

A Bathwick Group  
white paper



# The road to Smarter Computing



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## Smarter Computing – the new imperative

*There are two sets of drivers behind the idea of Smarter Computing; the first is the fact that the rate of change in the competitive landscape is accelerating beyond the point where the traditional approach of “make do and mend” is enough to ensure an organisation’s survival, let alone its profitability. Over the years our IT systems have become complex and difficult to manage, and as a consequence IT is increasingly finding itself in the position of being a barrier to innovation rather than an enabler of it.*

*The second set of drivers relate to the technologies that are available to help in addressing the challenge of delivering flexible, dynamic business processes at low cost.*

*Organisations have to take a new approach to the way they manage and deliver IT – responsive, effective and efficient IT is no longer simply nice to have - it has become a question of survival.*

*Smarter Computing defines a new manifesto for IT, with a focus on the delivery of the best business outcomes in the most efficient and effective way. For the majority of organisations Smarter Computing defines a set of goals that represent the fulfilment of what will be a journey. This paper describes the steps that organisations need to take on the road to Smarter Computing.*

### Key messages: getting on the road

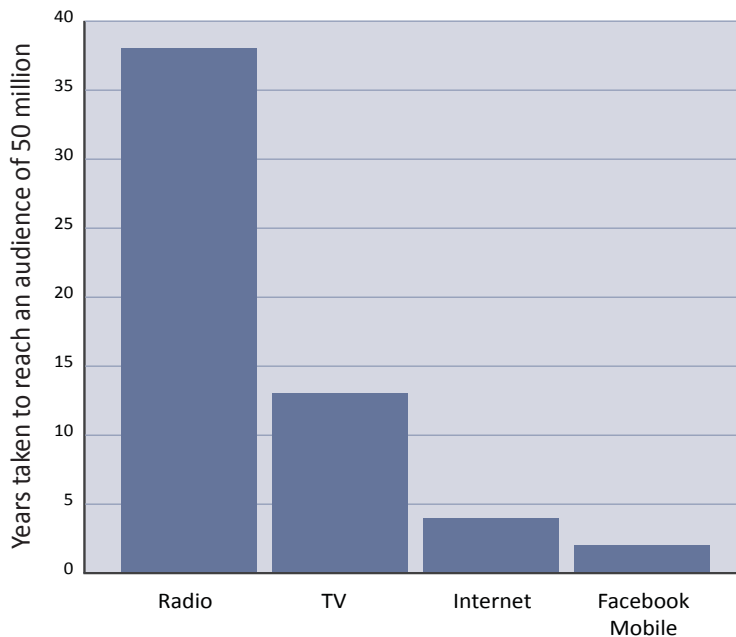
- **Begin with a fitness check**  
If you want to deliver smarter computing for your organisation you have to start with a candid self-assessment and use this as a basis to determine your path towards Smarter Computing.
- **Remember your goal is to help support innovation not hamper it**  
Many organisations are beginning to see IT as a barrier, not an enabler, to innovation. Support for business innovation has to be built into everything we do.
- **Deliver incremental improvements in the way IT is delivered**  
Don’t try to improve everything at once. Select a small number of key projects instead.
- **Take a holistic approach**  
Look at infrastructure, data and processes together.
- **The boring stuff is just as important as the exciting new stuff**  
In order to keep your IT “fit for smart” you need to continuously look at its core fitness. Auditing and managing your infrastructure, software and processes isn’t exciting but it’s crucial to ensuring that the gains you make are lasting.
- **Keep the ultimate destination in mind, but focus on the things you need to do NOW**  
While it’s vital that you develop a clear idea of what Smarter Computing looks like to your organisation, it’s even more important that you focus on delivering positive results sooner rather than later.
- **When picking a partner, choose one that can help across the board**  
Don’t pick a partner that can only help you make one part of your computing environment smarter; pick one that can help you address your infrastructure, data and processes together.

## Why Smarter Computing and why now?

Given that, one way or another, vendors, analysts and commentators have been calling on companies to “do something” with their IT every year since the industry began, why should end-user organisations pay attention to Smarter Computing?

### *The rate of business change really is accelerating*

Ever since the concept of business emerged as early civilisations began to develop and organize, competition has been a spur for innovation. The principle of the competitive landscape is hardly a new one but the rate of change within that landscape is changing dramatically. Agriculture as an activity began in 7000BC, by 6000BC it was widespread but still limited by its need to be close to major rivers (like the Nile in Egypt). It took another thousand years for the Sumerians to develop organized irrigation and it wasn't until 3500BC that the ard (plough) began to see widespread use. This pace of change is glacial by comparison to that of today. If



we move forward to the beginning of the 20th century and look at the rate of adoption of a selection of key technologies it is clear that the rate at which change occurs has been subject to a dramatic acceleration.

