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SOA Plays An Important Role In A Telco Merger

by Randy Heffner, September 23, 2013

KEY TAKEAWAYS

EE's SOA Vision And Strategy Are Grounded In Business Design And Agility

Business agility is the key to EE's ability to run three distinct brands on one rationalized technology estate. A layer of SOA-based business services is the fundamental enabler for EE's agility. To ensure that it can deliver on the agility promise, EE frames its SOA strategy around business transaction design and business process design.

EE's SOA Governance Approach Centers On Service Designs And Project Alignment

As SOA business services are the key to EE's agility, review and governance of service design is central to its strategy. Project governance is also critical: The best SOA strategy and vision would fall apart if project teams could do as they pleased, so EE guides and confirms project architectures from the early stages of the feasibility analysis.

EE's Service Life Cycle Incorporates Business Collaboration And An Outsourced Service Build Factory

To set the context for service design, EE's SOA service life cycle begins with business and technology collaboration on business use cases. These provide a solid foundation for identifying the business transactions that will be embodied as SOA business services. Downstream, the life cycle uses a build factory run by Torry Harris Business Solutions.

EE's SOA Initiative And Expansion Into APIs Serve As A Strong Example For Other Organizations

EE is extending its SOA strategy to encompass APIs and will leverage their similarities to achieve strong infrastructure and governance synergies for both. SOA will remain a critical part of EE's business technology landscape; APIs will build on EE's evolutionary, incremental, business-centered services strategy with agile, lightweight governance.

SOA Plays An Important Role In A Telco Merger

EE Uses SOA To Unify Business Operations Across Three Separate Brands

by Randy Heffner
with Mike Gilpin and Steven Kesler

WHY READ THIS REPORT

Service-oriented architecture (SOA) strategies continue to add significant value in the industry. EE, a UK digital telecommunications company formed by merging the UK operations of T-Mobile and Orange, is an excellent case in point. Two of EE's key technology goals are business agility and back-office cost savings. SOA helps with both, providing EE with the agility necessary to run three separate brands on a single infrastructure, while simultaneously evolving a unified and rationalized technology base. Forrester frequently speaks with application development teams and solution architects that are initiating or rebooting their SOA initiatives, and we've found that one of the biggest challenges they face is to gain a perspective on SOA and develop a vision for how to incrementally pursue it. This report describes EE's SOA initiative, including its use of an SOA service build factory run by Torry Harris Business Solutions, to help development teams and architects with their own pursuit of SOA.

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Notes & Resources

Forrester interviewed architects and leaders at EE and Torry Harris Business Solutions about EE's strategic SOA initiative. We used the Forrester model for API and SOA maturity to guide and structure our analysis.

Related Research Documents

Drive Business Agility And Value By Increasing Your API And SOA Maturity
September 5, 2013

Digital Business Design Is The New Integration
November 8, 2012

Architect For The Next Digital Decade
August 31, 2012

EE'S SOA INITIATIVE IS A KEY ELEMENT OF ITS POST-MERGER STRATEGY

In July 2010, Orange UK and T-Mobile UK merged to form EE, promising to be "the UK's most advanced digital communications company" for its 27 million British customers.[1] At the time of the merger, EE's joint venture parent companies, Deutsche Telekom and France Telecom, established back-office efficiency goals for EE. However, they decided to maintain the existing T-Mobile and Orange brands pending a study and analysis of the market to set EE's future branding strategy. For EE's technology estate, this meant that:

- **EE needed a typical post-merger rationalization of its technology estate . . .** The two merged entities each had separate technology estates. To achieve back-office synergies, EE needed to pursue the types of infrastructure rationalization efficiencies typical of a post-merger scenario.
- **. . . while continuing to support both premerger brands . . .** Rationalization was made more complicated by EE's plan to wait and study before deciding the future of its branding strategy. To maintain the existing equity in the Orange and T-Mobile brands, EE's tech rationalization strategy had to still support two different sets of products, two websites, and so on.
- **. . . and adding a third brand.** Rather than consolidating on one brand, the company decided in the fall of 2012 to add a third brand to the existing two. The new EE brand covers 4G mobile services and fiber broadband, while the Orange and T-Mobile brands cover pre-4G mobile services. This created additional complexity, because the company had to maintain three separate websites and other assets — one for each brand — while also working to reap the benefits of technology rationalization.

