

Integrated Portfolio Management: Better Visibility, Easier Decisions, Lower Costs

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TABLE OF CONTENTS

EXECUTIVE SUMMARY 3

INTRODUCTION 4

 METHODOLOGY 5

EAM AND IT PORTFOLIO MANAGEMENT 6

BENEFITS OF ITPM SUPPORTED BY AUTOMATION 7

 DIRECT BENEFITS OF AUTOMATED ITPM 7

 INDIRECT BENEFITS OF AUTOMATED ITPM 11

ITPM AND THE EMBRACE OF AGILE DEVELOPMENT 19

CONCLUSION 21

ABOUT SOFTWARE AG 22

ABOUT AITE GROUP 23

 AUTHOR INFORMATION 23

 CONTACT 23

LIST OF FIGURES

FIGURE 1: ALFABET FEATURES AND FUNCTIONALITY 6

FIGURE 2: RANKING OF BENEFITS BY ACHIEVABILITY, EASE OF QUANTIFICATION, AND MAGNITUDE 7

FIGURE 3: BARRIERS TO HARDENED APP DEVELOPMENT 17

EXECUTIVE SUMMARY

Integrated Portfolio Management: Better Visibility, Easier Decisions, Lower Costs, commissioned by Software AG and produced by Aite Group, explores the benefits of supporting enterprise architecture management (EAM) and integrated portfolio management (ITPM) with automation built specifically to support these activities.

Key takeaways from the study include the following:

- Available to organizations that support ITPM with software designed specifically for this task are two synergistic bodies of benefits. Direct benefits, though often not among the primary objectives of the adoption, came in the form of cost reductions arising from better visibility into the enterprise and improved governance of it, and helpfully complemented, and indeed helped justify the investment in ITPM necessary to achieve indirect benefits such as better decision making, improved governance, and better collaboration.
- Among the direct benefits—those most readily achieved and easily quantified—available to users of ITPM software were the avoidance or elimination of costs arising from the elimination of redundant assets, avoided project rework, and improved purchasing power.
- Among the indirect benefits—those less readily achieved and easily quantified—were improved compliance, enhanced enterprise security, reduced operational risk, and better propagation of institutional knowledge.
- Important among the indirect benefits of embracing ITPM software was an improved ability to secure the enterprise. Although it's not a cybercrime-deterrent capability per se, ITPM enables organizations to identify all assets capable of introducing a cybercrime vulnerability and in a timely enough manner to bring deterrent resources to bear by enabling better monitoring of all assets and processes in the enterprise.
- A better enablement and embrace of agile software development (ASD) was also an identified benefit of supporting ITPM with purpose-built software. Automated ITPM, by enabling more rapid discovery of a project's many interdependencies, means agile teams can—in accordance with their cultural ethos—operate with an emphasis on project speed over documentation and research.

INTRODUCTION

Ever expansive, complex, and costly, IT enterprises present significant challenges for the senior management teams who must take responsibility for these systems, which are comprised of hardware, software, integrations, non-IT machinery, and processes both human and otherwise. Among the areas of responsibility invoked by enterprise infrastructures—and the sprawl-like states into which they often evolve—are costs, regulation, and security. Costs become problematic because an organization's IT investments, seldomly well-governed or centralized, bloat with redundant purchases, unnecessary projects, and poor exploitation of the potential purchasing power of the broader enterprise. Regulatory compliance becomes a multifaceted challenge. First, enterprise sprawl and the many technological and human processes in the enterprise typically render institutions subject to a variety of regulatory regimes. For example, the process-driven acquisition of personally identifying customers' data renders enterprises subject to Europe's General Data Protection Regulation or the California Consumer Privacy Act. Yet, despite such an outcome, the processes that invoke such regulatory exposures are not always accompanied by processes that achieve, or even document, the entity's state of compliance. Lastly, IT enterprises, by organically growing to fulfill the ever-changing business requirements of an institution's many lines of business, are at risk of continuously creating new openings in the enterprise exploitable by cybercriminals.

Commonly, through the amalgamation of thousands of independently made decisions and purchases by organizations and lines of business with varying levels of autonomy, the typical enterprise IT is characterized by a sprawling structure, poor documentation, and a loose alignment with the senior management's goals and objectives. Tasked with taming their infrastructure, many IT departments have staff dedicated to enterprise architecture management (EAM)—the craft of bringing order to enterprise IT by documenting it (including its internal and external dependencies), rationalizing it, and making it more responsive to senior management's strategic goals. Spanning the enterprise and touching upon many organizations and individuals, many in their own cultural and technological siloes, EAM is no easy task. Harder still is the task of ITPM, which requires EAM as its basis and ensures that the assets in an organization's IT landscape are both agile and capable of supporting senior management's objectives and goals.

It is in the context of an organization's need for an ITPM practice that can create an enterprise IT capable of rapid change that Aite Group examines the benefits of systems designed specifically to support EAM and ITPM as an alternative to ad hoc or homegrown systems built with, for example, Microsoft Office capabilities. By identifying the benefits of systems designed to support EAM and ITPM, this paper can be used by proponents of an advanced ITPM practice seeking to make the case for its support with a software tool. This research can also be used by members of senior management teams seeking a better understanding of systems that support ITPM and their potential benefits.