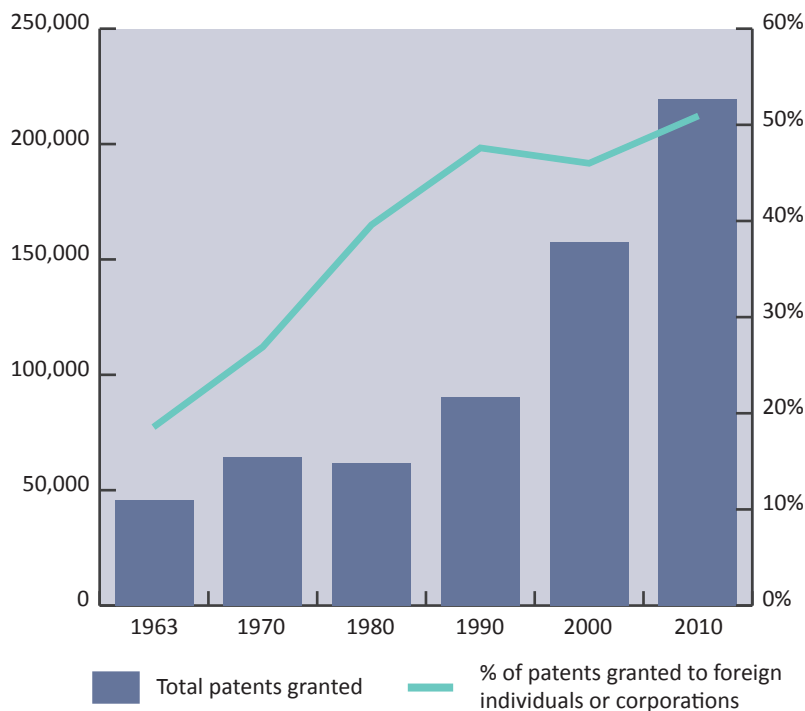
It took nearly 40 years for radio to reach an audience of 50 million listeners in the first part of the 20th century. In the first part of the 21st century it took just 18 months for the Facebook mobile application to be installed on 50 million devices.

This rate of change is transforming every element of society, even in the domain of politics. Social media like

email, Facebook and Twitter is transforming politics by offering a much more direct link between a party, or an issue, and the people that are interested in it. During the 2008 presidential election in the USA, the Democratic party's campaign made use of all of the traditional tools (phone banks, door-to-door canvassing, television advertising, placards, rallies and bumper stickers) but it also made extensive use of new communications channels – notably social networking technologies like Twitter. This willingness to embrace every available communication channel clearly paid off. In February 2008 the Republican campaign raised \$11 million, while the Democratic campaign raised \$55 million.

### *The competitive landscape is now global in scale*

Not only is the pace of innovation accelerating it is also much more global in nature. In 1963 a little over 18% of patents granted in the United States of America were granted to foreign individuals or corporations. By 2010 that figure had risen to just over 50%.



Innovation in the domains of business and technology is no longer the exclusive domain of the developed West, and the long term trends indicate that the virtual monopoly on innovation held by the West is going to be severely challenged.

It is also important to remember that innovation and competition isn't just coming from the top-tier emerging economies. In Africa the pace of innovation in mobile commerce is outstripping the developed West with services like m-pesa (The "m" stands for mobile and "pesa" is the Swahili word for money) transforming the

way money is transferred and exchanged. M-pesa is a mobile phone-based money transfer service developed by Sagentia (with sponsorship from the UK Government's Department for International Development). The service is marketed by Vodafone and is run by IBM Global Services.

### *How fit is your IT to face this challenge?*

While all of this innovation and change is taking place within the competitive environment, many organisations are finding that their existing computing infrastructure is making it harder, not easier to remain competitive. Several of our retail industry clients have told us that while they can arrange for a new outlet to have the necessary shop-fitting done in less than 48 hours, and can get stock to that outlet in less than a day, getting the necessary IT infrastructure in place can take several days or even weeks. We hear similar stories across every industry segment, and geographic area.

