

Capgemini 

APPLYING TECHNOVISION



Table OF CONTENTS

Introduction.....	04
TechnoVision 2022 in Review	
Being Like Water.....	05
Overview of TechnoVision.....	12
Applying TechnoVision.....	18
Ways of applying TechnoVision.....	19

Introduction

In the years since TechnoVision's inception, our dependency on technology has increased exponentially. Technology brings us closer, allowing us to operate – facilitating collaboration, creativity, and community. So much so, the very notion of a business not using technology seems incomprehensible. What may once have been perceived as a superfluous luxury, is now wholeheartedly part of the package. And it pertains in equal parts to what we, at least so far, call “business” and “technology.”

The technological universe continues to expand, augment, and adapt at a phenomenal rate. Physical and virtual worlds merge, robots teach themselves, and the quantum realm looms ever nearer. All of this can be daunting: to know what to do, where to go, and how to adapt, all for the benefit of the organization. To respond successfully, it requires more dialog than ever, between everyone in the organization, regardless of business unit, role, or technological affinity.

This is where TechnoVision shines, as it is designed to facilitate Technology Business dialogs. To achieve that, we don't stop at “just” presenting our 37 technology trends in an online report, even if it is through an accessible, well-structured framework, based on the contributions of Capgemini's leading experts. Over the course of time, we have pioneered and developed various ways in which you can apply TechnoVision to any given idea, problem, project, or corporate setting, and to think creatively

in ways in which you may not have thought of before.

Also, it is simply more fun to kick technology to the curb and immerse ourselves with ideas in another format. When it comes to applying TechnoVision, often an open dialog, some storytelling on a theme, a pack of cards, or a wall of boxes deliver more impact than presenting a slide deck or reading a document.

Depending on your level of knowledge, understanding of TechnoVision, or even amount of time you have available, there's something here for everybody, whether you are an IT expert looking for new angles, or a tech-curious businessperson wanting to understand the buzz.

Applying TechnoVision aims to inspire you to open your own TechnoVision dialog, with colleagues, clients, and stakeholders alike. And who knows, you might have a few of your own tricks up your sleeves as well. By all means, do not hesitate to share them with us, as we aim to make this into a living, always evolving document.

Time to play, TechnoVision style.



Ron Tolido



Gunnar Menzel





Being Like Water

Sitting in his makeshift shed, the man wields his knife around a plastic bottle, forming the perfect water feeder for his allotment. "Waste not, want not," he whispers to himself in the quiet acknowledgement of a lifelong mantra to repurpose, reuse, and recycle.

In India, they call it "*Jugaad*": a flexible and pragmatic way of problem-solving, using limited resources in an innovative way. This frugal innovation approach – which may go by another name in different parts of the world – is now more relevant than ever, for many reasons.

We see the world straining its natural resources, no longer able to sustain our current levels of living and consumption. We must be more inventive with what we have, rather than spending too much of our scarce resources on energy-wasting, polluting, "build-from-scratch" activities.

Jugaad Masters skillfully control their tools and materials. Part of their way of life, their chosen "technology" is always with them, always available, always ready to innovate. These masters have become one with their tools and materials, *they are Jugaad*.

Sounds like something we need in today's world of digital technology and business as well.

A person wearing a bright red jacket and dark pants stands on a rocky, dark shoreline, looking up at a massive, powerful waterfall cascading down a dark, craggy cliff face. The scene is dramatic and atmospheric, with a blue-tinted sky. A bright blue line graphic curves across the middle of the image, framing the text.

ASPIRATION IS NOT ENOUGH

For the turbulent year of 2021, we recognized the role technology played to deal with the flurry of unpredictable events, challenges, and opportunities. We created the leitmotiv, “Be Like Water.” We iterated the importance of crafting technology strategies, architectures, and solutions that are shapeless and formless, yet always flowing. It was a plea for agility, adaptivity, responsiveness, and resilience, all enabled by technology.

This year however, aspiring to be like water is no longer enough. It is time to extend the adjective far beyond the realms of the vessel to which it is held. It is time to find our own Jugaad Master – to walk the talk. It is time for actively “Being Like Water.”

In Capgemini’s Digital Mastery research, we see how organizations are building more digital and leadership capabilities – two crucial facets of a thriving Technology Business. They are also addressing culture – another success factor – and promoting the exploration of new, innovative technologies and platforms. Yet, while organizations focus more on upskilling employees than ever before, the increase is much less significant in soft skills areas such as emotional intelligence, adaptability, and collaboration.

If we indeed acknowledge that *every Business is a Technology Business* (or “Technology Business” as we like to call it), then technology can no longer be kept within the walled garden of centralized IT, or whatever other sub-construct it is delegated to. Technology needs to be internalized, embraced, and utilized across the organization, regardless of business unit, activity, or individual role.

To aspire is no longer enough. It is vital for organizations to upskill scarce talent, embrace IT and build on the corporate objectives.

Objectives are changing

Sustainability returns to the top of the strategic priority list, after having taken an involuntary backseat during the pandemic. An organization’s success may soon depend on its contribution to decreasing net-carbon emissions. How we operate, collaborate, travel, even function at the most basic of levels, will have an impact on the organizational carbon balance sheet. And all of that is scrutinized wholeheartedly by customers, employees, and shareholders alike.

Then, **scarcity** is rapidly turning out to be a new, determining factor for economic success – or failure. This not only relates to scarcity in terms of natural resources (although we must certainly apply caution here), but also human resources: it is increasingly harder to find qualified, skilled, and motivated talent in almost every branch of business, including technology. Furthermore, the next generation of workers is increasingly critical of what organization to work for, actively seeking compatibility with their own values, such as sustainability, diversity, and inclusion.

And finally, the next-level of digital playing field has swiftly emerged over the last two years, triggering a whole new wave of **innovation** initiatives – whether by cautious challengers sensing unexplored opportunities, or inquisitive incumbents wanting to catch up on a new reality. Capgemini’s Digital Mastery research illustrates how innovation leaders still focus on a superior “customer-first” experience and highly effective operations. Yet, combine that with talent innovation and an “employee-centric” experience, and the reimaged business model could really excel.