METHODOLOGY

This white paper is based on extensive examinations of deployments of Software AG's Alfabet product, a system designed to support ITPM, at 11 large organizations. These examinations comprised lengthy interviews that explored the impacts of adoption on the organizations' cultures, business processes, the performance of the enterprise IT, and its alignment with management's goals. Quantified wherever possible in this process are identified benefits, such as seized business opportunities, eliminated costs, or avoided costs. Among the industries represented by the interviews are banking, finance, healthcare, insurance, medical device manufacturing, public transportation, and telecommunications. Among the geographies covered by the interviews are Asia-Pacific, Europe, and North America. Also informing this body of research is the author's career in performing return-on-investment (ROI) analyses on deployments, which spans more than 10 years.

EAM AND IT PORTFOLIO MANAGEMENT

EAM is the practice of documenting, monitoring, and governing all of the IT assets, at various levels of granularity, in an organization’s technological enterprise and contextualizing those assets with one another as well as with the enterprise’s business structures, such as processes, products, or organizations. Organizations undertake EAM, in part, to pursue ITPM: alignment between an organization’s IT landscape and its desired level of agility, goals, and objectives. Among the asset types within the scope of EAM and ITPM are homegrown systems, off-the-shelf systems, software, services, operating systems, databases, and hardware. Also within the scope of ITPM are non-asset phenomena such as ongoing projects, planned projects, and asset interdependencies as well as their owners, life cycles, vendors, and level of support.

IT departments accomplish ITPM with varying levels of scale, granularity, and tool support. In large organizations, ITPM can vary in its level of maturity across different lines of business and legal entities. IT departments variously pursue ITPM with systems designed for its support or homegrown capabilities based on, for example, Microsoft Excel or Microsoft Access. The maturity of organizations’ EAM and ITPM efforts vary broadly. Some organizations, early on the EAM maturity curve, use this skill set merely to document their assets, so redundancies can be identified and costs reduced. Others, more advanced in EAM maturity curve, use this practice to pursue ITPM, creating such extensive mapping among all tracked artifacts that their goal is the alignment of IT with the organization’s business model and senior management’s goals and objectives.

In its examination of Alfabet as a system capable of supporting EAM and ITPM, Aite Group identified features and functionality in five areas relevant to IT departments, lines of business, and the management teams to which they report (Figure 1).

Figure 1: Alfabet Features and Functionality

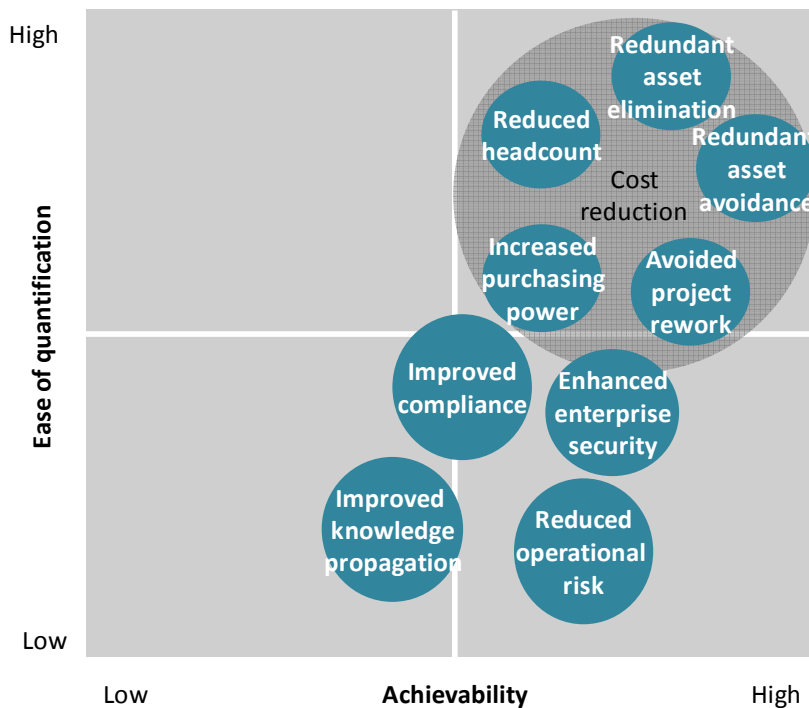
Application portfolio management	<ul style="list-style-type: none"> • Reports and alerts for ensuring completeness and data quality of the application inventory • Analysis of the enterprise portfolio based on attributes that include cost, risk, usage, and performance • Ad hoc creation of as-needed attributes for portfolio assessments • Application life cycle reporting for checking applications’ conformance to organizational goals 	Technology portfolio management	<ul style="list-style-type: none"> • Identification of relationships among parameters such as technology usage, vendors, suppliers, contracts, and consultants • Ranking of technologies according to selected key performance indicators • Assessment of potential impact on the enterprise of new technologies, such as cloud or mobile
Project portfolio management	<ul style="list-style-type: none"> • Inventorying of all projects in the enterprise • Monitoring and assessment of interdependencies among projects, applications, and processes • Governance and standardization of the inventorying and tracking of projects • Organization of the project portfolio along parameters such as project type, business capabilities, or organizational ownership • Creation of ad hoc portfolio categories that enable portfolio management to conform to the organizational project roadmap 	Demand management	<ul style="list-style-type: none"> • Centralized inventory of all available business capabilities and business requirements to avoid redundant purchases and projects • Association of demands with parameters such as impacted capabilities, supported strategies, and organizational goals
		Configurability	<ul style="list-style-type: none"> • Open configurability to accommodate different industries, individual company norms, financial metrics, and levels of maturity.