## Three key dimensions to Smarter Computing

When we talk about Smarter Computing, we talk about it in terms of three key dimensions:

- **Process**  
The core business processes that differentiate you as a business
- **Data**  
The information upon which you base your business decisions
- **Infrastructure**  
The computing resources that underpin your data and processes

### *How well do you understand your key business processes?*

Very few businesses can (truthfully) claim to understand all of their key business processes from end to end.

In the retail banking sector, it is still the norm for the process of opening a new account (perhaps one of the most important business processes within a retail bank) to require the customer to complete multiple forms, and the bank staff to enter data into several different applications.

#### **An example of business process confusion:**

*The IT dept had to follow a business process that involved printing out the entire corporate database (consuming a considerable proportion of the overnight batch window) and then take the resulting print-outs to a specific room at the company's HQ.*

*Unknown to IT, the facilities management team were working to a second process that instructed them to go to the same room every morning and shred the print-outs that had been left there.*

#### **The smartest banks have already streamlined the customer onboarding process, creating greater customer satisfaction and better customer insight.**

It is ironic that the most differentiating processes are often the messiest. These processes are the most likely to change over time, and as new elements are incorporated they gradually become more and more unwieldy. The result is often that the most important processes within an organisation are often the least understood.

Getting to grips with these processes isn't always easy; the most differentiating processes tend to span multiple organisational silos and it is increasingly likely that they will involve third-party organisations as well.

#### **Smart organisations will constantly monitor key business processes, looking for opportunities to simplify and improve them.**

### Getting to grips with your business processes

Not all business processes are equal. Some business processes can be classified as utility processes. These are things you have to do in order to function but which don't directly affect the way your organisation differentiates itself against the competition. Others are operational processes, which have an important bearing on your ability to deliver the goods or services that you offer. The third category of processes we classify as delivery processes, these are the processes that the customer sees and interacts with.

You should treat these process categories differently, focussing on cost and efficiency where it comes to utility processes on one hand, and emphasising innovation and adaptability where it comes to your delivery processes. Where it comes to your operational processes, you need to constantly strike a balance between standardisation/cost reduction on one hand (i.e. pushing them towards the utility class) and innovation/flexibility on the other.

Utility processes are prime candidates for outsourcing, whereas organisations that outsource their delivery processes run the risk of placing their value proposition (and customer relationships) into the hands of a third-party.

Given that your organisation's delivery processes deliver the greatest differentiation, you need to ensure that they are the most adaptable, and this is going to have an impact on the data that they use and the infrastructure on which they run. You need to make sure that you understand the impact on infrastructure and data when these processes change, and be ready to target these processes for modernisation in order to ensure that they continue to be adaptable in the face of business change.

#### KEY CHALLENGES FOR ORGANISATIONS THAT WANT SMARTER PROCESSES:

- Aim to become confident that your organisation understands its three key business processes from end to end
- Become confident that your organisation is managing these key business processes appropriately and that it is able to change them quickly in the face of new business demands
- Get to the point where senior management is spending the right proportion of its time looking at the different types of process that your organisation relies upon.

#### *Does your organisation know what it knows?*

It is generally accepted that information is the life-blood of business, after all how can you possibly run a business effectively if you don't know how much you owe your suppliers, who your customers are, or how much stock you are carrying?

It should also come as no surprise that in the past 6 months we've had a retail client admit that they cannot tell at any given time how much they owe their suppliers, a bank that does not know how many unique clients it has, and a manufacturing client that cannot reconcile its stock holdings centrally.

*There are known knowns. These are things we know that we know*

How can a retailer engage in dynamic pricing if it doesn't know its current liabilities? How can a bank properly report its exposure to risk if it cannot correlate all of the different accounts that are held by its customers? How can a manufacturing company effectively manage and operate its supply chain if it doesn't know its overall stockholdings?

*There are known unknowns. That is to say, there are things that we know we don't know*

*But there are also unknown unknowns. There are things we don't know we don't know*

**Donald Rumsfeld – Feb 2002**

If you look at the famous quotation from Donald Rumsfeld, you might notice that, logically, there's a fourth condition that isn't included "unknown knowns". For most organisations, the information is there, somewhere, it just hasn't been harnessed.

While much of the hoopla surrounding information management is currently centred on real-time analytics, most organisations have challenges that are much less exciting, but just as important. One of our clients recently said "Our MI team is constantly delighting us with new ways of visualising data that we know is inaccurate". All the dashboards in the world won't help retailers, banks and manufacturing companies make better decisions unless the basic groundwork has been done.

