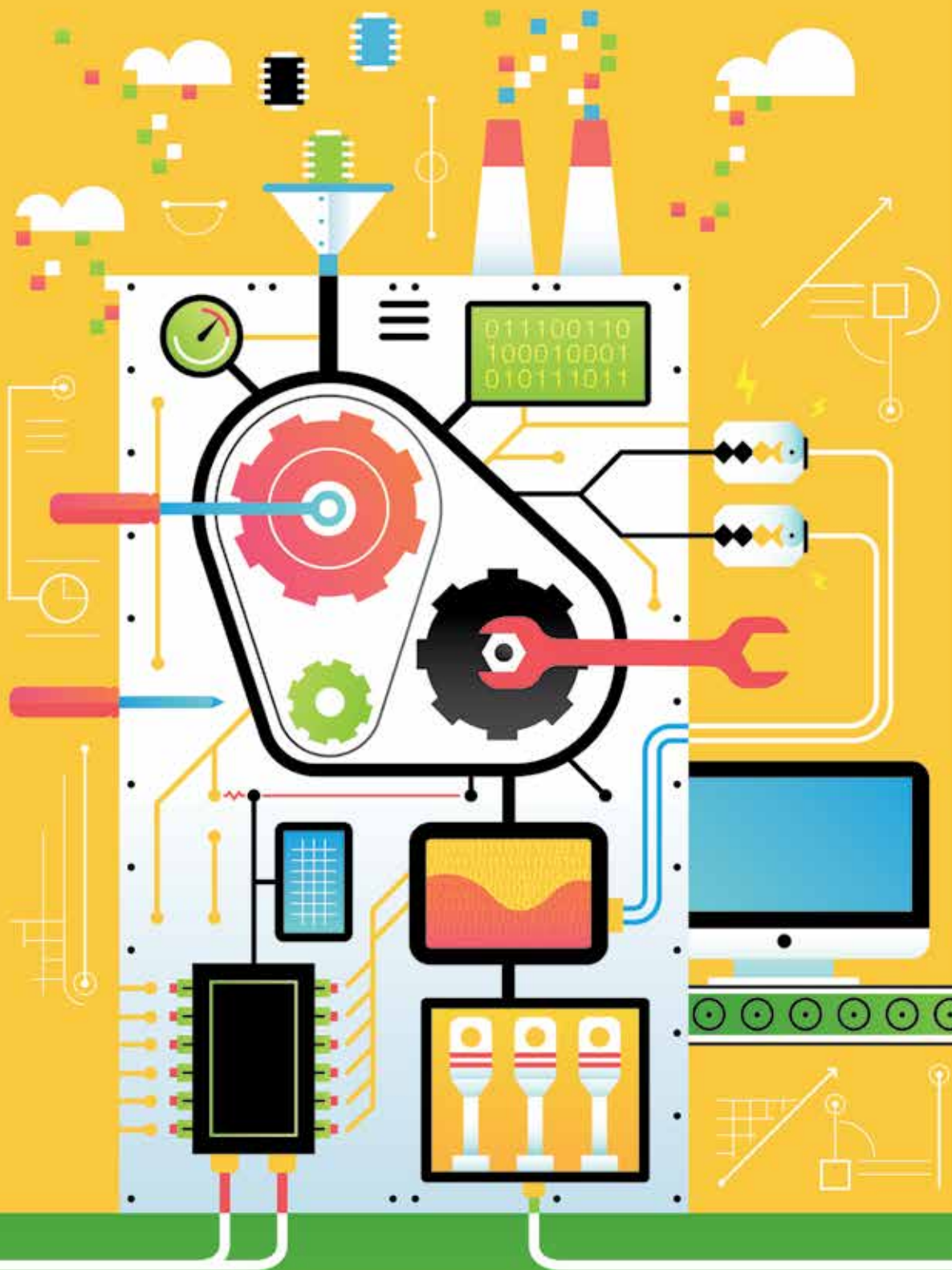# Core renaissance

Revitalising the heart of IT

Core renaissance

Revitalising the heart of IT

Organisations have significant investments in their core systems, both built and bought. Beyond running the heart of the business, these assets can form the foundation for growth and new service development – building upon standardised data and automated business processes. To this end, many organisations are modernising systems to pay down technical debt, replatforming solutions to remove barriers to scale and performance, and extending their legacy infrastructures to fuel innovative new services and offerings.