As a key element in EE's approach to rationalization, the company turned to SOA and the emerging SOA experience that both Orange UK and T-Mobile UK had prior to the merger. This report describes EE's SOA journey, using Forrester's model for service-based maturity as a guide.[2]

EE'S SOA VISION AND STRATEGY START WITH BUSINESS DESIGN AND AGILITY

A vision for business agility is at the center of EE's SOA initiative. Technical application integration is a part of it, but not the center. What's the difference? Think of it this way: To achieve back-office synergy, EE's three brands need to operate on a common back office, almost as if the back office were a separate company providing a single base of business transactions and processes. A technical approach based on application-to-application integration would require the common estate to adapt to each of the three brands, making it difficult to achieve common business operations. Instead of adapting to applications, EE's business approach uses SOA to provide what Forrester calls a "digital business" — a common base of pluggable business transactions undergirded by EE's growing footprint of rationalized applications. Key elements of EE's business-centered SOA vision include:

- **Using SOA for business agility first and then for technical integration.** While business agility is the central point of EE's SOA initiative, SOA is also important for improvements in application flexibility and integration. However, EE sees these technical benefits as secondary to business agility.

- **A clear taxonomy of service types.** EE's architects guide the company's technical teams to prioritize the creation of business services — SOA services that embody business transactions and queries like "submit order" or "retrieve customer." Business services are the core of the pluggable digital business provided by EE's rationalized technology estate. In addition to business services, technical SOA services simplify access and integration into specific applications (application services) or technical functions such as authentication or logging (infrastructure services).

- **An incremental, evolutionary approach.** While the EE team benefits by having a post-merger rationalization mandate to justify its SOA journey, it nonetheless chooses the best practice of incrementally evolving its SOA implementation rather than trying to do it all in one go. Each project contributes as appropriate to EE's growing base of services, while EE's SOA leaders continually guide and adjust the strategy, including its approach to governance, its service life cycle, and its SOA platform.

With its growing base of SOA business services providing a foundation of business building blocks, EE's three brands are gaining access to a common base of business operations: common inventory and supply processes, common fulfillment processes, common sales compensation processes, and so on. With the resulting business agility, process improvements implemented in the common estate become available to all brands at once. If there's no change required to brand websites (e.g., an improvement in a downstream order fulfillment step), the change can go into effect for all brands simultaneously. If brand-specific changes — such as a new feature that requires additional order data about customers' preferences — are needed, each brand has the flexibility to integrate the new capability at its own pace.

EE's Patterns And Reference Architecture Build Technical Alignment

EE's SOA reference architecture aligns with its business vision for SOA and provides a foundation for aligning the company's staff on the overall structures for implementing SOA. Four specific aspects of EE's reference architectures and patterns include:

