eventually lead employees to become more resilient, even in the face of adverse events.

Some managers, in HR lingo, have a “high need for affiliation.” This means they enjoy deep relationships with people and therefore tend to set standards that they subsequently do not enforce because they feel sorry for employees like Georgia. Surprisingly, Harvard research (McClellan and Boyatzis, 1982) shows that such managers actually create more dissatisfied employees. “Managers with high affiliation motive make judgments about employees that are viewed as unfair by colleagues, thus leading to poor morale and productivity.” *At AT&T, supervisors with a high need for affiliation tended not to be promoted.*

LEVEL
4

ALIGN
MANAGEMENT
SYSTEMS WITH
THE TARGET
CULTURE

Any organization that wants to maintain a culture of resilience has to align its management systems with the culture it wants to promote. This means that hiring, performance management, promotion, compensation and other aspects of talent development have to be in sync.

For example, external and internal team members must be selected for resilience, using some of the techniques outlined above. Performance expectations must be deeply understood by all team members. If multiple teams have to work together, then rewards must be set for overall team performance, and key performance metrics harmonized so everyone is pulling on the same oar.

In my opinion, Huawei is one of the world's greatest business success stories. When I joined the company, I spoke to the global head of sales and service, William Xu. He said the reason for Huawei's success was customer focus and

dedication: essentially, a stubborn refusal to give up. This is one of the reasons explaining how a once-obscure Shenzhen-based startup has turned into the giant it is now.

Huawei has carefully created a culture of resilience and aligned its management systems to it. Other organizations can follow this path – if they are willing to do what is required.



THE MYSTERY OF THE MISSING RESEARCH

HUAWEI'S IN-HOUSE ECONOMIST COULDN'T FIND MANY STUDIES LINKING A COUNTRY'S DIGITAL INFRASTRUCTURE WITH ITS ABILITY TO BOUNCE BACK FROM COVID. SO HE RESEARCHED IT ON HIS OWN.



by **Andrew Williamson**

*Vice President of
Government Affairs and Economic
Adviser at Huawei Technologies.*

COVID-19 has made reliable, affordable broadband a necessity for nearly every household. Some telecom operators report that data traffic on their networks is up by 60% compared to levels before the pandemic.

This is a global phenomenon. Traffic on Latin America's largest online marketplace, Mercado Libre, increased by 49% between late February and late May 2020. Thailand saw downloads of shopping apps spike by 60% in just one week. Nearly half of all consumers in Indonesia did more online shopping, while digital payments and online banking flourished.

Just as the digital economy has cushioned many of the pandemic's shocks, it should prove equally crucial in driving economic recovery as well.

That's why I was puzzled to learn that until quite recently, there has been little empirical research on the role played by digital tech in mitigating economic losses caused by crises generally - and almost nothing about helping economies rebound from losses caused by pandemics.

| BOUNCE BACK BETTER?

What little research exists is listed by the International Telecommunications Union (ITU). But those studies look mostly at natural disasters, and focus mainly on how digital technology helps governments coordinate the provision of critical services during an emergency.

They don't look at how digital tech helps economies bounce back from something like Covid.

So, in a spirit of investigation, I set out to study the relationship between two things: a country's efforts to use technology to control and mitigate the effects of COVID-19; and its economic performance from 2020 to 2021.

Below are the details on my research methodology.

| HOW I DID THE RESEARCH

My study used the tools of econometrics, a branch of economics that uses statistical methods to observe, and then predict economic outcomes. In this case, my dependent variable was a series of estimates for net real GDP change from 2019 to 2021 across a wide range of advanced and developing countries (I used data from the Economist Intelligence Unit). Although GDP data for 2021 are still estimates for many countries, most of those data are already in, and we can be pretty certain of the overall growth numbers.

For the independent variables, I used Huawei's Global Connectivity Index 2020, which ranks countries on the basis of their investment in, and adoption of, information and communications technology (ICT). The ranking provides a snapshot of each country's overall digital development.

A second independent variable measured the sum of the stringency of COVID-19 measures of mitigation. A composite measure developed by Oxford University, the stringency measures are based on nine response indicators including school closures, workplace closures, and travel bans - all important factors in controlling the spread of COVID-19.



For my third and final independent variable, I selected countries' pre-pandemic GDP growth rates for 2019. These were meant to serve as an anchor to the 2020-2021 growth numbers, and to capture the momentum of national economic growth going into the pandemic.

My research also tested a myriad of other cross-country comparable indicators that turned out not to be statistically significant.