INVESTING in technologies that support the heart of the business has been IT's emphasis since its earliest days – policy administration, claims management, and billing in insurance; order management, resource planning and manufacturing for consumer and industrial products; inventory management, pricing and distribution for retail; and universal needs such as finance and human resources. Core systems drive process and data automation, standardisation and intelligence – and represent decades of investment in buying packages, building custom solutions and integrating an increasingly hybrid environment.

It's not surprising that on average, 80 per cent of time, energy, and budgets are consumed by the care and feeding of the existing IT stack.[1] Within the core, unwanted technical debt[2] and complexity likely exist, with systems at various stages of health, maturity and architectural sophistication. But the core can also be a strategic foundation that enables experimentation and growth.

Leading organisations are building a roadmap for a renaissance of their core – focussed not on painting their legacy as the "dark ages," but on revitalising the heart of their IT and business footprint.

Business first

Amid continuously evolving business pressures and technology trends, several questions arise: How will the core hold up? (Consider, first, the business angle.) How well do existing solutions meet today's needs? (Consider not just functional completeness, but increasingly relevant dimensions like usability, analytics insights and flexibility to respond to changing business dynamics.) Does the core IT stack help or hinder the achievement of day-to-day goals across users, departments, processes and workloads?

Of course, underlying technical concerns are also important. But their impact should be quantified in business terms. Translate the abstract spectre of technical debt into business risks.

Technical scalability can be measured in terms of limitations on growth – thresholds on the number of customers, orders or payments that can be transacted. Reliability concerns translate into lost revenue or penalties for missing service level agreements due to outages or service disruptions. A lack of integration or data management discipline can not only delay the backlog of projects aimed at improving existing services, but also result in opportunity costs by constraining efforts to build upon the core for new mobile, analytics, social or cloud initiatives.
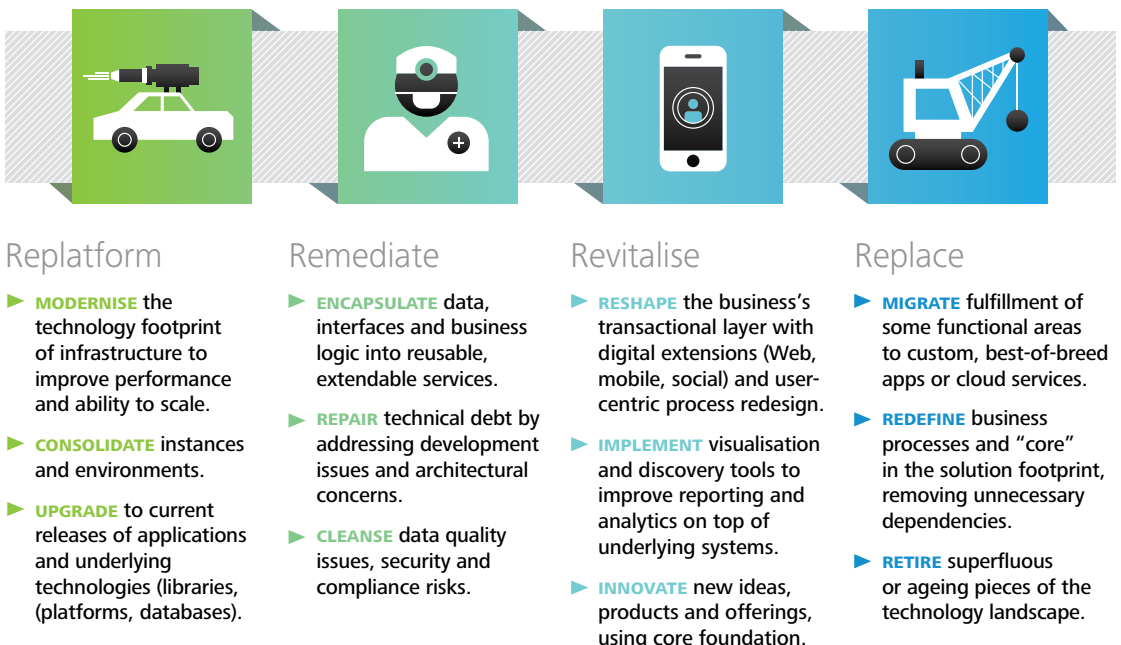
Most IT leaders understand the looming importance of addressing issues in the core. In a Forrester survey of software decision makers, 74 per cent listed updating/ modernising key legacy applications as critical or high priority.[3] But the challenge is shifting from acknowledging a potential issue to making an actionable recommendation with a supporting business case and roadmap.