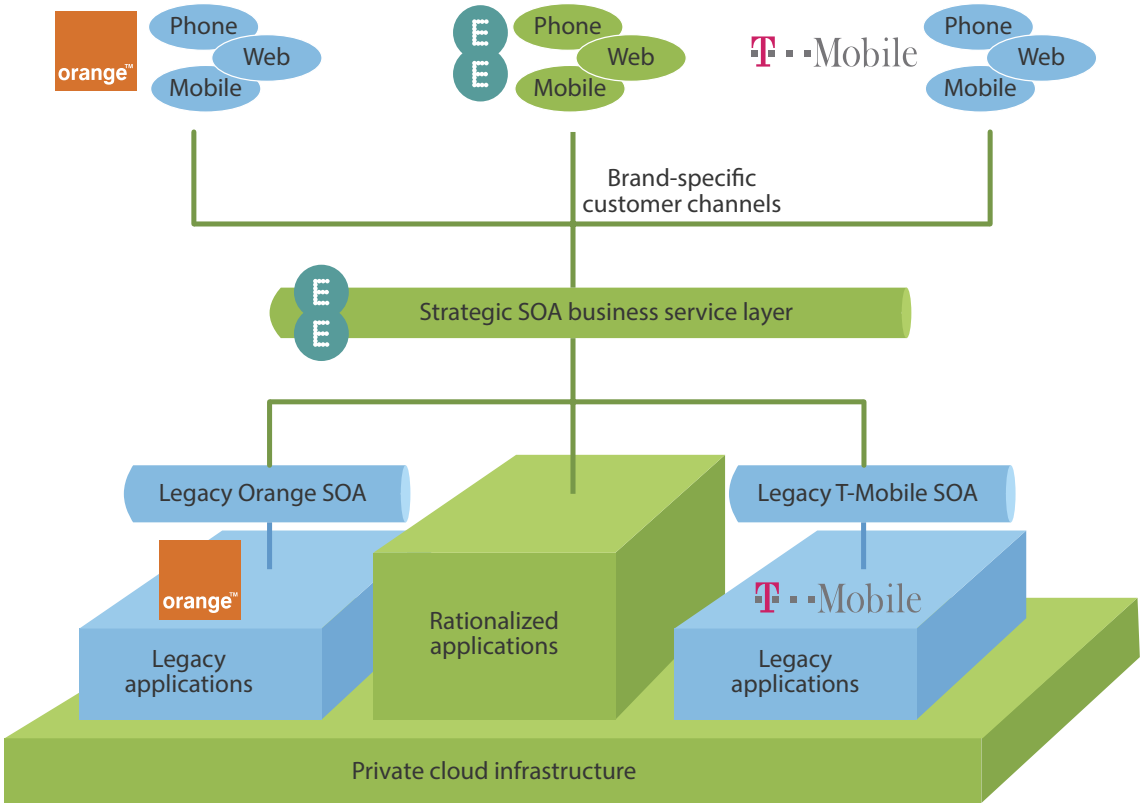
- **An overall reference architecture vision.** The reference architecture sets the strategic focus of EE's SOA (a unified business service layer across all brands), the interim path to get there (leveraging the existing Orange and T-Mobile SOA layers), and the need to support distinct channels for each of the three brands (see Figure 1).

- **Prescriptive implementation patterns.** To ensure consistent, high-quality services, EE provides proven, prebuilt guidance for SOA in the form of prescriptive service implementation patterns. They are prescriptive in the sense that EE requires its developers to use one of EE's patterns when they build a service — rather than, say, using a library of design patterns one might find on a developer-focused Internet site. For example, EE has a pattern for how to build a service that provides access to a business transaction from a legacy application. EE's patterns cover both atomic services and composite services.

- **Clear guidance on messaging styles, including SOAP and REST.** SOAP is and will remain the dominant messaging style for EE's services, particularly for access to its core transactions. At the same time, EE is expanding its use of representational state transfer (REST) messaging, particularly in connection with the growth of EE's web and mobile digital channels. EE will also use REST-based services for selected B2B partners. REST messaging is part of EE's extension of its SOA strategy, technology stack, patterns, and governance approach into the world of application programming interfaces (APIs).

- **A broad view of what an SOA platform includes.** EE's architects guide its strategic SOA platform using a view that goes beyond SOA specialty products (see Figure 2).[3] This is important because the stable operation of SOA services depends on underlying applications and other infrastructure elements, not just SOA products. IBM DataPower SOA gateways provide security and routing for service requests, including requests from external partners into EE's core services, requests from mobile handsets, and requests from EE to external providers. The platform also includes process orchestration from Software AG's webMethods, application servers for service execution via Oracle WebLogic, batch integration (extract, transform, load using Ab Initio; file transfer), asynchronous services, a logging component, and a custom-built service repository — the common enterprise integration service repository, or CEISeR — adopted from T-Mobile's SOA.