Source: Aite Group, Software AG

BENEFITS OF ITPM SUPPORTED BY AUTOMATION

When Aite Group examined deployments of Alfabet, ITPM supported by automation was found to generate a variety of both direct and indirect benefits (Figure 2). Among the direct benefits—those both readily achieved and easily quantified (shown in the upper-right quadrant of Figure 2)—were reductions to costs brought on by redundant asset elimination, redundant asset avoidance, increased purchasing power, avoided project rework, and reduced headcount. Indirect benefits identified consisted of improved compliance, enhanced enterprise security, improved knowledge propagation, and improved operational risk.

Figure 2: Ranking of Benefits by Achievability, Ease of Quantification, and Magnitude



Source: Aite Group

DIRECT BENEFITS OF AUTOMATED ITPM

Primary among the direct benefits of Alfabet is its use in the reduction of software and related technology costs. This is the result of the visibility into the enterprise enabled by the system, which leads to reductions of four types: avoidance of redundant investments in projects or software, elimination of unnecessary systems, consolidation of buying power, and the reductions in headcount that are possible with a more rationalized enterprise. Although such cost reductions often were not among the primary objectives of a deployment, they were achieved, nonetheless, often in significant volume.

ELIMINATION OF REDUNDANT SYSTEMS

Most readily identified among the organizational changes arising from a deployment of Alfabet was a previously unavailable view across the enterprise with so much breadth and granularity that system redundancies became readily identified, and typically in large volumes. Speaking to the elimination of such redundancies, a user in the public transportation sector said,

We have discovered that we have 8 systems in the enterprise that enable our railroad clients to sell tickets to students. We've standardized on 3, so 5 will go away.

On the elimination of redundant and unnecessary seats, this user also said,

We have determined that 15% of the software seats that we have on our enterprise can be shut off and eliminated or replaced with less expensive systems on which we have standardized, all with zero operational impact.

Having achieved such a benefit, another user at a telecommunications player said,

Right now, we have 10 or more marketing automation applications that fulfill very similar business requirements. We are going to consolidate that down to just 2 or 3. This will happen over a 3-year roadmap, during which costs will temporarily go up as we migrate, train, and integrate. But our costs will get reduced by 50% ultimately. And that's just one application type.

Important about the elimination of redundant systems its repeatability, about which a user at the multinational system integrator said,

The benefit of software rationalization and standardization is repeatable across the enterprise. We have hundreds of software categories, from development tools to human capital management, where we will rationalize from 5 or more vendors to 2 or 3 at the most.

IMPROVED TECHNOLOGY PURCHASING POWER

In much the same way that Alfabet enables the identification of redundant asset purchases, it also enables the identification of redundant and isolated vendor relationships across an enterprise that have caused an enterprise to purchase software as many separate and small lines of business, rather than as a consolidated enterprise. When such purchasing power is consolidated, in part because of visibility enabled by Alfabet, benefits were readily identified by users. On this benefit, a user at the public transportation consultancy said,

Because we know about every technology asset in the enterprise, we have gone from a handful of small lines of business buying software independently to negotiating with every vendor as a single, and very large enterprise, with detailed knowledge of all expenditures. We have more negotiating power, and this reduces costs by about 10%.

Describing a similar outcome, an Alfabet user at a large multinational system integrator said,

Our consolidated buying power will also be a huge cost reduction. We will migrate from being 30 small separate customers to each of our major vendors to one mammoth buyer. It's hard to say how much lower the costs will be, but if we are paying a SaaS vendor \$15 per user per month at one company and \$10 at another, we know the cost will go down to at least \$10 across the board.

AVOIDED INVESTMENT IN REDUNDANT SOFTWARE

While examination of the as-is state of an enterprise—and the identification of existing redundancies within it—is important, equally important is ongoing visibility into the enterprise and the governance of it, with an eye towards prevention of future investments that would cause costly new redundancies that would waste IT budget. When Aite Group examined institutions using Alfabet, the system was typically found to be embraced as both the system of record about the enterprise and the single such source of the truth about the enterprise. In this role, Alfabet was also used proactively as a governance tool that played an important role in the evaluation of all potential new investments. At such organizations, anyone seeking to make a new technology investment had to seek approval through a vetting process, enabled by Alfabet, to ensure that their business requirements were met with existing resources wherever possible rather than undertaking redundant new investments. On the role of Alfabet as the single source of truth about the enterprise and governance asset, a user at a global medical device manufacturer said,

We avoid costly technology sprawl all the time with Alfabet. It's part of our processes. If you want to adopt a new technology, you must go through a formal request that is examined within Alfabet. If we already have a requested capability, you won't get approval to spend money on something redundant. And these cost avoidances are commonplace, occurring about once every 2 weeks, for avoided expenditures of between \$100k to \$300k. We probably pay for Alfabet on this alone.