More broadly, consider the organisation's evolving business strategy, be it organic growth, new product innovation, mergers and acquisitions or efficiency plays. What role does the core play in seeing that strategy unfold? Also consider how to revitalise and extend current investments by using existing assets as foundational elements in the future.

One size does not fit all

Core renaissance efforts are born from this combined view of business imperatives and technical realities – balancing business priorities and opportunities with implementation complexity. Approaches will vary from wholesale transformational efforts to incremental improvements tacked on to traditional budgets and projects. But regardless of how systematic or tactical they are, core renaissance responses typically include a combination of the following five approaches:

Approaches to core renaissance

Replatform

▶ **MODERNISE** the technology footprint of infrastructure to improve performance and ability to scale.

▶ **CONSOLIDATE** instances and environments.

▶ **UPGRADE** to current releases of applications and underlying technologies (libraries, (platforms, databases).

Remediate

▶ **ENCAPSULATE** data, interfaces and business logic into reusable, extendable services.

▶ **REPAIR** technical debt by addressing development issues and architectural concerns.

▶ **CLEANSE** data quality issues, security and compliance risks.

Revitalise

▶ **RESHAPE** the business's transactional layer with digital extensions (Web, mobile, social) and user-centric process redesign.

▶ **IMPLEMENT** visualisation and discovery tools to improve reporting and analytics on top of underlying systems.

▶ **INNOVATE** new ideas, products and offerings, using core foundation.

Replace

▶ **MIGRATE** fulfillment of some functional areas to custom, best-of-breed apps or cloud services.

▶ **REDEFINE** business processes and "core" in the solution footprint, removing unnecessary dependencies.

▶ **RETIRE** superfluous or ageing pieces of the technology landscape.

- **Replatform:** Replatforming efforts typically centre on upgrading the core application or implementing new solutions on the underlying platform upon which the application runs. For ERP, replatforming could involve technical upgrades, migration to latest software releases or instance consolidation. For any software solution, it might also include moving to modern operating environments (server, storage or network), adoption of in-memory databases or shifting to cloud infrastructure or platform services. While it may appear less invasive than other approaches, replatforming is rarely a simple "lift and shift" exercise. It typically requires a workload-by-workload analysis and surgical intervention to prepare for and achieve the shift.

- **Remediate:** Similar to replatforming, remediation shifts attention to the internal workings of systems. For custom solutions, this could involve rewriting chunks of code to reverse technical debt. For ERP, it might include unwinding customisations for capabilities now handled by out-of-the-box software or updating modules to better manage master data by pointing to a common system of record instead of having everyone maintain a separate version of customer, product or supplier data. For all software, it might involve rewriting or wrapping interfaces to promote reuse, making the necessary logical and architectural changes to allow core data and transactions to be exposed via mobile, social or cloud apps.

- **Revitalise:** In some cases, the internal business logic and transactional capabilities are rock solid, but the usability of the systems causes pain points – for instance, because of poor user experience design, long response times or a lack of mobile versions to support business when and where it actually occurs. Both analytical and transactional solutions can benefit from revitalisation. Approaches start with a user-centric, persona-based focus – understanding customer, employee and partner needs by observing them in the field. Existing processes, reports or screens shouldn't constrain new solutions. Instead, they should be built around how individuals actually should and could do their job, empowered by technology. Well-designed front-end solutions allow existing back-end services to be hooked into them without much effort; in many cases, however, some degree of remediation will be required to support revitalisation goals.