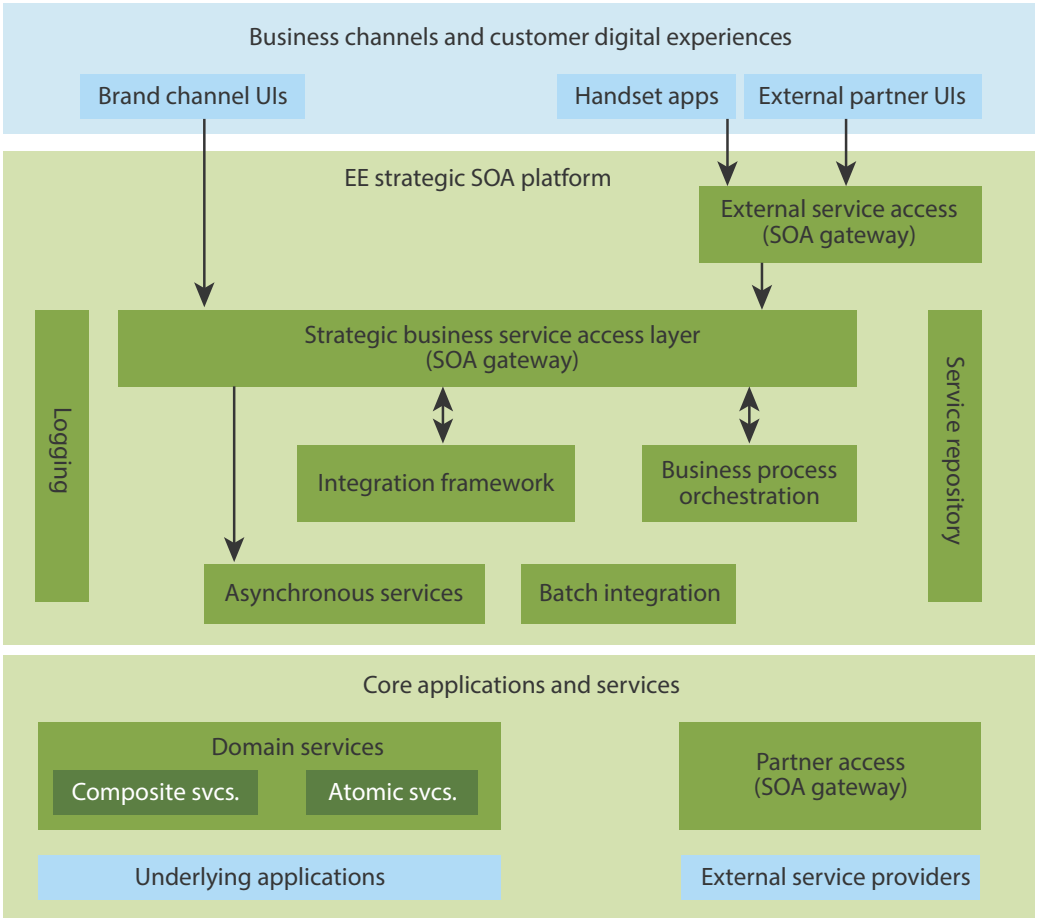
Figure 1 A Reference Architecture Undergirds EE's SOA Vision



Note: Adapted from diagrams provided by Torry Harris Business Solutions.

103261 Source: Forrester Research, Inc.

Figure 2 EE's SOA Platform Goes Beyond SOA Specialty Products



Note: Adapted from diagrams provided by EE.

103261 Source: Forrester Research, Inc.

EE'S SOA GOVERNANCE KEEPS SERVICES AND PROJECTS ALIGNED

To ensure that its implementations match its SOA vision, EE employs multiple SOA governance mechanisms including organizational structures, process controls, and automated tooling. From the executive ranks to individual developers, EE's staff collaboratively pursues the organizational maturity and discipline necessary to achieve EE's business goals and vision for SOA. Three key governing organizational structures are its:

- **Executive SOA steering committee.** EE's technology executives understand the scope, scale, and complexity of EE's SOA strategy. They watch out for its overall status, guide priorities, and make final decisions on SOA investments.

- **SOA governance team.** EE's integration team (part of its enterprise architecture department) provides strategy, patterns, and day-to-day guidance for SOA activities and governance. Serving as a de facto SOA center of excellence, integration team members review project architectures and SOA plans, guide the design of EE's SOA platform, review service designs, and advise project teams on service design and implementation issues.

- **SOA governance forum.** To ensure broad understanding of SOA progress, policies, and activities, the SOA governance team sponsors a weekly conference call that includes representatives of all of EE's development teams. Teams can raise issues, discuss development issues and solutions, coordinate activities on services that are planned or in development, work out kinks in governance processes, and otherwise collaborate to improve EE's SOA initiative.

Service Design And Portfolio Management Are At The Center Of EE's Governance

One of the SOA governance team's highest priorities is to ensure that services are "built once — and built correctly." To ensure that teams deliver the best services, the SOA governance team:

- **Carefully reviews service interface designs.** Because EE views its services — particularly SOA business services — as a strategic company asset, they are not designed in isolation by individual project teams. Instead, each team collaborates with the SOA governance team to agree on which services to build and how to design each service interface. The collaboration ensures that EE's service design guidance and patterns are followed and that bad service designs and antipatterns don't slip through the cracks.