AVOIDED PROJECT REWORK

Improved governance of the enterprise, including the monitoring of what software, hardware, and processes are deployed and how, was also found to be enabled by Alfabet when Aite Group examined users of this capability. Many organizations seeking to standardize their technological activities upon a preordained universe of capabilities, practices, vendors, or protocols establish internal regulations, the enforcement of which can be a challenge. For example, a business with an SAP enterprise resource planning system might want all SAP business intelligence capabilities. Another business might have rules based on databases, preferring SQL or no SQL. Whatever the rules, they are in place to standardize on a reduced number of vendors in pursuit of reduced cost; they are also in place to have as predictable and simple an integration environment as possible. Using Alfabet is one way that enterprises can both establish and enforce governance while also avoiding the costliness of rogue activities. On this benefit, a user at a Switzerland-based bank said,

Using Alfabet to achieve governance is actually cost avoidant. We use it to do things like ensure that everyone uses compliant database flavors and brands. If we don't govern folks' decisions, unwinding their purchases or troubleshooting for regulatory conformance in whatever they build is more expensive than the cost of governance.

REDUCED OR AVOIDED HEADCOUNT

Organizations that used Alfabet to govern their enterprise, rationalize it, and reduce sprawl within it—most of which did so with breadth and repeatability—typically also reduced the number of employees required for managing the enterprise. After all, the fewer redundancies and complexities characterizing an enterprise, the more stable will be its state and the less labor-intensive will be its management. The benefit of avoiding costly and unnecessary support for enterprise sprawl was readily described by users. On the direct benefit of avoided additions to staff, a user at the examined medical device provider said,

When we use Alfabet to avoid a new software expenditure, be it a project or a new adoption, we also avoid additions to staff, because for every deployment and different system you have in the enterprise, you need internal people to support it. We avoid those with the standardization that's enabled by Alfabet.

On the benefit of cost reductions that arise with the standardization and the beneficial subject matter expertise that can be the result, a user at the examined multinational car manufacturer said,

Standardization isn't about just cost avoidance. It's also about improving the quality of how we use systems. By standardizing on just two at the most for any given application type, we develop far more expertise in using them. We use more of the features and functionality and get more benefits.

A user at a multinational medical device manufacturer said,

If, rather than using Alfabet, we were relying on surveys and Excel spreadsheets and manual research to answer questions for senior management about the assets on our enterprise, I'd need at least 2 additional full-time equivalents on our enterprise architecture team.

A user at a large Australian bank said,

If we threw bodies rather than Alfabet at the GDPR challenge, we'd need dozens of new people. It wouldn't even be feasible.

Another source of improved productivity and reduced headcount is faster analysis of the as-is enterprise at various points during an IT project, and especially at its outset. Significantly, for any project to be both successful and undisruptive, its many enterprise interdependencies—among which are upstream, downstream, and human-process impacting—must be identified so that business requirements can be achieved without disruption to the as-is states of performant systems. About the ability to perform such analysis faster by relying on Alfabet as the system of record for such knowledge, an Alfabet user in the public transportation sector said,

We were just spending too much effort on routine research about our enterprise. We are facing two transitions. Windows 7 is going away, as is SQL Server 8. Identifying all the impacted hardware, apps, processes, and dependencies will be about 20% faster because all the data is readily found and analyzed in Alfabet.

Similarly, an Alfabet user at a global manufacturer of medical devices said,

We will soon shut down Lotus Notes. We will use Alfabet to rapidly identify every instance, their users, their processes, and all their dependencies. This is across sixty countries and without a manual survey or going into messy documents like Excel, PowerPoint, or Visio, which people often use for these things.

Interestingly, estimates of the Alfabet-driven improvement to productivity in the examinations of as-is environments tend to be significant, with a user at a global medical device company estimating the improvement at 70%.

COST AVOIDANCE AS CASH COW

Cost avoidance and cost reduction, Aite Group found, were often characterized in interesting ways by Alfabet deployment subject matter experts. On cost reduction, users often said the following:

- **It wasn't a goal or even a primary goal.** Users typically stated that that cost reduction was not a goal, and was frequently not even a primary goal, of an Alfabet deployment. Rather, they said, the goal was to get more visibility into the enterprise, better governance of it, or a more streamlined development and deployment environment.
- **Despite not being a goal, cost reductions were achieved, nonetheless.** Interestingly, despite identifying their organizations as having adopted Alfabet for goals other than cost reduction, users commonly went on to describe cost reductions or cost avoidance that was significant in financial value.
- **Cost reductions were, post deployment, an investment justifier.** So significant were cost reductions and avoidances from Alfabet, that users typically felt that these direct benefits provided a significant justification or post-go-live justification for the initial and ongoing costs of Alfabet.
- **Cost reductions, when not achieved, were on the roadmap.** Cost reductions were achieved at most institutions adopting Alfabet. The remainder were aspirational about the achievement of this benefit, which was on their roadmap.

INDIRECT BENEFITS OF AUTOMATED ITPM

When Aite Group examined deployments of Alfabet, found to be unique was its profusion of identified indirect benefits. First, these benefits—less readily achieved and quantified than direct benefits—were viewed to have as a de facto source of financing the direct benefits identified in this report. Additionally, while most capabilities worthy of a financial benefits analysis typically

have two to three closely related benefits, Alfabet was found to have five complementary, somewhat related, but distinct, benefits. These are improved collaboration and planning, improved compliance, better propagation of knowledge, reduced operational risk, and better protection of the enterprise from cyberattacks.