You should think in terms of an information supply chain that begins with the raw bits and bytes and then moves through a number of processes to culminate in actionable information. It is also important to recognise that a growing proportion of the data that organisations will need in order to compete effectively won't actually be owned by them. The smartest organisations are already gathering data from a whole range of sources, including social media platforms like Twitter and Facebook in order to measure and predict demand for their products, but the value of this data depends on your ability to combine it with your own. If you can't make sense of that data that you own and control, it is unlikely that you'll get the best out of all of the additional data that exists.

The smartest organisations have already implemented a "single view of the truth" whether that relates to stockholdings in manufacturing, patients in healthcare or customers in banking. The exceptionally smart organisations recognise that maintaining that single view of the truth is an on-going project. Every new application that the organisation deploys has the potential to fracture that single view, so the cost and effort associated with maintaining it is factored into every new deployment. Without this discipline, an organisation might achieve a single view of the truth in 2012, and see it fade away by 2014.

The new era of real-time analytics and big data represents an enormous opportunity for organisations to react to changes in the marketplace more quickly and with greater precision than ever before, but that opportunity will be lost to organisations that fail to invest in the basic information infrastructure upon which real-time analytics depends.

#### KEY CHALLENGES FOR ORGANISATIONS THAT WANT TO KNOW WHAT THEY KNOW:

- If you don't have a single view of the truth, this should be a top priority
- Identify the pieces of information that are most critical to your key business processes
- Make sure that the information that senior management is using to make key business decisions is accurate, trustworthy and timely
- Make sure that information is delivered to the people that need it, in the format that is most useful to them

## How smart is your infrastructure?

*8 out of ten CIOs admit to not knowing how many servers (physical or virtual) their organisations are currently running*

Infrastructure lies at the heart of everything we do in IT and it represents the foundation of Smarter Computing. The right infrastructure will help you deliver the rate of change that the business demands by reducing the time it takes to develop and deploy new applications, and once those applications are in production the right infrastructure makes it easy to manage those applications.

We're currently in the middle of a period of enormous change in terms of the way we define, design and deploy infrastructure. Virtualisation promises enormous benefits where it comes to the effective utilisation of the resources (servers, storage and networking) that we currently have. Cloud computing will become the dominant model for infrastructure over the next decade, but how many organisations are really in a position to take advantage of the levels of automation, scalability and flexibility that virtualisation and cloud computing offer? This transition will take time for most organisations. There are very few companies that can transition all of their servers to cloud-based infrastructure overnight; for the majority the road to smart infrastructure is going to take some time and will require significant change in the way infrastructure is sourced, managed and provisioned.

### The key to smarter infrastructure is to begin the journey

For many organisations the idea of a fully automated infrastructure nirvana will seem a long way off, but the key to getting there is to make a start. Some organisations will already be some way down the road, while others will have to do a considerable amount of work in order to get their infrastructure fit for Smarter Computing.

So what will it take to make your infrastructure fitter? As with any fitness program the process needs to begin with a candid assessment of the current state of fitness. You could begin by asking these questions:

- Do you know how many servers you have in production today?
- Do you know how many different software products are deployed around your organisation, and are you certain that they are appropriately licensed?
- Do you know the average utilisation of your servers?
- How long does it take to bring a new server into production?

You should ask a similar set of questions about your organisation's storage infrastructure as well.

Having established where you are today, you can now identify those elements of your organisation's infrastructure where modernisation would bring the greatest business benefit.

*Average Intel server utilisation  
- < 10%*

*Average storage utilisation compared with capacity  
- < 30%*

## X86 blades won't always be the answer

When looking at how to make your infrastructure more flexible, more reliable and less expensive, don't assume that scale-out architectures will always offer the best solution. Some workloads are ideally suited to the horizontal approach to scaling that blade technology implies, while others are much better suited to scale-up environments or "sealed" appliances. In the domains of large-scale OLTP applications, for example, high-end SMP-based hardware can offer significant advantages over Intel-based solutions, and in other domains, network attached appliances can offer major benefits when it comes to very specific tasks like XML processing.

The key is to look at the range of workloads your infrastructure needs to support, and to choose the most appropriate technologies to support those different types of processing. The future of infrastructure doesn't rest solely in the hand of X86 machines, even if the blade-oriented scale out approach to infrastructure is set to be the dominant architecture. There will always be some workloads that run better, faster, more reliably and more cheaply on scale-up hardware; the key to success lies in identifying the right workloads for the right platforms.

