OPEN FOR BUSINESS
TRANSFORMING BUSINESS CULTURE THROUGH OPEN SOURCE
The proliferation of digital technology has created an awe-inspiring number of new connections, products, services, ideas, insights, and efficiencies that previous generations of analog humans could only imagine. These connections have created enormous wealth and bountiful opportunities for future generations of digital natives. There has never been a more exciting time to be digital.

But the speed of these advancements have come at a price. Technology is evolving at a pace most struggle to keep. Tension exists between the operational necessity to maintain lumbering legacy systems and the imperative to invest in higher-order business needs through a modernized enterprise. Where others are frustrated by cost constraints of non-adaptive, inoperable systems, we see opportunity. Because we know there is a better way.

As Booz Allen pioneered the industry of management consulting in 1914, the open source movement has likewise rebooted software development. Siloed processes are giving way to more collaborative behaviors. Open source communities are accelerating digital transformations faster than any company can on its own—even Booz Allen. By embracing an open attitude and enterprise view, we have opened our culture—and our clients—to new levels of performance. And so can you.
**SO WHAT IS OPEN SOURCE?**

**A TECHNICAL APPROACH TO A CULTURAL MOVEMENT**

The term ‘open source’ refers to software from which the original source code is made freely available to redistribute and modify. Consider the mobile app ecosystem, where developers constantly reuse open source tools to publish new apps. Few attempt to build new maps anymore, for example. Instead, they assemble new value by using open APIs to plug into and expand existing services.

Some of the biggest technology companies in the world are in the open source business. During product development, they intentionally jettison millions of lines of source code to the public. In doing so, they build up a community that supports these core products and creates new business opportunities around them. Open source is as much a technical approach as it is a cultural movement.

Smart enterprises recognize the value of open source. The challenge, however, is when and how to adopt an open source approach. Every enterprise and product is different. To be successful, you must consider the business, legal, and technical implications before open sourcing a product. It’s not always the best approach.

Through our strategic partnerships, extensive market research, and experience open sourcing our own solutions, Booz Allen has developed a common view and standardized approach to help our clients plan and pursue an open source deployment strategy.

In the spirit of that movement, we’re openly sharing these principles with our community. So take them, deploy them, and modify them in your enterprise to assemble new value for your business and clients.

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**INNER SOURCING**

**OPEN SOURCE WITHIN YOUR EXPERTISE**

Open source projects can be modified and shared because their designs are accessible to the public. Open source is how communities collaborate. There are a number of reasons, however, why your organization might not want to open source a project. But you can still embrace open source principles within your organization.

Inner source projects involve software development among a controlled community within your enterprise, while provisioning an open source culture across it. Inner sourcing promotes the savvy reuse of code and services inside your organization. Siloed internal planning, delivery, and communication postures give way to more open, more collaborative behaviors. As a result, you’ll assemble better software, faster.

At Booz Allen, we believe so strongly in the value of inner sourcing that we created STAGE, an open framework that simplifies the process of building software in-house. STAGE empowers internal teams to submit, share, and reuse core and common services to assemble and provision applications faster.

“**All the world’s a stage, men and women merely players, each with their exits and their entrances.**”

—WILLIAM SHAKESPEARE

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**Open Source Statistics**

- Eight out of 10 developers choose open source
- The majority of all software purchased by 2019 will be open source
THE POWER OF COMMUNITY

Community software is the term used when source code is released to the public. Typically, a project owner curates the project and encourages a community to contribute and improve the software. Project Jellyfish—our open source cloud broker—and Cognition—our open source platform for data ingest, data fusion, and search—are two Booz Allen examples of community software. Software that doesn’t permit community involvement, or is only free to users to download and view the code, but not modify it, is not open source. Restricting a community from tinkering with code reduces the quality and creativity around its development. What’s more, excluding a community risks limiting software success by reducing the number of contributors who can view, test, and augment black-boxed code.

WHY OPEN SOURCE IS A SMARTER CHOICE

IT MAKES BUSINESS SENSE
Open source development can avoid commercial licensing fees, eliminate R&D spending, and reduce design, implementation, and quality assurance costs, as well as cycle-time. Put another way, if done right, open source can both slash your budget and boost ROI.