IMPROVED LEADERSHIP AND DECISION-MAKING

Often embraced as the single source of the truth about the many assets on an enterprise and its governance, Alfabet also serves as a hub through which an enterprise's many and varied stakeholders exchange information. In this de facto role as data hub, Alfabet was found by Aite Group to enable better decision-making by managers at various levels in the organization; it also enabled faster and more effective collaboration among managers, decision-makers, and development teams operating in the enterprise. On Alfabet's ability to support decision-making by senior management, users had a variety of experiences and comments, among which were related to the following:

- **Tuning of acquisition activities:** Organizations that grow by acquisition tend to do so serially, often with a multitude of potential acquisitions under consideration. In their prioritization of potential acquisitions, leaders often have among their goals identification of similarities across the IT enterprises that will enable the combined organization to operate more cost effectively, and in this, Alfabet can play a role. On the potential benefit from the system to an acquisitive organization, an Alfabet user at a global car manufacturer said,

There is a huge planning benefit to having Alfabet. Car companies acquire other car companies to achieve synergies and reduce costs. But you can't achieve synergies if you don't see the overlap, or the opportunities to reduce costs. With Alfabet, we make good on the synergies in the PowerPoint charts before the acquisition by identifying all the redundancies, which are cost reduction opportunities.

- **Operationalization of strategic initiatives:** On Alfabet's ability to support senior management's decision-making ability, a user at the multinational medical device manufacturer said,

Alfabet enables our team of enterprise architects to be senior management's go-to source for all their technological decisions related to strategy. The enterprise will soon pursue a vast SAP HANA deployment. Part of the reason we are pursuing it is that they know they can turn to us to identify every asset, program, and process, down to the server level, that will be impacted.

- **Operationalization of cost-reduction initiatives:** At large organizations that supplement organic growth with acquisitions, it is common that the fabled "synergies" that form the business cases for a succession of acquisitions are never actually achieved. Systems such as Alfabet, it turns out, provide the basis for identifying such synergies—before or after the acquisition—and eventually eliminate the cost reductions they represent. At the examined global car company

where Alfabet is used, for example, senior management is pursuing an aggressive standardization strategy across all application types. For each type, there will be standardization upon only one or several applications, and the goal is that 90% of all applications in the enterprise will conform to this standardization. On the use of Alfabet to achieve this objective, a user said,

We have a goal of 90% standardization for apps across our enterprise. Alfabet tells us how to get there by spotting all the rogue system usages. The ones that have high seat counts and high usage we go after first and put them onto the standardized platforms.

- **Analytics-like enterprise visibility:** At some organizations, Alfabet supports better decision-making by senior management through a push of data to classical operational analytics tools, rather than the mere ability to fulfill ad hoc inquiries. At a large multinational bank, senior management uses Alfabet as a dashboard, in which are monitored a variety of metrics that track the apps in the enterprise deemed by senior management to be the most important, and in which the most significant investments have been made. On the ability for senior management to track the enterprise at a high, and somewhat strategic level, a user at a large European bank said,

Management uses Alfabet for continuous course corrections. In it, they can look at all the strategic assets, the ones in which we have invested a lot of money and assess it across parameters such as usage, seats available, and uptime. With this you loosely see if you're getting to management's target state and what the gaps are.

This user went on to describe the tactical, rather than the strategic, benefits of such visibility for management saying,

Alfabet is a daily management tool for our senior management team, for whom there is now a dashboard that conveys states about data quality, regulatory compliance, end of life issues, all driven by Alfabet enabled metrics, of which we have a list of 20 that is steadily growing.

Visibility into the operational importance of every asset in the enterprise is also an important outcome of an Alfabet deployment. On this ability, and the resulting prioritization that can take place, a user at a large electrical utility in North America said,

Alfabet plays a strategic role by being the system of record in which every asset is designated as mission critical, business critical, or less critical. This data is used to prioritize where and when to spend IT budget, which you never have enough of.

Also identified as a benefit of Alfabet was its favorable impact on collaboration. In its role as the de facto data hub for all things enterprise, and in which assets in the enterprise were documented across a variety of parameters, Alfabet made employees, whether they are making decisions, running development teams, or

developing code, more likely to collaborate, and to collaborate more efficiently. Touching on the topic of trust, which is central to collaboration, an Alfabet user at a public transportation consultancy said,

Strangely, trust comes into play here. With Alfabet, when planning projects, designing systems, or crafting strategy, we operate at a far higher level of trust than before its adoption. Before, to get to this level of surety about the data underpinning your decisions, there were layers and layers of manual research, double checking, and triple checking.

This user went on to say that trust changed their organization's approach to institutional knowledge, stating,

We are actually changing how our organization thinks. Instead of relying on a single person to notice something critical, and hoping that this always happens when necessary, we are taking a more systematic approach to knowledge by storing it in a structured way in Alfabet so that we are less reliant on human organizational knowledge.