Technology is entwined

Whatever the business and societal challenges and opportunities are, they all have one commonality: they rely on technology to address them as an integral part of the change equation. Most apparent in *Intelligent Industry*; we see software-driven cars, autonomous factories, and smart products as testament to the raw, transformative power of technology. But this is quickly rippling through other sectors and domains too, such as the smart concepts of “Society 5.0” in the Public Sector, taking its inspiration firmly from “Industry 4.0” (technology still craves version numbers it seems). Technology and business operations have become so entwined, it is increasingly blurry where one ends and the other begins.

And it shows when looking at technology trends in 2022. Whether it pertains to infrastructure, applications, data, process automation, user experience or collaboration, three big Technology Business concepts clearly stand out:

EDGE:

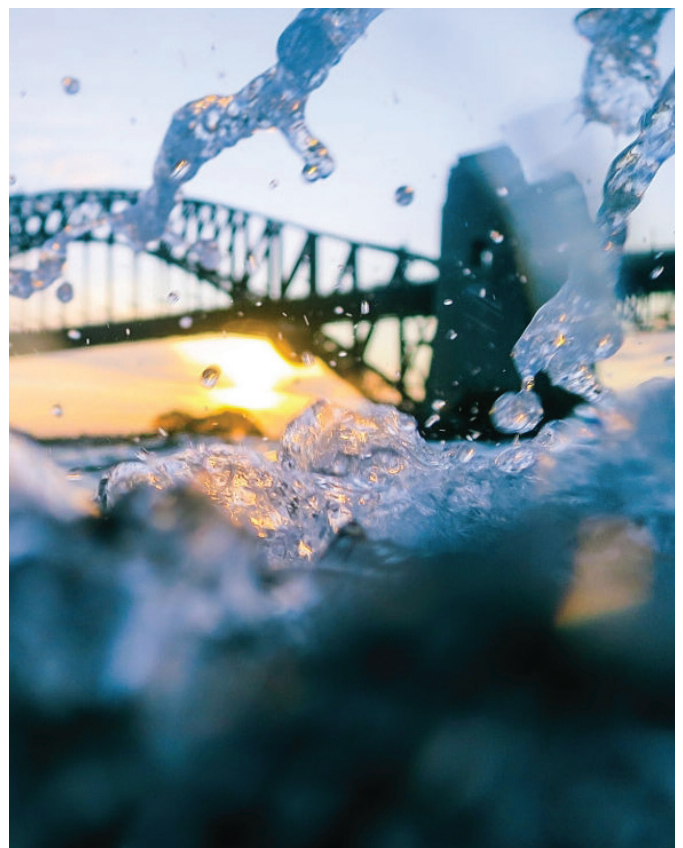
“Edge computing” emerged from Intelligent Industry and the realm of the Internet of Things (IoT). As we watch Information Technology (IT) and Operational Technology (OT) fuse, devices are increasingly enchanted with sensors, storage, networking, intelligence, and automation. Innovations appear magically ever closer to the distributed edge, further away from central IT. But this isn’t just a one-trick pony, as we see areas such as “headless” application services morph themselves into diverse, individualized user experiences (maybe one day in the looming “metaverse”), entirely dependent on the needs at the edge of the business. The edge is there for a reason, it pushes past our comfort zones, making us think about what’s beyond. Exciting innovation happens at the edge – where the rubber meets the road – not at central IT or business units – bringing more applicable technologies to the places where it really counts.

MESH:

Originating in the world of loosely coupled, lightweight networks of autonomous nodes, “mesh” has expanded to the world of applications: a new way of weaving together small, independent application services (“service mesh”) for all sorts of – ad-hoc – purposes. Now, it is rapidly conquering the world of data (“data mesh”), as a radically different, federative way of redistributing the ownership of data products to the business domains that are closest to them. And of course, in the multi-faceted user experience world of the Metaverse, mesh appears here as well, illustrating the variety of ways we can collaborate in online spaces. Not to mention the mesh-like characteristics popping up within distributed technologies such as blockchain. Mesh emphasizes the power of decentralization and federated ownership, rather than monolithic command and control.

AUGMENT:

AI and intelligent automation manifests powers across the full spectrum of technology. From smart products and services, intelligent applications, and killer algorithms, to “self-driving” business processes, the potential seems limitless. AI can even be applied for spectacular creative purposes, augmenting humans in ways that were previously considered their eternally exclusive forte. While the discussion on how AI will replace humans – versus augment them – may go on for some time, the increasing scarcity of talent in all major business areas, certainly shows AI and intelligent automation as powerful, sustainable fixes. Ultimately, technology enables us to produce better digital solutions with fewer people. And when provided directly to the business – for example through self-service tools – it serves the technology democratization ambitions any Technology Business should be aiming for.



A Need to Upcycle

Sustainability is finally a business priority. What once might have been just a line item for boardroom consideration is now right at the top of the corporate agenda. Every executive must help their organizations deliver on sustainability targets – and CIOs must play a fundamental role in a shift towards a “[circular economy](#).” By transforming the linear take-make-waste system to a more [regenerative process](#), everyone can benefit, not least the corporate agenda. But we must address how much technology consumes and wastes finite resources. Millions of tons of electronic waste are generated worldwide every year, yet less than one-fifth of that e-waste is recycled.

Rather than rip and replace, we should recycle and reuse. Jugaad should become a way of life in IT, finding ways to tease more life out of the technology products used in our businesses. We need to think much more creatively about the hardware and software we discard. We must acknowledge that precious resources are finite. As an industry, and as businesses that consume these IT products, we have a responsibility to do better. We must find ways to extend the life, to reuse, or maybe even upcycle the technology we already have.

In India, Jugaad is often due to necessity: to innovate to find a solution for a problem. Elsewhere, organizations ignore making such choices: when something breaks, simply replace it. That attitude is now an anathema. The world demands change. But aspiring to change is only the starting point. Customers, and employees know that actions speak louder than words – and they will spot any attempts at uncommitted pretend and “greenwashing.”



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Epilogue

The man picks up his knife again. For him, Jugaad never ends. Everything has its place in this shed; each element unique, serving a bespoke purpose, doing its job perfectly. But there is always something new to achieve, some fresh creativity to apply. As a Technology Business, we can learn from that attitude: by no longer just talking about plans, but by walking the talk, living the mantra. By mastering our digital tools seamlessly within the organization, we can use technology to innovate, adapt, and achieve our corporate and societal goals. And by integrating technology with business so fluently that one no longer works without the other, they become essentially one and the same; being – and flowing – like water.