- **Replace:** Sometimes, the right answer is to recast the solution landscape by replacing parts of the portfolio with new solutions. In industries like insurance and public sector, large-scale custom solutions were often necessary decades ago because of a lack of commercially viable packaged solutions. New entrants and offerings have closed many of these gaps, giving institutions a chance to revisit "build" versus "buy" decisions. Similarly, cloud offerings can be attractive to companies looking for improved agility and the potential to reallocate capital expenditure to operating costs. Importantly, IT needs to be a part of these discussions; otherwise, lines of business may make their own isolated investments.

- **Retrench:** Retrenchment, simply put, means doing nothing. This is likely a part of any core renaissance journey, especially for non-differentiating parts of the business and IT footprint. Being passive can be strategic, especially if not taking action is a deliberate decision made after careful analysis. This is not the same as ignoring an issue; it is weighing the risks, communicating the recommendation (and potential repercussions) to key stakeholders and then deciding to focus on other priorities.

Beyond technology

For any of the techniques described above, the technology implications are only part of the renaissance of the core. Business processes need to evolve in line with modernised solution stacks, potentially requiring new talent with new skills as well as the development of existing staff. Likewise, IT organisation structures and delivery models may need to change to put in place mechanisms to support new technologies and maintain commitments to modernised solutions. Every new system or bit of code can either be on-strategy or create the next generation of technical debt. IT should invoke a mantra of institutionally "doing no harm" while also raising its game to help drive innovation and growth. Adoption of DevOps,[4] agile and industrialised approaches to fostering innovation can help. But just as essential is the alignment to broader business objectives – for even nuts-and-bolts technology investments to have some grounding in business priorities and outcomes. CIOs operating as chief integration officers[5] should have that grounding. They can use core renaissance as a platform to manage the IT portfolio with eyes wide open, revitalising and extending their existing assets to not just better meet the needs of today, but lay the groundwork for tomorrow's breakthrough ideas.

My take

**Terry Milholland, chief technology officer,
United States Internal Revenue Service**

2014 saw one of the smoothest filing seasons ever for the IRS. It's an encouraging sign that our efforts to turn the agency's IT department into a world-class organisation are paying off. Beyond supporting the IRS's customer-centric transformation, we wanted to evolve IT to deal with the complexity of our operations. Budgeting processes are complicated and unpredictable. Tax implications of legislation like the Affordable Care Act need to be codified for the hard deadlines of the tax season. Decades-old technologies require modernisation. But our team has risen to the challenge, and we're seeing tremendous results.

We've created a vision for IT to be on a par with *Fortune* 100 organisations, and that affects our people process and technology. At the centre of the technical vision are data and services – allowing our core systems to interact with each other and keeping teams from repeating their efforts. We now have a logical and physical data model for the full submission process – more than 30,000 attributes manifested across our core. Coupled with a service-oriented architecture, we're creating a repeatable approach to building on top of our core – to be able to add new technology in a transformational way, responsive to mission needs.

Which is where process comes in. We're committed to an agile methodology – using our new standards to modernise and grow. We have selected a set of technology standards that the organisation follows to increase productivity and quality; we're already at level 3 for CMMI and ITIL.[6] The impact on quality has been very real, and has helped break down barriers between the different teams and pieces of the technical stack.

But it comes down to our people. I don't lead with a "thou shalt" attitude. Instead, we enlist leaders in the organisation – the men and women who have influence in the work environment and can pave the path for others. We solicit their feedback on our direction, working with them to iron out the details, and being open about issues, ideas, and concerns. These "guild masters" can help convince their teams to believe in the vision, to do things differently and to positively impact the culture. Openness has become part of our organisation. On projects, anyone can raise an objective. We record it, then we disposition it. Their opinions are listened to and the "Oh, they never ask" attitude doesn't exist.