These included the following:

- Fiscal balances for 2020-2021 (debt as a percentage of GDP)
- Population density
- Percentage of total population living in cities
- Government effectiveness (figures from the World Bank)
- Openness to trade
- Full vaccination rates by year-end 2021
- Income inequality

Interestingly, that last item on the list, as measured by a country's Gini coefficient (calculated by the World Bank) came closest to statistical significance alongside the original three indicators; however, it was not close enough. The best results from the simple cross-sectional regressions I performed are shown below:

**Table 1 -
What influenced the change in national GDP
across 2020 and 2021?**

Dependent variable	
Net Real GDP change (%) 2019-2021	
Huawei Global Connectivity Index (2020)	0.073*** [0.023]
COVID-19 Stringency Index (Oxford University)	-0.0001** [0.00005]
Real GDP growth % (2019)	2.108*** [0.158]
Constant	-4.882* [2.603]
Observations	64
Note	*p<0.1; **p<0.05; ***p<0.01

“
MY RESEARCH
FOUND THAT **NATIONAL
DIGITAL ECONOMIC
DEVELOPMENT IS STRONGLY
RELATED TO ECONOMIC
RESILIENCE.**
”

This finding might feel intuitive, even self-evident, since everyone's doing Zoom calls and living life online.

But the relationship between connectivity and resilience is hard to prove. Covid may cause online food orders to spike - even as brick-and-mortar restaurants are getting killed. Do the two trends cancel each other out? Until now, it has been anyone's guess.

But this study indicates that there is a significant relationship between a country's level of national digital development - as measured by the Global Connectivity Index - and its economic growth. Indeed, it suggests that on average, a 10-point increase in a country's GCI score would have boosted its GDP growth by 0.7% over the 2020-21 period.

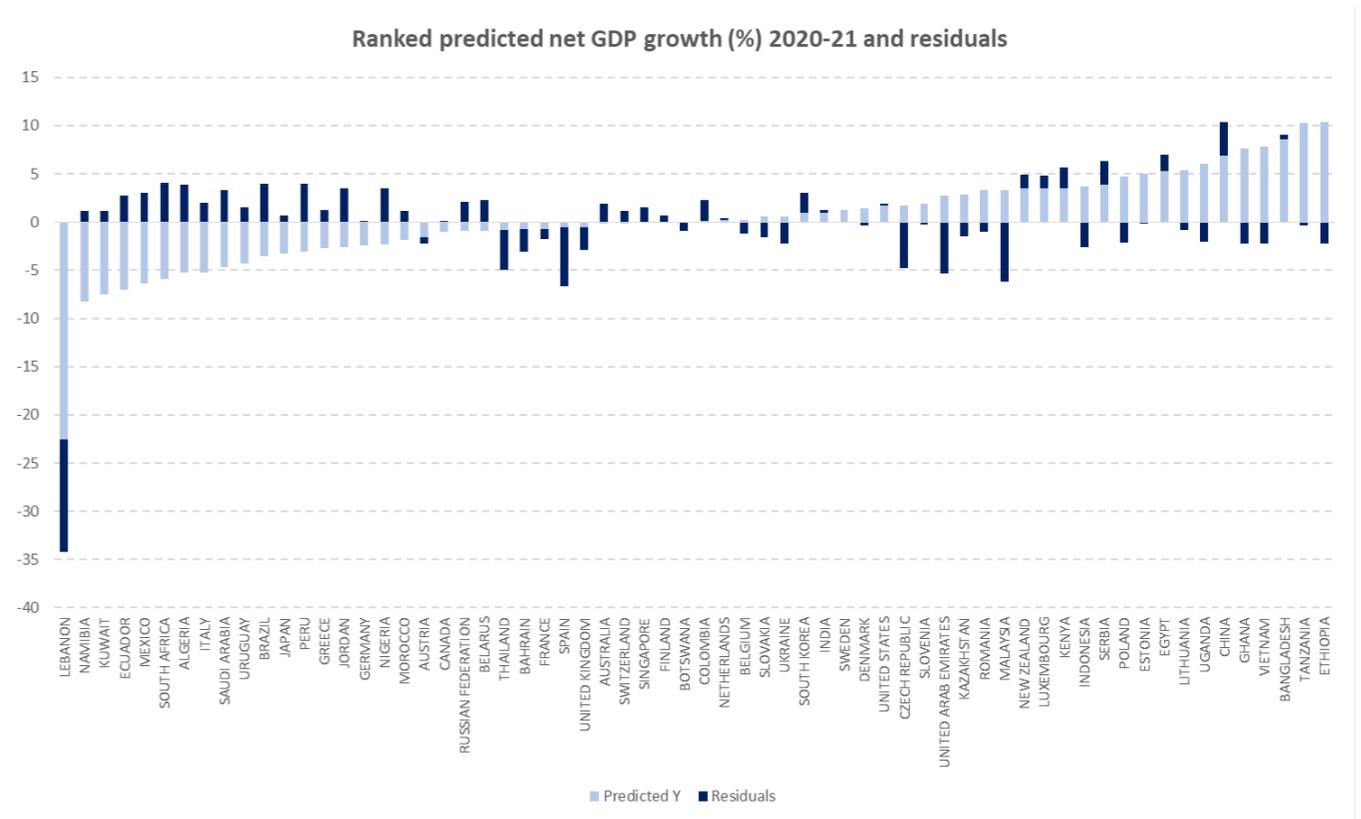
My research isn't conclusive, of course. But it's a start.