IMPROVED COMPLIANCE

Regulations, all challenging and each arising from a variety of different regimes, place two demands on businesses and their enterprises: the achievement of compliance and the ability to document or prove that state of compliance whenever asked. While both are difficult per se, their achievement in a cost-effective way presents even more of a challenge. Alfabet, by serving as the repository in which all enterprise applications, processes, and databases are documented across a variety of parameters, can be used to both achieve compliance and generate the documentation that illustrates a compliant state. On the ability to more readily achieve and document compliance by using Alfabet, users readily identified benefits, saying:

With GDPR, we are commonly asked by outsiders where personal data resides and to make changes to it. Because we have Alfabet, we can find it speedily, with little labor, and extract the record, if needed, to comply. If you can't do this, you can be fined—a lot.

Just yesterday, our CISO stated that Alfabet is now a key component within our global and enterprisewide SOC-2 compliance initiative. And Alfabet itself just got SOC-2 certification.¹

We can make decisions so much faster. If say, China enacts a new law about PII and does so at the last moment, which that government often does, we can still respond rapidly by doing a query to identify every system with Chinese PII. We are already proceeding like this with changes to taxing and invoicing arising from Brexit.

1. Alfabet, in fact, received SOC-2 Type II certification in 2016.

REDUCED OPERATIONAL RISK

While it's terrific that Alfabet enables organizations to increase productivity or reduce headcount because of accelerated analyses of the as-is environment and a project's many interdependencies, equally important is the reduction of operational risk that comes with such knowledge and visibility. On Alfabet's ability to support decision-making by senior management, users had a variety of experiences and comments, among which were related to the following:

- **Revenue continuity:** Any time a change is undertaken to the enterprise, with insufficient research or visibility into the relevant interdependencies, there's the possibility that unanticipated outages will be the result. On the ability to use Alfabet to avoid such instances, a user at a large consultancy for public transportation entities said,

Our consulting enables railroads to run and sell tickets. So, we have to continuously ensure these activities are not impaired or we are liable. Visibility in Alfabet enables us to ensure that such downstream disruptions don't occur because of activity we have underway.

- **Fixed-asset continuity:** Some industries, such as airlines and auto manufacturing, have such heavy investments, financially and strategically, that an interruption to the operability of their vast portfolio of physical assets can have an immediate impact on the bottom line. On the ability to better prevent disruption to physical plant operations by leveraging Alfabet, a user at a large multinational car company said,

As a car company, we have a huge investment in lots of capital, with which we can produce a finite number of cars per year. We rely on Alfabet as the repository of all the connections and interdependencies among software, people, processes, and manufacturing equipment. So, if anything goes wrong with anything, we know where and how it might impact production. This is not theoretical.

Interestingly, fixed-asset continuity can be a function of funding. After all, the better funded an asset and its construction is, the more performant and available it is likely to be. Alfabet, as the system of record about the role every asset plays in the enterprise, can play a de-facto traffic cop by designating which systems should get the most funding. On the impact of better budget allocations on the performance of the enterprise at large, a user at the large North American electric utility said,

We are less likely to have something go down because it was underfunded. Here, every project and investment goes through an objective intake process, enabled in Alfabet, in which mission criticality is formally assessed so that proper funding is available. This way cool, hyped, or favored technologies don't take money from what we rely on.

This user went on to indicate the importance of granular documentation of all assets in the enterprise and their interdependencies, saying,

We are in a position to prevent a small problem or outage cascading catastrophically, because everything can be identified as to whether it's mission critical or interdependent to something mission critical.

- **Pervasive process continuity:** Echoing the sentiments of other Alfabet users, a user at another institution said,

Although we aren't integrated with any critical infrastructure, we still care a lot about operational disruptions that can happen because of changes in the enterprise. So, if an app goes through an upgrade, which sometimes fails, or gets shut off because it's no longer supported by its provider, before we do anything, we find out in Alfabet all the relevant interdependencies so that we can anticipate disruptions and plan ahead for all eventualities.

IMPROVED KNOWLEDGE PROPAGATION

Large enterprises, when seeking to disseminate best practices and knowledge across their organization and geographies, rely upon the clustering of experts in small organizations, commonly referred to as knowledge centers or centers of excellence. Unfortunately, centers of excellence are costly, requiring portions of full-time equivalents among subject matter experts across a business, something that is hard to achieve, especially with the turnover that inevitably happens with such subject matter experts over time. Interestingly, some enterprises have found elements of a center of excellence in Alfabet. Among these are the ability to store notes about best practices and the identification of subject matter experts from whom advice can be sought. At a large multinational system integrator, a user said,

A really important benefit of Alfabet goes way beyond cost reduction. We are using Alfabet to identify and propagate institutional knowledge. We don't want best practices stuck within our many acquired companies. If there's really strong know-how about an application anywhere among our many acquired companies, we want to propagate it across all.