IT IMPROVES QUALITY
Communities are faster and smarter than individuals. More experts iterating on a product promotes greater quality assurance. More perspectives bring more insights and original ideas. And that’s never a bad thing.

LOCK-IN HURTS
The open source revolution highlights the unprecedented current level of lock-in to technology, solutions, and vendors. The platform-agnostic nature of open source gives you the freedom to modify and quickly adapt solutions in response to new market opportunities.

CLIENTS EXPECT SPEED AND FLEXIBILITY
Nobody likes waiting for the next software update. Your clients least of all. Its low cost, coupled with a community’s ability to rapidly customize software as needed, endears open source solutions to clients and developers alike.

THE PRINCIPLE OF SAVVY REUSE

CORE OPEN SOURCE PRINCIPLES AND BEST PRACTICES

The movement from raw invention to reuse is a development trend that has steadily grown over time. In fact, reuse has become a foundational principle for how organizations transform their culture and business through open source. Development teams avoid building from scratch, and instead assemble and reuse the architectures, standards, and code that already exist, and the great technologies that others have developed. Whether for an open source or inner source solution, embracing a savvy reuse philosophy saves you time, money, and accelerates your ability to scale new services and capabilities across your enterprise. Digital nirvana is not when you’re building new things—it’s when you’re assembling new value. Reuse alone, however, is not the panacea for your organization’s open source practices. You must make key business, technical, and legal decisions around how you will produce—and protect—your open source solutions.

BUSINESS PRINCIPLES
Before your developers start churning out code and assembling new digital products, you must make key decisions around:

+ Marketing: How will you develop digital campaigns and collateral to generate awareness and excitement for your products
+ Managing: How will you effectively curate the open or inner source community throughout a digital product’s life cycle

OUR APPROACH
Booz Allen applies a highly structured, market-tested methodology to digital product management. We guide open source products through creation, development, launch, monitoring, and continual improvement to make sure we’re maximizing value every step of the way.

TECHNICAL REQUIREMENTS
To successfully develop and deploy any open source solution, you must think through the following technical requirements:

+ Development: Weigh the tradeoffs between building in public or internally
+ Deployment: Select where your code will sit and who will comprise your user community
+ Security: Put the right measures in place to ensure no vulnerabilities or issues are exploited
+ Audits: Scrub your code to ensure that property rights are upheld and intellectual capital is omitted

OUR APPROACH
We’ve done this ourselves: open sourcing software solutions, and even giving them away for free. We know what to look for, and we’ve defined a technical approach to...
address the key technical decisions before, during, and after deployment.

LEGAL CONSIDERATIONS
Communities without laws devolve into chaos. Open source is no different. Identifying and addressing the following legalities is critical:

+ Protecting: define who owns what and ensure intellectual property rights are upheld
+ Licensing: Identify which open source licensing model fits you best, and then apply that model
+ Documenting: Ensure that documentation requirements are met, and artifacts are available

OUR APPROACH
Booz Allen incorporates both standardized and unique legal requirements and considerations to ensure compliance and protection of intellectual property.

BEST PRACTICES

OPEN SOURCE MATURITY
Booz Allen’s Open Source Maturity Model (OMM) is a methodology for assessing the development process behind open source software. OMM helps build trust not only in companies making Free/Libre Open Source Software (FLOSS), but in their processes as well. OMM’s objective is to provide you a baseline for developing products efficiently, and simultaneously build trust and confidence among potential customers.

KEY CONSIDERATIONS
+ Which level will you use—basic, intermediate, or advanced?
+ How will you enforce standards without getting burdened down by processes?
+ How will you communicate which standards will be used?

OPEN SOURCE STRATEGY
“Why am I open sourcing this application?” It’s the question that grounds any open source strategy, first and foremost. And it’s not rhetorical—if you can’t answer that question from a short-term and long-term perspective, then stop what you’re doing and ask for help. Ask us if you’d like. We’re happy to help you map out your key goals and objectives, develop an open source strategy, and ensure you accomplish what you set out to do.