Questions to Ask

Mastering a Technology Business is not only about understanding trends and their overarching themes. It's about making it work, to move from articulating aspirations to actually "*Being Like Water*" in a Technology Business. Applying a Balance by Design mindset, we recommend asking seven questions at any signature digital juncture – when assessing a strategy, a portfolio, program, project, or architecture, or simply any time a promising innovative idea pops up:

Are business and technology the same?

Move from alignment to unity of business and IT, creating a seamless Technology Business strategy and operations.

Are systems and processes designed and built for change?

Move adaptability from afterthought to prime time.

Are systems and processes open by default?

Upgrade your technology platform to the ultimate Technology Business platform: a superior, open set of attractive services, acting as a magnet for active collaboration, internally and externally.

Do plans and actions contribute to societal good?

Boost the organization's societal purposes by saying "Yes" to technology that boosts sustainability and say "No" to what is energy-wasting or non-essential.

Is trust at the foundation of the organization?

Power up the entire trust ecosystem – from the organization's core to its edges – securing your existing business and pushing forward to its next permutation.

Is the data and AI applied human-centered?

Ensure a properly measured and monitored balance between three – sometimes conflicting – assets: the corporate Intelligence Quotient, Creativity Quotient, and Emotional Quotient.

Are all hands-free perspectives considered?

Assume full, hands-free automation as the default for all new Technology Business processes.



OVERVIEW OF TECHNOVISION

TechnoVision categorizes technology trends into six well-defined containers, offering a snapshot of innovation from different perspectives (the “what”) – ranging from user experience and collaboration, via data and process automation, all the way to infrastructure and applications. A seventh container offers a series of overarching design principles to successfully apply to the trends and create transformational impact (the “how”). These principles help to build a sharp mindset, ready for any portfolio, program, project, architecture, innovation initiative, or idea.

Those familiar with earlier versions of TechnoVision, will notice that we

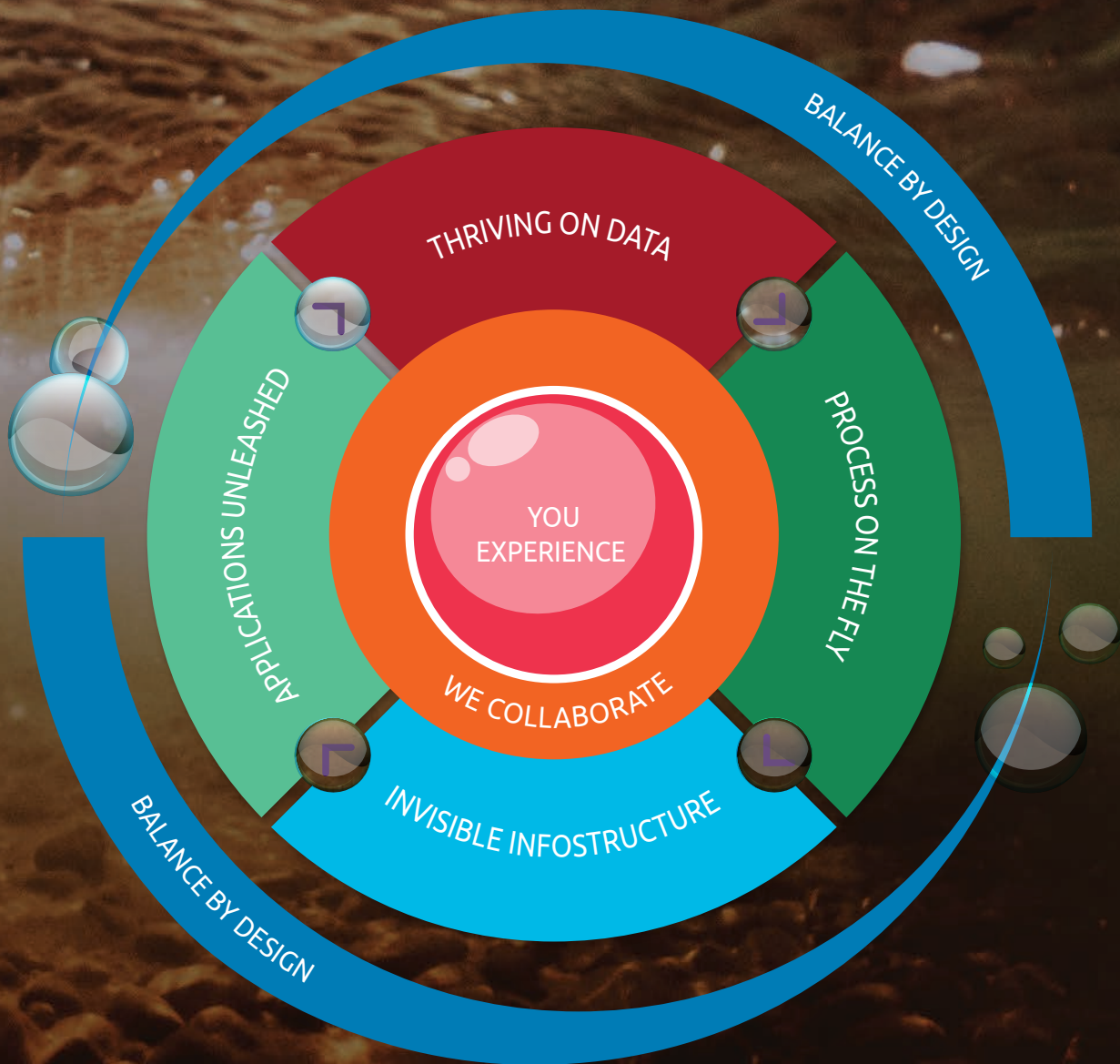
have discontinued the framework picture we have been using for years, which to some – unintendedly – suggested a sequential transformation from the more systems-orientated (infrastructure and applications) to the human-centered side (user experience and collaboration). Others thought they saw an architectural diagram.

To stay true to one of the key themes of this year’s edition, we upcycled a somewhat older framework: a holistic, circular version, firmly placing You Experience and We Collaborate at the heart of the technology-driven exchange. This core foundation is surrounded by the more functional containers – Thriving on Data, Process

on the Fly, Applications Unleashed and Invisible Infostructure. All wrapped up with Balance by Design, as the overarching container to be considered while working with the others.

Within each container, trends are presented as one-page summaries, designed to be crisp and to-the-point, yet appetizing enough to warrant further study. Balance by Design follows a similar principle, offering a view of how to shape balance within an organization using easy to digest one-page principles.