## The two most misused words in the domain of infrastructure are "architecture" and "governance"

While your choice of hardware, virtualisation platform and management technology are all important decisions, the way you assemble these components and the approach you take to infrastructure governance are just as important in determining your ability to enjoy the benefits that these technologies can bring.

Architecture isn't simply about creating blueprints. Architecture is a process that begins by asking you what you want to achieve, then looks at the current infrastructure in the light of that goal. Before moving to the blueprint phase, good IT architects (just like good bricks-and-mortar architects), also consider external constraints and stakeholders. The final phase is to look ahead, and provide a basis for the future evolution of the business and the infrastructure that it will need.

Governance is a second crucial factor in delivering smarter infrastructure. Organisations that fail to put in place appropriate processes to manage the server deployment process, charge-back, and procurement are likely to find that the benefits in terms of reduced cost and management complexity, higher reliability and greater flexibility will be difficult to achieve.

### KEY CHALLENGES FOR ORGANISATIONS THAT WANT TO DELIVER SMARTER INFRASTRUCTURE

- If you don't have an accurate register of the assets that make up your infrastructure, creating one should be a top priority
- Establish, and police, a governance framework to ensure that the policies you set down are adhered to
- Identify those parts of your infrastructure that need to be the most flexible in order to deliver business value, and focus (initially at least) on those
- Don't forget that the goal isn't "Cloud" (or any other buzz phrase), it's infrastructure that is reliable, flexible and low-cost.

## Starting the journey to Smarter Computing

If you ask someone who has climbed Everest how long it took, the chances are the reply will be something like “four and a half years”. The actual climb itself can take only a matter of days, and the fastest climbs have taken fewer than 24 hours, but the process of climbing Everest doesn’t begin at Base Camp 1, it begins when a person makes the conscious decision to get to the summit.

Once a person makes that decision, it’s likely that there will be a year (or several) of preparation to undertake before they even get to Nepal. Clearly if you’re already an experienced climber the transition from Mont Blanc to Everest may only require 6 months preparation, but if your biggest recent ascent has been up the ladder into your attic it’s likely to take a lot more effort and a lot more time.

The same is true when it comes to Smarter Computing. When you see some of the most advanced computing environments it’s easy to be a little put off. The leading Smarter Computing environments were already pretty smart. What about those of us who are a long way from being fit enough to scale the summit? The bad news that if we do nothing we’ll be left behind; the good news is that every step we take towards Smarter Computing brings its own benefits. Even the basic, mundane activity of conducting a complete asset audit will help you control costs and improve governance. The key is to start the journey.

### *Begin with a candid assessment of where you are today*

The journey to Smarter Computing has to begin with an honest and pragmatic self-assessment. How fit is your computing environment?

In the context of your business processes, you need to establish how well understood your key business processes are. When it comes to data, you need to identify the gaps in your organisation’s understanding of what it knows. In terms of infrastructure you need to determine the cope of your current infrastructure.

This assessment will provide you with a basis, from which the rest of your journey will proceed.

### *Develop a long-term vision but with short-term goals*

The chances are that, as a result of your initial assessment, it will be pretty clear that significant parts of your computing environment are far from being “smart”. So the next step is to define your objective (or a set of objectives).

Now you can begin the process of planning the program of work that you need to undertake to get from your current state of fitness, to the state of fitness that will be required in order to reach your summit.

Going back to the Everest analogy, what does it take to climb a mountain?

- Physical fitness
- Expertise
- Equipment
- Teamwork
- Discipline

The key is that you need all of these. The best equipment in the world won't be any use if you don't know how to use it properly. For competitive cyclists, a difference in weight of 200 grams can make a difference of several seconds over the course of a race, for an occasional cyclist it is unlikely to be noticeable.

Without a team, with a common set of goals and clearly defined responsibilities, climbing Everest would be close to impossible. Discipline is also essential, whether this relates to rules about the amount of equipment people can bring with them or the amount of training they have to do before joining the team.

Again, this analogy can be applied to Smarter Computing. The best server hardware in the world won't help unless you have the expertise to use it appropriately. There is no point in establishing policies unless you're prepared to police and enforce them. You can't hope to drive business benefits unless the business feels that it is part of the team.

For many organisations, the "Summit" is likely to seem a long way off. So how can organisations motivate themselves to begin the journey?

### *Getting fit for Smarter Computing*

Having done your fitness assessment, you should be able to determine what you need to do to get your organisation fit for Smarter Computing. When you look at this, you need to consider the following things.