- **Guides the emerging portfolio of services.** The SOA governance team informally watches over all of the services that project teams are developing within each business domain by means of project architecture and service design reviews. This allows EE to ensure that it is developing coherent portfolios of services rather than haphazardly building one-off services that seem right for a specific project. This prevents the creation of redundant services and provides a central point of service discovery, thus allowing EE to plan reuse into projects before they begin.

- **Focuses SOA metrics on service reuse and performance . . .** Because EE has a strong across-the-board commitment to its SOA strategy, has successful collaborative governance, and puts a high priority on completing its post-merger rationalization, it does not yet need to implement metrics to provide perspective on its SOA process and its organizational discipline in following the process. EE maintains performance benchmarks for each service so that it can ensure that services do not regress toward performance as teams update them.

- **. . . and uses an intelligent approach to evaluating service reuse.** EE's SOA governance team doesn't focus on simple reuse counts. For its major business services, it looks specifically at reuse potential, tracking whether each of its brands and channels is using the service. Thus, the key

metric is not how many times a business service is used, but whether the service is being used where it should. For atomic services, EE does not consider a specific reuse number to be good or bad, although it may examine a service with low reuse to see if its design is too narrowly specific to a given consumer.

EE's Project Governance Integrates With Its Agile Development Approach

EE's overall approach to project-level SOA governance encompasses its focus on the integrity of EE's service designs. EE forms and funds its projects using a traditional waterfall-style life cycle — but once projects are funded, they proceed using an agile development style. The merger process provided strategic funding for EE to establish its SOA strategy and platform, but projects are nonetheless expected to build in budget for incremental SOA expansion as needed. Key project-level SOA governance checkpoints include:

- **At project feasibility, governance establishes the project's SOA direction.** During project feasibility analysis — before project budgets and schedules are set — collaboration between project teams and SOA analysts ensures that projects are using EE's SOA strategy in the right way. At this stage, the analysis centers on the business areas and applications a project will touch, and whether services already exist for them. If services don't exist, the team agrees on a plan for creating the right services as part of the project.

- **Once the project architecture is set, governance confirms the project's SOA plans.** After the feasibility analysis but before projects actually get underway, the SOA governance team confirms that the SOA direction is appropriate. This ensures that projects are set to use the correct services from EE's existing service portfolio, create new services that will fit well into the portfolio, and use EE's SOA platform correctly.

- **As part of service design, architects check data models for consistency.** Although EE has yet to introduce a formal common information model strategy (also called a "canonical information model" strategy), it does involve data architects as part of its service design review process. This informal start on common models provides a baseline of consistency between data at rest (e.g., in databases and applications) and data in motion (e.g., in service interface designs).

- **During service implementation, automated tooling verifies standards compliance.** EE uses a combination of scripts and tools to scan service implementations and ensure that services comply with EE's standards before going into production. Scripts within EE's configuration and build tools do automated checks for WSDL formatting, WS-I compliance, XML schema structure, and the like. Analysts review naming conventions manually.

EE'S SERVICE LIFE CYCLE BEGINS WITH BUSINESS COLLABORATION

EE knows the importance of getting SOA business service designs right, so it built a direct connection between business analysis and solution delivery as a key part of its service life cycle. The major steps in the process are:

- **Businesspeople participate in use case development.** In the early stages of a project, the business context is clarified and focused through use cases. Businesspeople are involved in this stage, ensuring that business processes, transactions, and control points are clear. This clarity brings focus to the business work being done and how the work flows across steps in the process.

- **Use cases set the context for identifying SOA business services.** With a clear idea of the flow of work and steps within a process, EE's analysts can identify the business units of work — that is, the transactions and queries — that should be embodied as SOA business services. Use case statements about process requirements feed into the definitions of the functionality and interface definitions for each business service. Project teams and the SOA governance team finalize business service interfaces through EE's service design governance processes.

- **Business service definitions set the context for identifying technical services.** Once EE's technical staff understands the functionality of EE's business services, they can analyze how to implement the service using EE's service patterns. Following in line with EE's service patterns, service implementations may leverage integration adapters, custom-built Java code, SOA application services, SOA infrastructure services, or other technical designs.