Similarly, at a large European bank where research resources are among the many parameters describing assets and technologies, a user said,

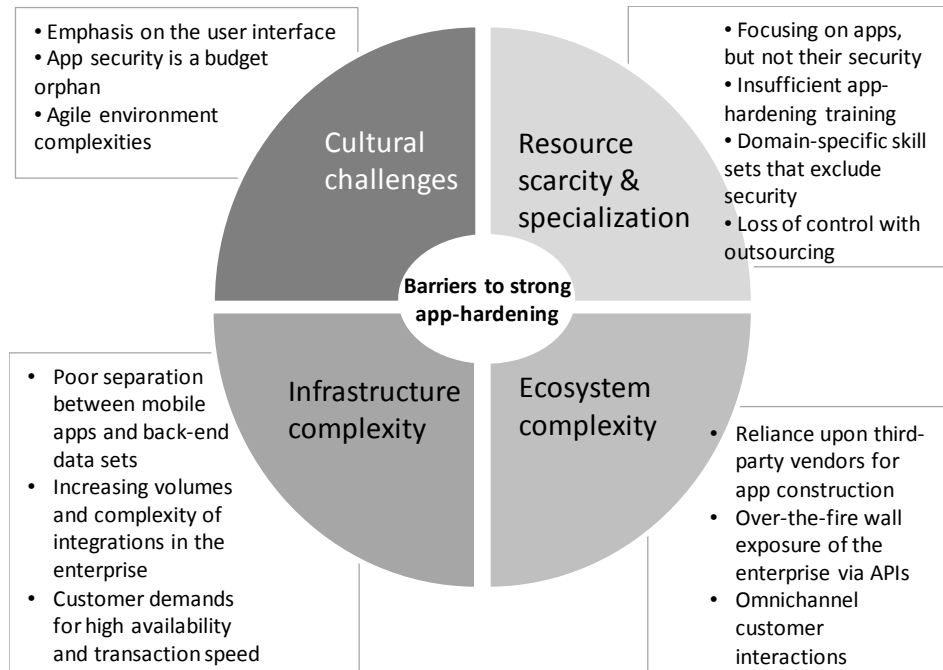
Alfabet actually forms an important node in our user community and our knowledge capabilities. We connect the system to our internal knowledge base. So, if someone is doing research before a project and needs to learn more about a particular API or some domain, we use things like wikis, web pages and HTML content in Alfabet that enables them to get further information.

BETTER SECURING OF THE ENTERPRISE

While a variety of direct and indirect benefits, some quite quantifiable, were identified when Aite Group examined deployments of Alfabet, one compellingly important benefit—though indirect and not readily quantified—was also identified: an improved ability to secure the many apps on an enterprise that present potential entry points for cybercriminals. Left to their own devices, and with a lack of governance, development environments are vulnerable to four

phenomena that are barriers to the creation of applications that are truly hardened against cyberattacks: cultural challenges, enterprise complexity, external ecosystem complexity, and resource scarcity (Figure 3).

Figure 3: Barriers to Hardened App Development



Source: Aite Group

Although not an app-hardening capability per se, Alfabet was nonetheless identified by users as an important asset in an enterprise's mission to bring app hardening techniques and resources to the many vulnerabilities on its enterprise. After all, an enterprise can only harden or protect those apps of which it is aware. In the absence of a repository of record such as Alfabet, it's possible for many of an organization's assets to be outside of the ken of the information security department, and therefore beyond the scope of any app-hardening, cyberattack deterrent initiatives. Worse still is the risk of having no visibility into the life cycle changes of the many apps in the enterprise: when they will have an upgrade, when they will have a patch, when a security flaw has been discovered, and when it will no longer be supported by its vendor, a point after which an app is particularly vulnerable to exploit.

Across the examined deployments, Alfabet was commonly embraced as tool for better identifying all the assets in the enterprise in need of cybercrime-deterrent hardening. This visibility was a significant benefit at a large European bank, where a user said,

For our CISO, we are continuously monitoring the enterprise from various angles, monitoring the intranet and internet to see what apps are being used and what data sets are getting called upon, and where the data is moving from and to. But you can only monitor the assets you know about and for this, we rely on Alfabet as our system of record.

Once alerted to a risk to the enterprise, users commonly relied upon Alfabet for methodical planning to prevent vulnerability; on this, a user said, “We respond to potential crises a lot faster. Once we know everything about a zero-day exploit, we turn to Alfabet to identify, on time, the right managers to involve and all the impacted assets.” Similarly, a user at the examined large multinational system integrator said, “But this capability goes way beyond system rationalization. We want it broadly used and as a governance asset, so that we can use it for managing and identifying the risks and vulnerabilities in the enterprise.” This was commonly observed across the completed interviews, in which users reflected a sentiment that could be paraphrased by a user who said, “If you don’t know something’s out there, you can’t secure it.”

ITPM AND THE EMBRACE OF AGILE DEVELOPMENT

When Aite Group examined deployments of Alfabet, a strong connection was discovered between the capability and Agile software development (ASD), which though now defined in myriad ways, is actually a set of priorities in which goals such as working software, customer collaboration, and rapid response to change are more valued than processes, documentation, and project plans. The emergence of ASD and some of its variants, such as scrum, have been a boon to some adopting enterprises. Among the resulting benefits are the following:

- Ceding of independence and a spirit of entrepreneurialism in the development of software to institutions' lines of business
- Enabling software developers to respond to project in-flight challenges unanticipated at the project's outset with a spirit of improvisation and a focus on intended customer outcomes
- An avoidance of distractions such as onerous documentation governance and speed-to-market as a result of the independence and entrepreneurialism

Terrific though the benefits of Agile are, readily observed—and challenging to CIOs and CISOs—are some drawbacks. All of which, though worth considering and accommodating, are insufficient to require a tapping of the brakes on ASD. These are some of the drawbacks:

- **Insufficient asset governance:** Operating, as they do, with autonomy and entrepreneurialism, Agile teams are at risk of creating new assets in the enterprise that lack conformance to distracting, but nonetheless reasonable, internal regulations. For example, Agile-enabled teams delivering mobile apps are sometimes so focused on speed-to-market that they meet their project deadlines, but sometimes do so without hardening the apps in accordance with their CISO's requirements.
- **Insufficient strategic cohesion:** With so many Agile-enabled, independently spawned, and performant assets across a typical enterprise, organizations are often challenged to make these many assets cohere to the organization's overall goals and objectives.
- **Infrastructure sprawl:** Operating with independence, entrepreneurialism, speed, and a focus on the customer, Agile teams are likely to start and complete projects without embracing or utilizing existing assets that might reside with other groups in the enterprise, resulting in unnecessary new investments.