Read on for the summaries of the seven TechnoVision containers:

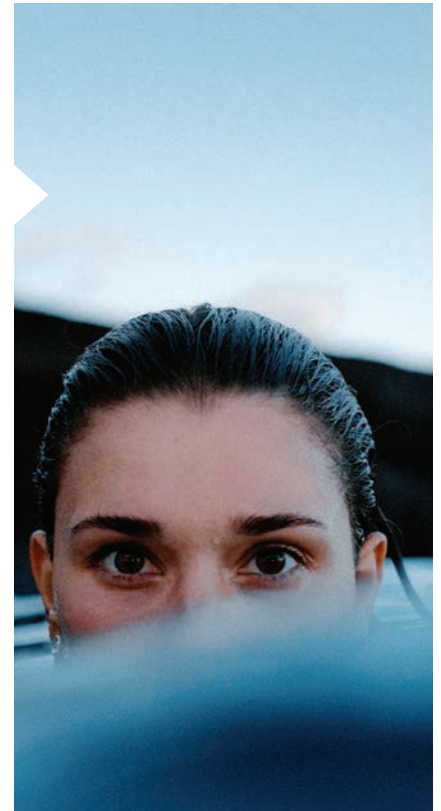


**You Experience:
immersive, low-touch, emphatic**

You Experience forms the very definition of a highly personalized, seamless user experience. As technology entwines itself in our daily lives, the user experience is no longer a separate discipline. Fully immersive, it is now an integral part of life: at home, at work, or even in leisure time. Organizations can no longer take the well-loved “customer-first” route, but must consider “employee-first,” and even “partner-first” routes

too, emphatically considering user experiences from a holistic, end-to-end perspective. Loyalty, advocacy, and satisfaction remain buzz words, joined by talent retention, engagement, emotional connection, sustainability, and inclusiveness to boot.

- Experience²
- Me, Myself & My Metaverse
- No Friction
- I Feel for You
- My Own Private Avatar



**We Collaborate:
teamed, distributed, creative**

Many realities have changed irrevocably since the pandemic – how businesses operate and collaborate being one of them. Many aspects of value delivery are now entirely independent of location and time. People work together in different ways, increasingly at the very edges of what used to be considered the “core organization.” Consumers and employees expect creative, integrated experiences. It requires a new level of cross-organizational, cross-sector partnering to meet these expectations. Distribution is the leading design principle, together with mesh-style, loosely coupled collaboration. And as the physical and digital fuse, it's no longer clear where technology ends, and business begins.

- Fluid Workforce
- The Team is the Canvas
- Taken by Tokens
- Your Business is a Mesh
- It's All Connected

Six well-defined containers offer a snapshot of innovation from different perspectives, ranging from user experience and collaboration, via data and process automation, to infrastructure and applications.



**Thriving on Data:
algorithmic, federated, shared**

It's no wonder organizations aspire to thrive on data, to be data-powered enterprises. With every business now being a de facto Technology Business, data is at its core. Dare we say, every Business is a Data Business? Data powers superior customer experiences, highly tuned operations, and smart, self-optimizing products and services. Data provides resilience, predictability, and effectiveness, but equally enables organizations to

achieve their sustainability ambitions. It's tempting to declare data to be the new, corporate asset. But assets tend to be stacked, isolated, and safely put away. It's much better to see data as a first-class product; owned, managed, and activated by business domains, and shared in lively exchanges inside and outside the organization.

- Data Sharing is Caring
- Power to the People
- Data Apart Together
- Era of Algorithms
- Creative Machine

**Process on the Fly:
binding, portable, self-driving**

Strategy tends to be eaten for breakfast, by culture – but also by a lack of operational execution. Organizational aspirations simply “blah blah blah” without any ability to turn insight into action, quickly respond to events, or go with whatever flow the corporate purpose supposes. And all that goodness must be delivered against a scarcity of skilled resources and a need to reduce travel and energy consumption. This is where Process on the Fly shines brighter. Having been less in the spotlight than its complementary container, Thriving on Data (ever heard of “Big Process?”), breakthroughs within intelligent automation and a taste of touchless execution, firmly places this container center stage.

- Process is Mine Mine Mine
- Rock, Robot Rock
- Silo Busters
- Can't Touch This
- Augmented Me



Applications Unleashed: meshed, headless, augmented

At the heart of any Technology Business is its applications portfolio. A thriving heartbeat of the organization – part of the business, responsive to every demand. These applications mirror the new business dynamics, built, and continuously changed at high speed, to a high quality, and in whatever incarnation necessary. Yet, many applications no longer look like the ones we used to know, as they morph into a connected mesh of microservices. With agility and minimum viable products no longer the “new normal,” but the “well and truly established,” the quality of application services needs to be at enterprise level, with a continuous, flawless deployment throughout all business operations.

- Kondo My Portfolio
- Honey, I Shrunk the Applications
- When Code Goes Low...
- Mesh Up Your Apps
- Apps ♥ AI



Invisible Infrastructure: omnipresent, autonomous, invisible

The odyssey towards a truly invisible IT infrastructure remains ongoing, but progress is being made. For many organizations, the pandemic accelerated a move towards the cloud; a signpost of increasing “invisibility.” To keep up with the pace of a Technology Business, IT infrastructure needs to be omnipresent, fluently adjusting to the whimsical ways of the time. A software and AI-driven, nearly autonomous supply chain is key – reliability built in. It also deals with the scarcity of skilled experts and excess energy consumption. But IT infrastructure also expands its reach, integrating Operational Technology and “things” at the edges of central IT, showing yet again that “Infostructure” is not a spelling mistake.

- Lord of the Clouds
- Crouching Tiger, Hidden Container
- Simply the Edge
- Ops, AI did it Again
- Silence of the Servers



As always, the authors have had their way hiding copious references to rock, pop, movies, and other cultural and societal phenomena. The reader is invited to find as many of these “Easter Eggs” as possible. It should not be ruled out however, that Generation Z and their “OK, Boomer” colleagues – blessed as they are with quite different frames of reference – may find completely different hidden gems.

If you still possess an appetite for more, the TechnoVision Expert Connect community offers a variety of detailed posts and articles about your favorite 37 building blocks. And by all means, read our sister report “Applying TechnoVision” for various means of using, applying, and playing with TechnoVision in a unique and entertaining way. Finally, to dive even deeper into the TechnoVision universe, watch out for our sector and domain specific TechnoVision Playbooks to be released throughout the year.