- **Skills and expertise**

What skills and expertise do your people need in order to get fit for the journey?

- **Technology selection**

What are the best technologies to deploy in order to help you deliver Smarter Computing?

- **Get external help**

Very few successful athletes work without a coach, the most successful will have a number of people working with them on diet, core fitness, technique etc. The same is true for Smarter Computing.

### *Begin with a series of short, small projects*

Faced with an apparently arduous journey, it's easy to feel discouraged. The key lies in breaking it down into a series of phases, each of which brings its own benefits beyond simply getting you closer to your objective.

For example, simply auditing your assets (the essential first step) is a worthwhile exercise. As you identify redundant infrastructure (processes or data stores) you'll be reducing complexity and lowering cost. The point is that you don't have to wait till you reach the summit for your reward; you will be able to deliver meaningful business benefits with every step of the journey.

We'd recommend that you begin with small projects, typically with a timescale of well under a year (we suggest 6 months as a basis). Shorter projects bring a number of benefits.

- **The destination feels within reach**

Short projects have a sense of focus that long term plans often lack

- **Risks and resource requirements are easier to predict**

As project timescales grow, the likelihood of unforeseen issues and resource demands grows even faster

- **You can set, and maintain, a sense of momentum**

Momentum is important if you have a long term vision

- **You can readily adapt to changing business needs**

How many organisations can predict what their key business process, infrastructure and data requirements will be in five years?

### *A call to action*

If you recognise the need to deliver a Smarter Computing environment for your organisation, then the time to begin that journey is now, not least because your most dangerous competitors are likely to have already started their journey.

Here are four initiatives that we urge you to begin, right now.

#### Do your fitness assessment

Launch a six week project to conduct an initial assessment. Look at your overall approach to the delivery of computing to your organisation. How well aligned is your IT function with the business objectives of the organisation that it is there to serve?

The output of this project should help you prioritise the next three initiatives that you should be launching. The initiatives that follow should have a time scale of between three (the ideal) and six months to be realistic.

#### Launch a smarter process initiative

Identify three key business processes – the ones that are the most crucial for your organisation’s success, then make sure that they are properly understood across the organisation. Identify who should be involved in refining and improving these processes and then get on with the job of making them smarter. You can then look at how best to deliver these processes; are they embedded within a legacy application, or are they running within an environment that makes them easy to change? Your organisation’s most differentiating processes should determine your plans to modernise your infrastructure, and deliver smarter data.

#### Launch a smarter data initiative

Identify three key pieces of information that your organisation’s executives need to have available to them all of the time. Then make sure that you can deliver them to those executives via whichever channel (paper, dashboard, email, SMS text, etc) is most useful to them.

#### Launch a smarter infrastructure initiative

Do an assessment of your infrastructure, make sure you know how many different servers you have, how much software you use (and how it’s licensed). Then set yourself a challenge to reduce the number of physical servers in your infrastructure. For some organisations this may manifest itself as a challenge to switch off one server a month, for others it may result in a challenge to switch off twenty.

## About The Bathwick Group

The Bathwick Group is a research-based consulting company that helps clients address their most pressing needs in strategic planning, go-to-market planning and execution, and IT infrastructure effectiveness:

### CONSULTING

- **Bathwick Engage** A rapid collaborative consulting service combining external experts and IP protection mechanisms to expedite solutions to major corporate challenges
- **Enterprise IT strategy** Planning and contract support for enterprise IT leaders; productivity and infrastructure agility benchmarking and best practice
- **IT vendor strategy and marketing** Customer analysis and deep research for IT vendors targeting mid-market and enterprise markets
- **Sustainability strategy** Modelling and benchmarking for organisations wishing to embed sustainable practices and mitigate strategic risks

### RESEARCH AND BENCHMARKING

- **Research Platform** A flexible software platform for organisations to deploy their own surveys and benchmarks, both internal (e.g. employee surveys), or external (e.g. market intelligence)
- **Media Platform** A research platform for online media customers, providing an engagement environment to encourage reader registration and generate new revenues

### SALES ENABLEMENT

- **The Customer Insight Platform** A software platform that supports deployment of sales guidance, customer assessments, marketing collaterals, ROI tools, etc. direct to a seller's laptop for online and offline operation; for both direct and channel sales support.

The Bathwick Group also includes the *ThinkAgain Partnership LLP*, a global collaborative research network, which brings together academics, writers, business and political leaders to generate new insights into business productivity and performance, geo-political and environmental issues.