In short, an embrace of ASD presents a challenge to technology leaders who must simultaneously grant such teams their autonomy and accommodate their cultures while also applying governance that does not stifle ASD culture and ethos. The difficult achievement of this objective was found to be enabled by Alfabet when deployments of the system were examined. In fact, many of the indirect benefits of Alfabet identified by Aite Group were, in their particularities, also enablers of institutional embrace of ASD. Among these are the following:

- **Improved collaboration and decision-making:** Although ASD teams prioritize speed-to-market, they know they must play nicely with the other assets and projects upon which their activity might have an impact. The jargon, definitions, and understandings about the many abstractions to be discussed among collaborating ASD teams can readily have Alfabet as their basis, which forms a repository not just of systems, but also of glossaries and nomenclatures within an enterprise.
- **Speed-to-market:** Although ASD teams value speed-to-market, they also know they must fully examine their operating deployment so as not to disrupt it upon the go-live date. Alfabet, by providing extensive details about an enterprise's as-is environment, makes for more rapid identification of a project's many potential interdependencies than would otherwise be possible, thus assisting ASD teams with their pursuit of speed.
- **Improved compliance:** While organizations often seek the speed and customer focus achievable with ASD, they also want a predictable enterprise on which all assets are performant, governed, and compliant. Alfabet, by propagating internal regulations and providing a single source of the truth for the enterprise and its many components, provides a platform on which every asset, regardless of the development ideology in which it was created, is fully and properly documented.

CONCLUSION

IT departments have daunting mandates. Although IT enterprises fulfill a multitude of business requirements for an organization's many lines of business, they also tax senior management teams that seek to rationalize costs, improve decision-making, remain compliant, and secure the enterprise. Aite Group finds that systems built to support EAM and ITPM, typified by Software AG's Alfabet, can bring organizations the following benefits:

- **Lower costs:** By providing visibility into the enterprise, and a single version of the truth from which it can be governed, systems such as Alfabet enable enterprises to avoid redundant purchases, eliminate unnecessary software, consolidate valuable purchasing power, and avoid rework to projects found to be out of compliance with internal regulations.
- **Better decision-making:** By providing a single source of the truth about an organization's IT, and with breadth and granularity, systems such as Alfabet enable a variety of improvements to collaboration and decision-making. Such systems, as a singular and agreed-upon source of the truth, enable all stakeholders to a project, including those involved with its many dependencies, to have a single version of the truth, which enables a higher level of trust. Decision-making among team members and different teams, enabled with such a capability, is also faster and easier. Lastly, by serving as the enterprisewide single source of the truth about the enterprise, systems such as Alfabet propagate both enterprise-related knowledge and the ways in which collaborators talk about the enterprise.
- **More security:** A variety of challenges—technological, financial, and cultural—make it difficult for an organization to secure the many assets on an enterprise from cybercriminals. One challenge is visibility: no matter how hard it might try, a senior management team can secure only the apps, assets, and processes it knows about. Systems such as Alfabet, by creating more visibility into the enterprise and a more expansive view of it, better enable senior managers such as CISOs to identify every resource and asset with which they should be concerned and to which they should bring app-hardening capabilities.
- **Lower operational risk:** In the same way that systems such as Alfabet provide more visibility for CISOs, these capabilities also make it easier to identify a project's many interdependencies, making it easier to identify and prevent disruptions to other capabilities that might be operationally critical to the overall enterprise.
- **More development diversity:** Agile development and IT enterprise governance seem to run counter to one another. Where Agile developers value development speed over documentation, managers of the enterprise need extensive and granular knowledge about the enterprise in order to minimize its costs and maximize its security. By accelerating and simplifying the exchange of knowledge and project data between ASD teams and IT enterprise managers, systems such as Alfabet enable a more comfortable coexistence between these two organizational tribes which, though possessing different work styles, have the same overall objectives for the enterprise.

ABOUT SOFTWARE AG

Software AG offers Freedom-as-a-Service. We reimagine integration, spark business transformation, and enable fast innovation on the internet of things (IoT) so you can pioneer differentiating business models. We give you the freedom to connect and integrate any technology—from app to edge. We help you free data from silos so it's shareable, usable, and powerful—enabling you to make the best decisions and unlock entirely new possibilities for growth. Software AG's Alfabet product for IT portfolio management helps IT decision-makers make better investment decisions and reduce transformational risks by understanding when, where, how, and why to make changes in the IT portfolio. It links the interdependent perspectives of IT, business, finance, and risk for “whole view” analysis of how IT can support business change. For more information, contact info@softwareag.com.

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