EE Uses A Service Build Factory Run By Torry Harris Business Solutions

To build its services, EE contracted with Torry Harris Business Solutions (THBS) to run an offshore SOA service build factory (see Figure 3). The factory frees EE's technical staff to focus on service design and its overall SOA architecture. The relationship has been running successfully for more than 18 months; THBS has delivered hundreds of services during that time. THBS's team consists of:

- **On-site management and technical leads that ensure a tight connection with EE.** As a key coordination point in the relationship, an on-site THBS factory manager ensures that the build factory is running smoothly. A lead architect and multiple domain technical leads ensure continuity and clarity of service requirements and designs and serve as advisors to EE's technical staff and SOA governance team.

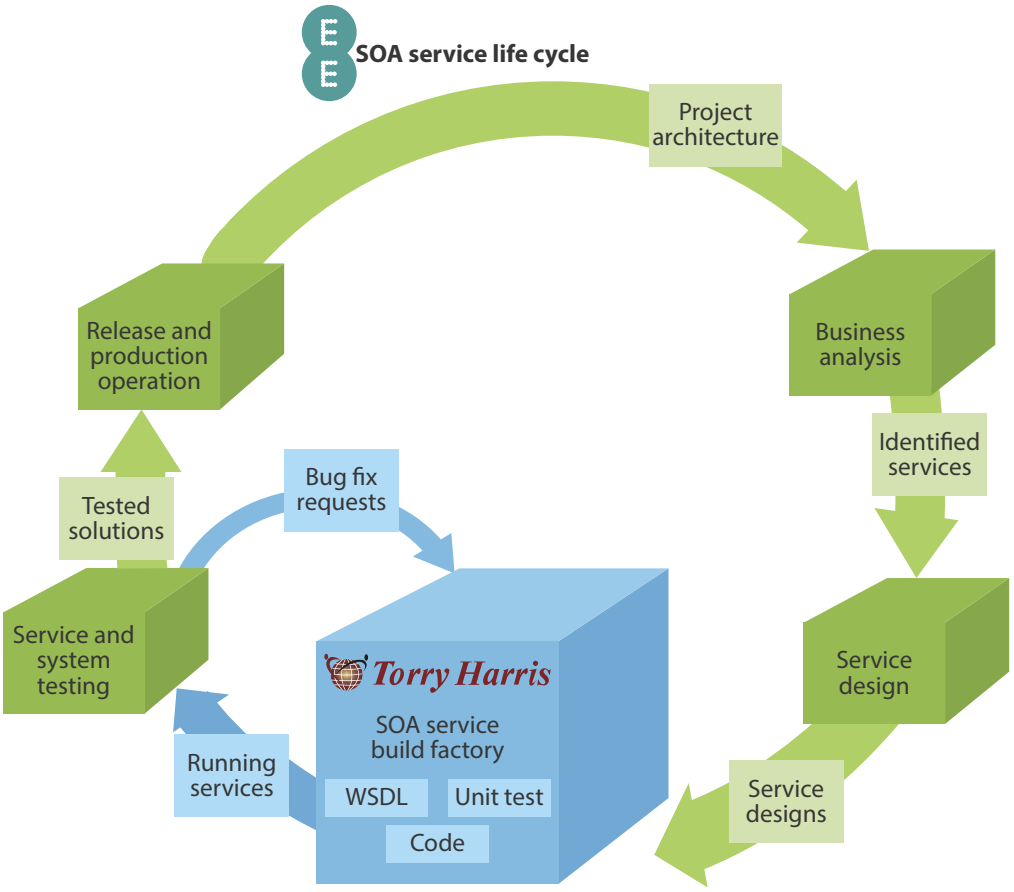
- **An offshore core team to maintain continuity.** At THBS's offshore location, a dedicated core team provides continuity to ensure that EE's flow of service builds maintains momentum, without having to frequently retrain on EE's SOA environment and standards. The core team includes two subteams, one for building services and one for testing them.

- **An offshore pluggable shadow team for managing peak loads.** Additional offshore team members are available to join the core team to address peak loads for building and testing services.

In addition to the THBS build factory, EE leverages Sogeti as an outsourced provider for integration testing of its services. This provides checks and balances for ensuring a high quality of business service functionality as well as technical service quality.

In addition to service build factories like the one it runs for EE, THBS provides clients with services across the landscape of SOA strategy, including establishing an SOA vision, defining service life cycles and governance, designing and implementing SOA platforms, identifying and designing services, and converting legacy integration interfaces into SOA services.