Whether private or public sector, IT departments face constraints when it comes to taking on projects – let alone modernising legacy systems and tackling their technical debt. If I look back on the past fiscal year, we started with a 16-day government shutdown that meant we had 90 per cent of our workforce out and created uncertainty about our annual budget. But we continue to push forward with our strategy to transform our legacy systems. We've only just begun our journey toward modernisation. We are going to keep adding new technologies in a transformational way – despite, and in some cases because of, people and fiscal constraints. Our focus on technology, process, and more importantly, people, will get us there.
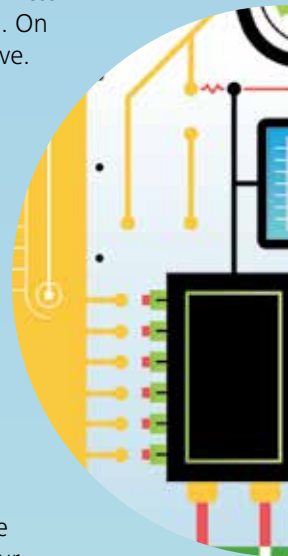
Cyber implications

SOME organisations treat ownership and control as a proxy for managing risk. Because the "core" is often software built on-premises or bought, this approach suffers from a twofold misconception. The first is that the existing stack is reasonably secure. The second is that moving to new technologies, be they mobile, social or cloud, inherently raises the risk profile. Neither is universally true, and both raise the need for strategic handling of cyber security concerns.

The notion that today's IT footprints are secure enough is a dangerous one. Legacy projects may not have considered compliance, contractual or risk-based requirements adequately, if at all. A lack of strategic focus and budget has relegated many security initiatives to compliance and control activities – adding scope or causing rework to address vulnerabilities discovered late in the development cycle. Reactionary measures are taken when high-profile breaches occur, typically targeting known threats linked to particular incidents. A more comprehensive approach to cyber security is needed, acknowledging that it could be exorbitantly costly to protect against every potential attack.

Organisations should identify the cyber "beacon" that is likely to attract threats. Resources should then be directed against assets that potential attackers may likely find most valuable, or those that, if compromised, could cause greatest damage. Beyond securing against attack, organisations should monitor emerging threats and potentially reallocate resources as their cyber beacons change – practicing vigilance, not just security. They should prepare for how to detect, contain and respond to potential incidents. There may be no such thing as a hacker-proof organisation, but you can still be resilient in the face of an attack. Hope and luck are not strategies; even if the core has not been compromised, that does not mean it is secure. Building out cyber security capabilities can help close the gap.

The misconception that emerging technologies are inherently riskier than legacy assets is common, as is the myth that on-premises solutions are always more secure than cloud alternatives. Privacy concerns typically dominate discussions around social – requiring policy, training and monitoring to guide appropriate behaviours. Mobile concerns fall between security and privacy, especially as enterprises are embracing "bring your own device" and "bring your own app" strategies. The approach described above can help, with a mindset anchored in probable and acceptable risk. Prepare for strategies to secure information at the device, application and, potentially, data level while being sensitive to the overall user experience. Security tops concerns about public cloud adoption, with the rationale that large infrastructure-as-a-service, platform-as-a-service and software-as-a-service providers are obvious and lucrative targets for cyber criminals. But with the escalated potential bounty, public cloud vendors also typically have highly sophisticated security tools, procedures and personnel that can be more effective than many company and agency in-house cyber defences. Who is better prepared to win the cyber arms race? Cloud providers whose livelihood likely depends on their ability to prevent and respond to incidents? Or organisations that have historically had trouble justifying security and privacy budgets as a priority? Either way, the obligations of the organisation as the acquirer and custodian of data do not go away. Leverage providers to help outsource risk if cyber isn't a core strength, but recognise that your organisation still retains responsibility for its security.

Again, there is no universal answer. Security and privacy should not be a blanket objection that curtails core renaissance, but they should be baked into the overall approach – setting the right foundation for a revitalised core and guiding new investments in areas that will form the core of tomorrow's business.

Where do you start?

SPARKING a renaissance of your core can be a daunting pursuit for value– potentially expansive in scope and ripe with risk – that will likely require effort to put in terms the business will understand. Fearless leaders might savor the opportunity for legacy-building. But for the rest, is the payoff worth the strife?