And it agrees with a much more sophisticated study, published by the ITU in June 2021, across 139 countries. **After controlling for a range of variables, the ITU research shows that countries with unique fixed and mobile broadband subscriber penetration rates above 75 percent can mitigate 19 percent of the economic damage faced by less-connected economies.**

Many other factors would have determined a country's economic performance over the last two years. This is illustrated in Chart 1, which shows predicted GDP growth over 2020-21 (based on the three-variable model above) and the actual growth rates from the Economist Intelligence Unit.

For example, Lebanon's economy has shrunk by an astonishing 34% since 2019. But its dire slump is understood to have been caused by many other factors beyond digitization and COVID-19.

But across our sample set, just three variables, as outlined above, explain more than 75% of the total variation in net GDP growth rates from 2020 to 2021.



Digitization cannot solve all of the problems caused by the pandemic. But the evidence I can see so far suggests it's of significant help.

RESILIENCE?

WE ASKED FOUR EXECUTIVES WHAT RESILIENCE MEANS TO THEM. BELOW ARE SOME EXCERPTS.



Francois Barrault
Chairman — IDATE DigiWorld

“ When you have a very sophisticated system you need to be careful of counter-attack. The more points you have, the weaker you are. But the more events you have in the network, the bigger chance you have of having a bug. It's like a car. If you drive your car just 50 kms as a test drive or you drive it 6 million kms. In the 6 million you will find lots of issues. So now you need to be very careful because the world is relying on technology. So every time you launch mission critical applications, such as for aeroplanes or new apps in which your health or security is concerned you need to do stress tests and push the limits of the resilience of the application. ”



Moon Jerin
Founder — Aeindri

“ We need to have a mental, physical and emotional resilience built into us. We have to realise that there's a lot of information saying social media is really bad for us and it's true, it's evidence-based - what is this information doing to our system, to our emotional intelligence, how do we relate in real life and what does it do to your health? These are very important topics that people have to address and understand. At the same time without these connections we cannot be a truly global society. We risk being ousted almost, not connected with others. So how does resilience come into play? In my opinion it's about being able to be strong enough to identify what's necessary and how to have the control over that access and that information. ”



Massamba Thioye
Project Executive — UN Climate Change Secretariat

“ It's the capability to build after a shock. We need to have economies and societies that are resilient but particularly in this moment that we're facing, with a lot of challenges: short-term challenges such as Covid and more medium to long-term challenges such as climate change and loss of biodiversity. Societies need to be able to face these challenges and re-build after this shock. ”



Beat Ulrich
CEO — St Gallen Symposium

“ It's very important with the huge amount of information we get, that we have to find a way to manage this information and deal with information that's often critical - in a war for example. So we as people have to find a better balance and that will be a huge challenge for the coming years I would say. ”

Watch the three-minute video here.



A HISTORY OF RESILIENCE – HUAWEI

THE PUBLISHER OF TRANSFORM HAS BEEN TESTED OVER AND OVER



Find out more by watching this video.



“ ”

The world's top telecommunications equipment supplier, Huawei was launched in 1987 in Shenzhen in a modest apartment building.



“ ”

Sustained commitment to certain principles enabled the company to grow rapidly over the years. Because it's only owned by its employees, Huawei has been able to focus on long-term growth by committing heavily to R&D in a sustained manner.



“ ”

“Huawei exists to serve its customers” is a mantra that all new Huawei employees learn from the moment they join the company. There is no higher priority. This focus on customers is another of the reasons explaining how Huawei was able to climb to the top of its market.



“ ”

Today, Huawei serves customers on all continents and ranks 44th in Fortune Global 500.



**"In the next issue,
we look at the subject of mining."**



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 Contact us via transform@huawei.com