A seventh container offers a series of overarching design principles for transformational impact. They help to build a sharp mindset, ready for any program, project, architecture, innovation initiative, or idea.

Balance by Design: overarching, transformational, purposeful

The essence of designing a Technology Business is to find and preserve several balances in parallel: balance between the interests of stakeholders, between short and long term, centralized and decentralized, friendly and authoritative, purposeful and spontaneous. Besides the WHAT of technology trends, TechnoVision offers a view of HOW to shape these balances within the organization – by purposeful design. The principles within this container aim to provide

control questions for executives, a bouquet of perspectives for architects, and a systematic checklist for anybody involved in a Technology Business portfolio, program, project, or initiative.

- Technology ↔ Business
- With Open Arms
- Adapt First
- Do Well, Do Good
- Trust Thrust
- IQ EQ CQ Up
- No Hands on Deck

Applying TechnoVision

There are many ways to apply TechnoVision, like brainstorming entirely new ideas, systematically crosschecking an architecture, design or invent on innovation potential, using it as a playful dialogue tool between all involved in technology business change, or just trusting on good old serendipity to find an unexpected angle when tackling a tough challenge.

Above all, TechnoVision is a tool to tell a Technology Business story; a story that shapes an opportunity, answers a question, gives direction, resolves an issue, or simply delights an audience. It is always a story to be told between people, from both the business and IT sides of an organization (if there are still different sides, that is). Choosing the right building blocks – studying them, interpreting them, discussing them with others – is already part of the storytelling. Then, the blocks are woven together with other views, considerations and scenarios to create a unique Technology Business story that addresses a specific need, challenge, or opportunity.

Boxes, card games, and storytelling

The TechnoVision framework can be boxed up, shuffled, and described in a multitude of ways, turning each of the 37 trends into colorful, real-life discussion points to be deliberated and conjugated alone, online, or in vibrant debate with others. However, when they are presented, they can tell a technology-enabled customer story, a day in the life of an employee, a breakthrough in a process, or a new, disruptive product.



As a rule of thumb, we prefer to apply TechnoVision in a lively workshop setting, usually taking place in one of our [Applied Innovation Exchange](#) (AIE) labs, or our [Accelerated Solution Environment](#) (ASE) environments using our colorful, real-life cardboard boxes – each containing a short elevator pitch of a trend and a QR code for more detailed content. However, as the world changes and we see the normalcy of remote working and reduced travel, so has our approach to applying TechnoVision and our need to think differently. While there is no real substitute for human contact, we have provided many tools to help you explore TechnoVision 2022 in your own office setting. The TechnoVision box designs are available to print yourself or for use in a virtual setting with others. Similarly, the TechnoVision card deck has proved a very popular – and portable – addition, enabling you to take TechnoVision with you wherever you go; creating a technology business dialogue or an innovative way to approach a given challenge.

Yet, the very nature of TechnoVision means it can be applied very easily within a virtual setting too. From storytelling or creating a digital picture, to simple [#TweetMyArchitecture](#), the options for discovery are limitless. And thanks to the support of the AIE, there's now a version of the [TechnoVision cards](#) to be viewed online, not to mention our VR version of the TechnoVision theater, enabling teams to work together in a session from different locations. All we ask is for you to dive in and get involved

We look forward to learning how you may pioneer any additional formats to apply TechnoVision, and we welcome hearing about your own applying TechnoVision stories.

Ways of applying TechnoVision

1. TechnoVision Boxes

- TechnoVision Theater
- Business Model Canvassing
- Grab a Box

2. TechnoVision Cards

- Randomizer
- Pick a Card
- Tarot

3. Repositioning

4. Storytelling

5. TechnoVision Online

- Digital Picture
- Applying TechnoVision Virtually
- #TweetMyArchitecture





Boxes: TechnoVision Theater

Create technology stories that address business challenges, opportunities, potential innovations, strategies, or architecture. Use TechnoVision Theater as an introduction to general technology trends, or as a teambuilding tool to familiarize business and technology teams with TechnoVision's capabilities. You can even apply it as a hands-on "ice breaker" during transformation workshops.

Who's it for?

This method lends itself well to representatives with little or no technical knowledge, expertise, or experience. The session can be completed with a small team of three to five people, but it is more effective with multiple teams reporting out to each other and building on each other's stories. Sessions of up to 50 attendees, spanning seven teams, have also been successfully conducted.

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Preparation

Participants will preferably have some basic knowledge of TechnoVision, although we do understand it can be difficult to gather a team consisting of equally informed members. Before starting, make sure you have built up the TechnoVision 'wall' with boxes, positioning the container areas and boxes in the right sequence. The container 'header' should be on top of its pile and the trends sorted according to their sequence in the TechnoVision document. This not only facilitates the process but can also be used as a tool to explain the TechnoVision framework. Documenting the session is a must; using video recording or supported by a live cartoonist.

The session also needs a credible problem-owner that:

- Can express the challenge crisply and convincingly
- The teams report out to
- Supplies feedback to the team and provide an overall summary at the end

Introducing the workshop

The workshop opens with a short, high-level introduction of the TechnoVision framework, the structure of the clusters (the 'what') and design principles (the 'how') and relatable examples. Rely on the attendees to study the content of the blocks themselves after selecting them and provide just enough information to help them make the right choices for the building blocks. Then, describe the process of forming teams, building a technology business story, and reporting out. The problem-owner describes the challenge at hand; it can be a strategic question, a conundrum, a quest for ideas, a process redesign, service, or product.

The format

Form the teams. Team size will depend on the number of people and time available (more report-outs take more time) Each team selects a few building blocks that are of interest for the challenge at hand. The selection should typically consist of a minimum of three building blocks a maximum of seven (five seems a good average). The 'header' building blocks should not be selected (although quite a few teams have been known to break the rule with positive results).

If while building a technology business story a team decides that a block is not as useful as anticipated, another box may be selected. Of course, the rejected block needs to be put back into the pile for potential use by other teams.