The fact is, CIOs don't have a choice. As the stewards of the technical footprint, they are responsible for the core's care and feeding. Whether expressly labelled as "modernisation" efforts or responses to unplanned incidents and outages, or embodied in extra project cost and complexity due to unforeseen technical debt, the core will continue to demand attention. The question becomes how proactively it will be addressed – and whether it will be enough. Here are some specific areas in which to potentially undertake initiatives:

- **So you're saying there's a plan.** Core and legacy concerns are found wherever IT investments exist. They inspire a sense of universality and inevitability – the enterprise equivalent of "death and taxes." But they are not irreversible – and they don't have to be seen as an albatross. Aikido is a form of martial arts that uses the mass of the attacker to one's advantage. Core renaissance can trade off of the magnitude of existing investments in similar ways, but it will not come across surreptitiously. It requires an informed, thoughtful position that balances business needs with the limitations of existing systems and the potential of emerging technology.

- **Spark a light.** Massive investments can be tough to stomach, especially if the "so what" seems limited to behind-the-scenes machinations. Find a lingering opportunity or burning platform – ideally,

one that resonates with a part of your business that is likely to become an advocate for broader goals. A bottom-up approach to new organisational structures, processes and skill sets is an effective plan of attack – assuming enough of a direction has been established so that experiments are pointing toward where you want to go.

- **Plant the seed.** In Deloitte Transition Labs with newly appointed CIOs, leaders report that 63 per cent of their time is focussed on the care and feeding of the technology footprint. The complexity embedded in the core perpetuates the cycle. These same leaders desire the inverse, believing they could better serve their companies by focusing 66 per cent of their time on being a strategist or catalyst for growth and innovation.[7] Deliberate investments in revitalising the core can help close this gap. It may take time, but will likely lead to lasting effects.

- **Don't go it alone.** Large enterprises have developed a healthy skepticism around emerging technologies. Vendor fatigue and aversion to "shiny object syndrome" are partially to blame. The age-old practice of circumventing IT to sell directly into the business is also still being felt, leading to "shadow" IT organisations and even more complexity in the core. But resistance to change is in many ways futile. Hunkering down will likely just reinforce the shadowy end run directly into the business. The cruel irony: New solutions will likely eventually find themselves back at IT's doorstep, either for enterprise-level support or because business processes require integration with the core. Instead, pick a few strategic vendors to partner with to enable core renaissance. This may involve co-investment (for example, sharing risk or product roadmaps),

proactively prototyping new ideas, providing briefings on industry (and cross-industry) leading practices or brokering introductions to interesting new solutions for specific business scenarios.

- **Verbs, not just nouns.** Technical components are rightly critical parts of core revitalisation, but pursuing core renaissance is also an opportunity to transform how you build and support solutions. Aim to embed design as a discipline[8] into everything you do,