KEY CONSIDERATIONS
+ Why are you open sourcing the project?
+ How will the code be maintained?
+ Is this a community or non-community project?
+ How will you build and curate a community?
+ How will you manage contributions?
+ Will you use an existing framework?

SECURITY
Today, applications must be built with security as a top priority. Security must be tightly integrated within the software itself, with the ability to inspect and modify underlying software code quickly and easily. Contrary to past beliefs, open source software is actually more secure than proprietary software because any developer can easily examine the nuts and bolts of code, fix breaks, and implement security controls. Those same security controls can be rolled out with software updates, and be made easily accessible to the open source project community.

KEY CONSIDERATIONS
+ Does your application store any kind of protected data (PII/HIPPA/etc.) during production?
+ Does your application comply with all standards and best practices for storing protected data?
+ Is protected data encrypted?
+ If you are storing passwords, are they salted and encrypted?
+ Has your code been scanned for issues (Code Climate, Nessus, Brakeman, etc.)?
+ Are you protecting against standard attack vectors (e.g. SQL injection)?

CODE MANAGEMENT
Any successful open source project requires smart code management. When this is done right, people can easily find information about your application, view the source code, and collaborate to give essential feedback.

KEY CONSIDERATIONS
+ Where will you host the source code?
+ Which version control system will you use (e.g. Git, SVN, etc)
+ How will you tag version releases?
+ Will you test?
+ How will you enforce your coding standards?
+ Will you do code reviews? And if so, who will do them?
While innovators improve on today’s ideas, pioneers define the paradigms of tomorrow. The future of digital involves open sourcing software and other intellectual property for the world to freely access, contribute to, and reuse. The future will be increasingly collaborative and community-driven. In many ways, that future is already here. Selecting the right open source business model is essential to positioning your company for the future. It could be a big differentiator for your business. We know from experience. What’s more, open source projects, if positioned correctly, can be a great source of revenue. There are several business models to consider when you make the decision to go to market with an open source product or solution—each with their own distinct advantages.

**THE ENTERPRISE SUPPORT MODEL**

This model is a standard model of enterprise software agreements. In this scenario, your organization provides the software, and installation, deployment, and configuration documentation. The end-user sets up the system. Once the system is set up and/or the customer needs assistance, they would contact you for any troubleshooting issues. Typically, you need only provide verbal or written directions in this scenario, with the exception of an actual software bug, in which you would comb through the code and release a new version of the software for the end-user.

**CONSIDERATIONS FOR THIS MODEL**

+ What SLA are you willing to support?
+ Do you have the staffing to support the SLA?
+ You must have solid step-by-step documentation for installation and configuration.

**THE SaaS MODEL**

This model is becoming more and more commonplace. In this scenario, your organization builds and hosts the software. You then allow others to sign up to use the services. Generally speaking, this is done via a subscription payment on a monthly or yearly basis. Alternatively, many companies offer the “freemium” model, which allows free use of the SaaS application under certain conditions. For example, free use for any open source project, but any closed source project would pay a subscription fee.

**CONSIDERATIONS FOR THIS MODEL**

+ SaaS services need to be ran at 100% uptime
+ SaaS services must have continuous monitoring with a way to easily communicate with customers (e.g. a status page)
+ Do you have the staffing for 24/7 support?
+ What is your cost per “thing” you’re selling?
+ If you use freemium, what are you offering for free?
+ Does your freemium encourage widespread use?

**THE SYSTEMS INTEGRATOR MODEL**

This is the most traditional model that a technology consulting company like Booz Allen offers. In this scenario, your organization provides the software, and works with the customer to install, configure, and integrate it into the client’s environment. You would then provide training and documentation to the client. Once the period of Performance is over, the client is responsible for any further upgrades, changes, or configuration.

**CONSIDERATIONS FOR THIS MODEL**

+ Ensure any “core” source code changes can either be (1) modularized or (2) integrated back into the main project.
+ Ensure all documentation is up-to-date
+ Need to have a solid training package not just for the core application, but for any custom integration as well
+ Confirm the client has API’s in place to integrate with before you start
+ Does the client have any special requirements (e.g. app must be 508 compliant)?