Figure 3 EE's Service Build Life Cycle Uses A Build Factory Run By Torry Harris Business Solutions



103261 Source: Forrester Research, Inc.

WHAT IT MEANS

SOA IS A PERMANENT PART OF THE BUSINESS TECHNOLOGY LANDSCAPE

EE's case is not unique. Forrester continually hears of companies that have gotten business value from SOA similar that which EE has received and continues to receive. Although the conversation around services is shifting — for example, APIs are a new offshoot from SOA, and REST messaging is becoming more important because of open Web APIs and mobile apps — SOA will continue to be a permanent part of best practices for enterprise business technology. Key success factors for SOA remain:

- Build the center of your vision for SOA upon business design concepts, not integration.[4]
- Establish a lightweight, evolutionary, "street-level strategy" for SOA.[5]
- Make SOA business services the center of an integrated, simultaneous design of both business and technology.[6]
- As a key element of SOA governance, establish a coherent business service portfolio management process to drive service design and reuse.[7]
- Leverage a variety of strategic and tactical investment approaches for SOA.[8]

SUPPLEMENTAL MATERIAL

Companies Interviewed For This Report

EE

Torry Harris Business Solutions

ENDNOTES

[1] Source: EE (http://explore.ee.co.uk/our-company/about-ee).

[2] Effective strategies for network-based services, including both SOA and API for the open Web, require maturity on multiple fronts. It's a challenge for application development teams and solution architects to draw a clear relationship between SOA and APIs, and even more challenging to craft a strategy for ensuring the highest business value from their SOA and API strategies. A maturity model helps by providing a flexible framework of related best practices, fostering incremental best practice adoption for today's needs while evolving toward a coherent long-term strategy. Forrester's model includes eight areas of maturity ranging from design strategies and patterns to development life cycles and funding. See the September 5, 2013, "Drive Business Agility And Value By Increasing Your API And SOA Maturity" report.

[3] Defining an SOA platform is not as simple as some in the industry make it out to be. Serious pursuit of SOA requires new and different characteristics in your application infrastructure. An effective SOA platform must be a cohesive integration of both new and existing products. Architects should define their SOA platforms function-first — starting with the specific design and architecture characteristics of SOA — and not product-first (like some in the industry do). See the May 14, 2008, "Defining Your SOA Platform Strategy" report and see the May 16, 2008, "How To Build Your SOA Platform" report.

[4] Listen to industry discussion of SOA, and you are likely to get the impression that SOA is best thought of as a technical approach for application integration. While SOA is not less than that, it is much more. The best SOA programs are those that approach SOA first and foremost from the perspective of business design. Forrester highlights five key business-focused SOA design and governance practices, using data from a Forrester survey to demonstrate how they contribute to higher levels of SOA satisfaction. See the May 27, 2011, "Build SOA Success With A Business-Focused Approach To SOA Design And Governance" report.

[5] Forrester uses the term "street-level strategy" to denote an approach that integrates short- and long-term considerations into an integrated approach that can deliver business benefits with today's projects (at the street level) while generally guiding your portfolio of projects toward a common, big-picture goal (the strategy).

[6] Organizations can deliver more business value with technology-based solutions by refocusing solution architecture and integration strategy on the real goal: building a coherent business that can change quickly to achieve and sustain excellent outcomes. Forrester's vision for the future of solution architecture is built on the alignment of business design and technology design. See the March 18, 2011, "The Future Of Solution Architecture: Six Business Design Focal Points" report and see the November 8, 2012, "Digital Business Design Is The New Integration" report.

[7] Across both enterprises and SMBs, 20% of SOA users are struggling enough with achieving the benefits that they are holding off on expanding its use. A Forrester survey demonstrates that SOA governance is the key to addressing these struggles. See the September 10, 2009, "Survey Results Show SOA Governance Improves SOA Benefit Realization" report, see the September 22, 2009, "The Five Most Valuable SOA Governance Practices" report, and see the August 28, 2009, "SOA Centers Of Excellence: The Five Most Valuable Practices That Keep SOA On Track" report.

[8] In 2009, in response to a misguided cry of "SOA is dead," Forrester reiterated the keys to doing SOA right. See the May 11, 2009, "SOA Is Far From Dead — But It Should Be Buried" report.

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