The teams should study the building blocks, reading the elevator pitches on top of the boxes and maybe scanning the unique QR codes with their smart phones for more information. If the boxes are examined by individuals, team members can then explain the boxes to each other. By building on each other's ideas, the digital story gradually comes together through the combination of building blocks from several colored clusters. It is worth mentioning that focusing on one cluster per team is a successful, early format as well. Teams can choose to combine technology building blocks from the six clusters along with the 'mindset' blocks of the Balance by Design cluster; after all, a good story often involves both the 'what' and the 'how'.

Take 15 to 30 minutes to build a technology business story, depending on how much time is available.

Reporting back

Each team reports out to the problem owner in their own way. The blocks are typically stacked while telling the story to illustrate the enabling role of each building block within the storyline. Some teams prefer to simply create a pile, but we have also seen more creative constructions like totem poles or arcs. Each team should not take longer than five minutes to report back, keeping the story crisp and to the point. A cartoonist may capture the story, or it can be recorded. Teams should photograph the final box construction for later use. The other teams provide initial feedback to the story, followed by the problem owner. A feedback round should be time-boxed to five to ten minutes each, depending on the time available.

The problem owner gives a final summary and assessment after the last report-out, possibly selecting stories or story elements and suggesting potential future steps.



Boxes: Business Model Canvassing

Develop insights into how technology can change the business models of organizations with two compelling approaches: the Business Model Canvas (BMC) method and the TechnoVision building boxes. Participants will gain a working knowledge of these approaches and create a list of potential business model improvements or changes. We suggest taking a picture of each idea and having a separate meeting (after about two weeks) to validate the feasibility of the idea within the organization and to identify some potential next steps.

Who's it for?

Participants are business and technology representatives, with no specific requirements in terms of knowledge, expertise, or experience.

Preparation

Preferably, participants will have already familiarized themselves with both TechnoVision and the Business Model Canvas approach (many instruction videos are available on YouTube for the latter). Before starting the session, make sure you have built up the TechnoVision 'wall' with boxes, positioning the cluster areas and boxes in the right sequence. This not only facilitates the process but can also be used as a tool to explain the TechnoVision framework. Then, draw a large BMC model on the ground using painter tape.

Introducing the workshop

The workshop starts with a short introduction on both models. For TechnoVision, introduce the framework (the seven building blocks), the structure of the five elements within each of the building blocks and the seven design principles. Do this on a high level and provide some examples – no need to dive into detail yet. For Business Model Canvas, explain the origin (notably how Osterwalder used the model to write his book) and the different elements of the Business Model Canvas.

The format

After the explanation, take one example of a company that most people will be familiar with, or is bankrupt or highly successful. Take some boxes and explain which elements the successful company put in place so they stand out from their competition, or move boxes into the BMC model to illustrate what the bankrupt company could have done differently.

Next, ask the participants to consider their own organization or a specific part of their business (organizational unit or product). Let them generate ideas about how the technology building blocks can be used to improve business performance or even entirely change the organization. Let them physically place the boxes in the model on the ground. Encourage discussion, play for about ten minutes and ask for a report-out.

Reporting back

If you have a large group, you can split it up into groups of four or five and have them report out to each other. Depending on the time, you can have multiple rounds. You will see that the stories improve with each round. Take a picture of each model and write a one-sentence description. If possible, print it out. At the end of the workshop, these prints can put on a two by two matrix, labeling the axes as 'impact of the idea' and 'ease of realization'. The big impact ideas that are easy to realize are the ones the participants should take with them to elaborate on later.

Let the participants give a short statement on the insights they gained. Then, let them all take one box that they found particularly interesting and take a group picture with the boxes.





Boxes: Grab a Box

Get an ultra-fast benefit from TechnoVision in just a few minutes. Create a long-lasting memory (if nothing else) through a picture. Acquire your first taste of working with TechnoVision. Have a quick icebreaker between workshop sessions.

Who's it for?

For anyone, including people that happen to be visiting an innovation center or office space that feature the boxes.

Preparation

Make sure you have the 'wall' of TechnoVision building boxes set up.

The format

Don't explain TechnoVision. Just ask all participants to have a brief look at the 'wall' of TechnoVision building blocks and choose a box that – on its title alone – intuitively matches their interests or ambitions. Ask every participant to give an elevator pitch on why they selected this particular box and if applicable, what personal next step they assign to it. Take a picture of every individual showing their box. Finally, take a group picture. Distribute to all participants for later reference.



Card Deck: Randomizer

Boost innovation with a random approach to TechnoVision and think outside the box (specifically card box in this instance). Played alone or in a group, this quick method is perfect if you only have a few minutes to deliberate, need some time to think, or want an easy icebreaker in a workshop.

Who's it for?

Anyone. If you can get hold of the TechnoVision card deck, you can play it.

Preparation

Cards shuffled and ready, no other preparation required.

The format

Take a random card from the TechnoVision deck and use it to explore a given subject or as a conversation starter in a workshop or meeting.

On your own?

Take a card from the TechnoVision deck and use it to explore a given subject. You can even take two or three and see how you can connect them to help you with a challenge in your own time. If you need more information, scan the QR code and enjoy the read.

In a group?

Without explaining TechnoVision, ask each participant to take a random card from the deck, look at it, and think how it may align with their interests or ambitions. Ask every participant to read their card and what personal next step they assign to it. Ensure that these assignments are recorded and referred back to at a later date.

Card Deck: Pick a Card

Pick a card, any card. Outside of the world of witchcraft and wizardry, this old magician's trick is a good one. Perfect for those discovering TechnoVision for the first time, or who would like to delve deeper into a specific container or trend, our colorful deck can guide the way, and see what takes your fancy.

Who's it for?

Anyone. If you can get hold of some cards, you can play it.

Preparation

On a large flat surface (floor or table comes to mind), lay the cards out – face up – grouped in their containers.

The format

Don't explain TechnoVision. Just ask all participants to have a brief look at the display of TechnoVision cards and choose a card that – on its title alone – intuitively matches their interests or ambitions. Ask every participant to give an elevator pitch on why they selected a particular card and if applicable, what personal next step they assign to it. Take a picture of every individual showing their card. Finally, take a group picture. Distribute to all participants for later reference.



Card Deck: Tarot

We cannot guarantee that the trends in TechnoVision will happen at a certain date and time, but we are pretty sure they give a reflection of the future and how you can deal with it.

The wise shamans used their “medicine” or “oracle” cards to achieve exactly that. Nowadays, “tarot” is still an instantiation of it. The person who needed advice, would frame a question, then draw a card. The explanation of the meaning of the card was not so much through interpretation by the letter – but more for the person to reflect what is going on in different ways. The card drawn would help to shape thoughts and give direction. Not shaped by others or some powerful deity, but much more from their own, inner reflection.