**THE PARTNERSHIP MODEL**

This model should not be considered a stand-alone, but rather an “add-on” to one of the previous models. In this case, your organization partners with another group to bring an application to completion by working together and playing to the strengths of each company. On Project Jellyfish, for instance, we partnered with Microsoft to speed development of Microsoft Azure support for our open source cloud broker. This allowed Booz Allen to use the expertise of Microsoft and their Azure platform, providing extremely valuable guidance, and early access to features in Azure. In addition, Booz Allen has teamed with Red Hat to contribute Project Jellyfish code to their premiere cloud management product—CloudForms. The self service and brokering aspects of CloudForms stem from Project Jellyfish.

**CONSIDERATIONS FOR THIS USE CASE**

+ What is expected from each company?
+ Do the end-result expectations for each company align?
+ Do the companies have a good relationship?
+ What would happen if the partner left?
+ What is the license of the jointly developed app or component?
+ Who will project manage the use case?
**OPEN SOURCE OR INNER SOURCE WORKFLOW**

1. **IDEATION**
   - Launch of open source business model such as enterprise support or Software as a Service. Intent is to monetize open source project.

2a. **INNER SOURCE**
   - Software product (or other) is built internal to the firm.
   - Activities:
     - Search for any similar internal projects
     - Look for existing components to reuse
     - Create application architecture
     - Begin to develop code base
   - Deliverables:
     - Project Plan
     - Build Plan
     - Release Plan
     - Github Account
     - ARS Docs
   - Tools:
     - Enterprise (Private) github.bah.com
     - Development IDE’s
     - DevOps Playbook
     - STAGE

3. **GO-TO MARKET**
   - Optional: Launch of open source business model such as enterprise support or Software as a Service. Intent is to monetize open source project.

**IDEATION**

- Plan
- Build
- Rebuild

**Stage**

- Setup
- Define
- Assemble
- Publish

**PRIVATE REPO**

- Private Resume of People and Tech
- Plan
- Package
- Release

**PUBLIC REPO**

- Public Resume of People and Tech
- Plan
- Pitch
- Launch

**DevOps**

- Non Community vs Community
- Public Repo

**Clients See**

- Plan
- Pitch
- Launch

**Clients Buy**

- Plan
- Package
- Release

**PUBLIC @ BOOZ ALLEN**

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     - STAGE

2b. **OPEN SOURCE**
   - Software product (or other) is built and/or matured external to the firm.
   - Activities:
     - Build package—business, technical, and legal package
     - Conduct legal and security scans
     - Transfer Github accounts
   - Deliverables:
     - Project Plan
     - Community Plan
     - Release Plan
     - Github Account
   - Tools:
     - Github (Public)
     - Development Tools
     - DevOps Playbook
     - Project Manager Tools

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**OPEN @ BOOZ ALLEN**

Booz Allen Digital transforms and modernizes the world’s largest, and most dynamic organizations. Our mission has always been to help clients find the best path to success, which is increasingly done through open source. Through this approach we help clients master their digital challenges, and deliver solutions with scale and agility.

We’re committed to building an open culture at Booz Allen. One where our people come together to work on problems that excite and challenge them. We’re drawn to people who want to see what a problem looks like under a different light, and who can’t resist picking it up after others have put it down. We’re not interested in internal fiefdoms and who ‘owns’ what. We just want to reuse each other’s code to assemble software that our clients actually want to use.

It’s a collaborative culture that is transforming the way we do business. In particular, our open source culture is helping us:

+ Create original capabilities by curating our own communities and participating in others
+ Build our brand by opening our technology and people to clients
+ Forge opportunities outside our traditional business models

**Tenets of Our Community**

We’re unwavering in our commitment to the open source movement. We’re relentlessly tinkering with open standards, architectures, data, and technology to assemble awesome solutions for our clients and our business. We savor that rush of play. It’s something we’re compelled to do.