working back from the user experience, not up from the systems and data. Look to embrace pieces of DevOps: automated environment provisioning, requirements management, continuous build/configuration management, testing automation, one-touch deployment and systems maintenance and monitoring solutions. Finally, create a living approach to architecture – guiding not just the solutions and platforms that are blessed, but their usability, integration, data and security considerations.
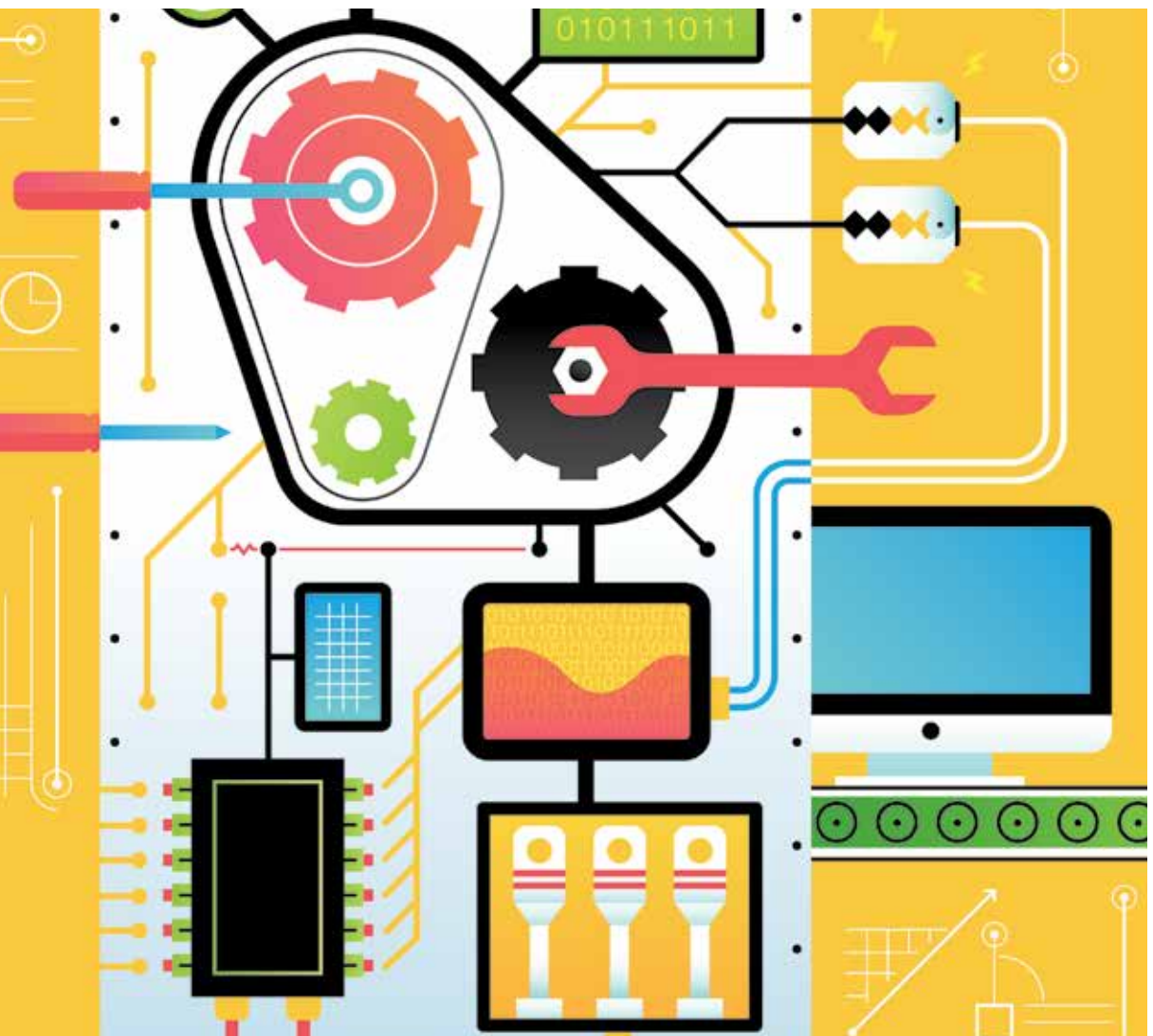
Bottom line

DISRUPTIVE forces are reshaping industries: globalisation, emerging technologies, new customer engagement requirements, diminishing competitive barriers to entry, evolving regulatory and compliance requirements and persistent threats around security and privacy. All of these are inextricably linked to technology, moving the core to centre stage. Some modernisation will no doubt be needed to keep the lights on as the business scales up. But beyond table stakes, a revitalised core could become a strategic differentiator. A renaissance of the core amid an elevation of IT to support the heart of the business can lay the foundation for the organisation to experiment, innovate and grow.

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Endnotes

1. Bob Evans, "Dear CIO: Is the time bomb in your IT budget about to explode?," *Forbes*, January 22, 2013, http://www.forbes.com/sites/oracle/2013/01/22/dear-cio-is-the-time-bomb-in-your-it-budget-about-to-explode/, accessed January 14, 2015.

2. Deloitte Consulting LLP, *Tech Trends 2014: Inspiring disruption*, chapter 6, February 6, 2014, http://dupress.com/periodical/trends/tech-trends-2014/, accessed January 14, 2015.

3. Paul D. Hamerman, Randy Heffner, and John R. Rymer, *Don't just maintain business applications, raise business responsiveness*, Forrester Research, Inc., October 17, 2014.

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6. Capability Maturity Model Integration (CMMI); Information Technology Infrastructure Library (ITIL).

7. Deloitte Consulting LLP proprietary research based on interviews with 150+ IT executives, November 2014.

8. Deloitte Consulting LLP, *Tech Trends 2013: Elements of postdigital*, 2013, chapter 4.

Notes