If you have your own TechnoVision card deck, why not be a modern Technology Business shaman and develop your own version of tarot? Use the TechnoVision trends to reflect what they could potentially could mean for you and your business. Not by the exact meaning of the card, but more from the interpretation and self-reflection of the person who draws the card.

Play TechnoVision “tarot” using the following setup of cards:

South: Here we have your **“Limitations.”** Draw a card and see how this trend could help you overcome some of the limitations you currently face in reaching your objectives. This might be through the technology in the trend but may also be the interpretation on what you need to solve.

West: **“Your Role.”** What is the role that you are going to play in the transformation of your organization? For instance, if you turned over our trend, “Ops AI Did It Again,” it can be used for many different interpretations: Are you going to be the one that drives automation in your firm, or to really take AI to an enterprise level? Or, as one of our tarot participants once said: “Yes, this is my role. I am the one that always pushes boundaries, sometimes with success and sometimes with failure. In other words, Ops AI did it again.”

East: The role of **“Your Peers.”** What is required from your peers to make the Technology Business transformation a success. What are the trends that really can help them in their strength, or where you need their support?

North: **“The Future”** is our North Star. What trend will help you to shape up your future? What will really help you drive your success? Could it be that the “No Friction” end-to-end user experience may help the organization to distinguish itself from the rest of the pack, or is it because you really implemented “I Feel for You?”

As you can see, tarot is an easy-to-engage and playful way to apply TechnoVision, and reflect as an individual or as a team on how to move the organization on towards the future. It is a phenomenal ice breaker and – supported by some physical “props” – can make for a memorable workshop experience. You also may also wish to repeat your tarot on a monthly basis with your management team, frequently changing who will draw the cards and who will coach and ask questions. After all, as the shamans knew only too well, real wisdom lies within yourselves.

Credit: Frank Wammes



Repositioning

Examine existing development projects, and operational applications, to boost their technology business orientation and role, by first checking if and how they make use of innovative technologies, and secondly, tuning, amending, enhancing or repositioning these applications to take better advantage of new technologies. As a result, existing and past investments are not wasted on the path to becoming a Technology Business. They are updated, pruned and rejuvenated for faster progress. For example, an on-going Customer Relationship Management project will be re-oriented towards a series of smartphone applications and bots with a radically different distribution of roles between customers and employees.

Who's it for?

Project teams, together with two kinds of challengers - one or two with knowledge of the application field, and one or two with knowledge of the new technologies.

Timing of initial positioning will play a part:

- For developments: soon enough to make changes with minimum effort
- For operational applications: after six or 12 months of run, depending on estimated rate of change of functionality and technology
- Repeat after 6 months for developments, 12 months for operational applications.

The format

Depending on complexity, repositioning takes between two hours and two days. The repositioning steps are as follows:

- Walk-through the application in development or as is.
- Comparison of the application with state-of-the-art thinking.
- List potential adjustments with a rough estimate of corresponding efforts; list potential simplifications or eliminations with rough estimate of corresponding savings.
- Go through the TechnoVision-based checklist and create three categories:
 - Used already
 - Not used and relevant
 - Not used and irrelevant.
- Combine functional changes and “not used and relevant” technologies to create a list of potential repositioning actions.
- Decide on actions based on impact and effort required.
- Plan actions in relation with the original schedule.



The Digital Picture

The Digital Picture is a Capgemini methodology used to produce an accurate image of an enterprise's Technology Business position. It is produced by combining the points of view – expectations compared with reality and experience – of various stakeholders, from top management to customers of the enterprise. The Digital Picture can be usefully completed and detailed with a TechnoVision-based image of the enterprise's position in Technology Business.

Who's it for?

All people with a thorough knowledge of the technical position of the IT department and of other holders of information technology in the enterprise, as well as one or two connoisseurs of TechnoVision.

Preparation

None, except having available the pictures or forms needed to capture status.

The format

The work takes the form of a dialogue between the TechnoVision connoisseurs and the people with the technical knowledge, including:

- The connoisseurs of TechnoVision give a description of a container content, starting with the Balance by Design principles and continuing ~~from left to right~~ ~~along~~ the framework with the content clusters.
- After the description of each cluster, people knowing the technical position of the enterprise describe it for this cluster's principles or technologies.
- Collectively, the positioning is completed with the color-coded attributes:
 - green: adequate knowledge and capabilities, solid actual and planned uses
 - orange: significant gaps between technology's potential and actual mastery and use
 - red: technology's potential ignored and therefore not used or envisaged.

This work can, of course, also be done at a lower granularity level, by design principles and trend individually.



Storytelling

Use TechnoVision to tell a Technology Business story. Of course, TechnoVision is just one of the ingredients of your story, but it adds structure and content. For example, to discuss the accelerations the digital world requires and enables, you can start with the container You Experience. To understand the speed expectations of digital people, move to We Collaborate. If you want to explain the speed components of social networks, Process on the Fly will help show how external speed gets translated internally, or make use of real time data availability with the help of Thriving on Data. You can also find inspiration in the Balance by Design principle, What's our Story, which prescribes that each application should tell an attractive story.

Who's it for?

Anybody with the will to tell a technology story. A working knowledge of TechnoVision is needed and can be acquired by practicing the development of stories.

Preparation

A thorough scripting is needed to give with the story structure and avoiding getting bogged down into anecdotal details.

The Format

Monologue is feasible, but all forms of dialogue and conversation help with the actual understanding through participation.

Using the TechnoVision boxes is a proven way to make the content more alluring and tangible.



Applying TechnoVision Virtually

As we've mentioned before, in general, we prefer to apply TechnoVision in a lively workshop setting. However, as times have changed over the last year, so has our approach to Applying TechnoVision in a virtual context. So, while there is no real substitute for human contact, the nature of TechnoVision means it can be applied in any physical, digital or even 'phygital' setting.

TechnoVision is typically applied according to the following steps: the team is introduced to the different containers and trends mentioned in the report; business challenges are described; selected components are studied and discussed, either individually or in groups; storylines are crafted; finally, the findings are reported out. These steps can all be achieved using virtual tools.

Web conferencing software – including Webex, Zoom or Microsoft Teams – can be used for most of the presenting duties, such as introducing the business challenge, educating the attendees on key TechnoVision components, and the final reporting out.

Online group discussions can also be organized with collaborative brainstorming and ideation tools, such as Stormz, Klaxoon and Mural. Some can be preconfigured with TechnoVision components (for example as Kanban-style "cards") to get a team kick-started.

All TechnoVision components are publicly available online, and we invite everybody to set up their own virtual TechnoVision co-creation environment. Alternatively, we have found that a set of Microsoft PowerPoint (or similar application) templates and pre-filled slides can do the job well. The advantage of using these tools is that most people are very familiar with them. Moreover, many cloud-based environments allow teams to work together on the same document or slide concurrently, which makes collaboration straightforward.

Equally, one of the team members can be in presentation mode on the web conferencing tool and build up the slides (for example a 'technology story', consisting of several selected TechnoVision components) while discussing with – and guided by – the other team members. We have found that – generally speaking – the more tailored the materials, the more successful the virtual session is likely to be.

Of course, some methods of applying TechnoVision – such as creating a 'digital picture' or shaping parts of a to-be architecture – are more offline by nature, and may take days, weeks or even months. Even then, there may be a cadence of offline activities – such as desk research and requirements

gathering – and online report-out and feedback sessions. As a matter of fact, we are already finding that the virtual ways of working, with less constraints on unity of location or time, also enable innovation 'workshop sessions' to take longer than the typical few hours; for example spread out throughout a week with short online sessions, combined with offline work and collaboration.

And for those who really can't imagine applying TechnoVision without manipulating and stacking these fabulous, colorful boxes, some of our Applied Innovation Exchange labs have been known to play around with 3D boxes on TechnoVision 'islands', all in virtual reality.



#TweetMyArchitecture

It's a tall order for IT and Enterprise architects to balance the paramount, crazy complexity of changing technology and systems with the need to create a calm oasis of simplicity on top of it. And even if they manage to do so, they need to explain their architectures in a way that creates trust and just enough insight – plus lots of enthusiasm – for all involved to embrace and adopt it.

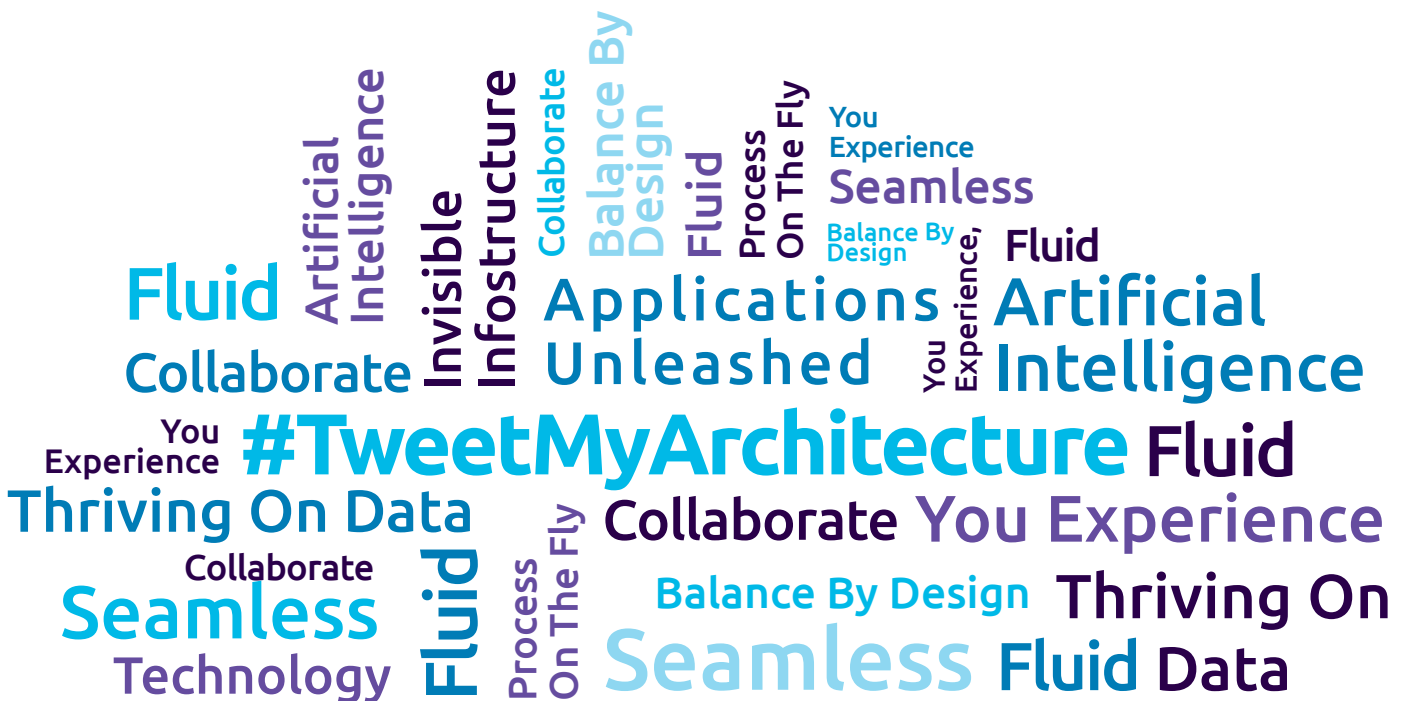
Following up with architectural perspectives on an inspiring TechnoVision workshop (or even during a workshop) is a matter of keeping the same playful, explorative state of mind. For years, we have known that huge, multi-layered schematic diagrams are not fit for this purpose – other than as a secret language among architects themselves. Maybe we could try to resort more to what currently turns out to be the most powerful communication tool available: the 140-character tweet.

If you can't tweet it, it won't cut it.

We have been experimenting for some time now with a training workshop format, to which we call 'Tweet My Architecture': bringing back the essence of an Enterprise or IT architecture to tweet level and then taking no more than 30 seconds on a soapbox – possibly during or at the end of a TechnoVision workshop - to explain the rationale behind it and win the audience over.

If nothing else, it is a humbling and refreshing learning experience to be at the tweet level. But it can be so much more than that, as we are delicately balancing simplicity, complexity and trust.

So, hashtag tweetmyarchitecture it is. We'd love to see a little wave of shared tweet architectures out there. When it comes down to it, what would your #tweetmyarchitecture statement look like?



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