Over time, we’ve raised up an entire community within our company to promote the use and adoption of open source software to accelerate delivery and participate in new communities. Our people were thrilled. They jumped at the chance to sift through bits and bytes of code, build upon their colleagues’ perspectives, and collectively imagine new solutions. It’s a community founded on two simple ideas:

**Build a Culture of Open Source**

We empower our teams with the freedom to experiment, fail, and learn with different technologies to build a resumé of inner and open source projects. The collaborations among these teams drives business through open source principles.

**Be an Essential Partner for Open Source**

We’re committed to incubating and accelerating inner and open source projects through investments, hackathons, and other activities. We encourage our teams to hone their skills by contributing to external communities.

—CHIEF STRATEGIST, RED HAT

"...if you want to benefit from the billions of dollars they [the Googles, Intels, and Facebooks of the world] are spending on development, you have to get very comfortable with incorporating these [open source] tools and methods. Not a single buzzword is untouched by this: big data, mobile, social, security, were built on open source, and are maturing through open source tools. Simply put, open source is how our industry learns..."
Our community of digital technologists are changing the way our clients think about, assemble, ship, and run software. They’re changing the way we think about it, too. From cloud experts to data scientists, full-stack developers to security engineers and experience designers, our digital vanguard is a community with license to open new perspectives and with freedom to explore new partnerships and the reuse of code and ideas. This internal community is tightly integrated but loosely coupled. We don’t stifle their creativity. We simply ask them to set the standards for our open approach and propose new ideas for our inner source and open source projects.

**MEET OUR DIGITAL VANGUARD**

**The Agile Developer** turns on a dime, and ships software, code, and culture in parallel scripts.

**The Cloud Architect** sees digital not as it is, but as it should be. They blueprint IT transformations.

**The Open Evangelist** scours new technologies and explores their applications to solve client challenges.

**The Data Scientist** is a master in the art and science of extracting value from data—lots of data.

**The Security Engineer** protects networks and enterprises from attacks and vulnerabilities. They make open, secure.

**The Experience Designer** renders raw code and data into elegant, enduring moments. They make the complex simple to understand.

**The Enterprise Integrator** maximizes the number of possible connections between people, technology, and services.

**The Digital Creative** designs with an engineer’s eye and a craftsman’s hand. Simply put, their creations leave you saying, “wow.”

**THE MORE YOU GIVE AWAY THE MORE YOU GET BACK**

**OUR DIGITAL TRIBE**

We made an investment to build and maintain digital meeting points—intersections between communities, people, ideas, and technology. These inner sourcing projects connect work with play, and rally our digital vanguard behind meaningful causes.

*Developers publish inner source code to our internal STAGE repositories*

*Regular challenges and pitch events motivate our teams to work on projects beyond their daily client responsibilities.*

**CITIZENS OF A GLOBAL COMMUNITY**

We know great ideas come from everywhere, and that communities are smarter and faster than individuals. We’ve embraced the open movement. We’re an essential partner in shipping to and curating many open source communities and forums.

*We curate Project Jellyfish, the open source cloud broker platform*

*We sponsor and participate in events like the Data Science Bowl, the leading open data social good initiative*

**OPEN PERFORMANCE**

**OUR APPROACH**

You can see it in the way we lead. In the way we partner. In the technologies we deliver. It’s realized in every mission we move forward. It’s what our clients need, and it’s what they’ve come to expect. We couple our deep knowledge of our clients’ missions with our open source culture and expertise to assemble original value.

**SUPPLEMENT INVESTMENTS**

Community-driven development approaches open alternative investment strategies. Today, our projects can be opened up to the community for individual or company contributions. In turn, these teams provide in-kind funding and technical support for the project.

**ALTERNATIVE REVENUE STREAMS**

Open and inner source projects have expanded our business opportunities. They permit traditional consulting and software delivery models as well as new revenue streams, like developing special plugins and working of policies like interoperability standards.

**MAKE YOUR IMPRINT. SOLVE A PROBLEM THAT MATTERS.**

http://www.boozallen.com/careers

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INNOVATE FORWARD

Booz Allen is an innovation leader, propelled by the imperative to reimagine solutions to our clients’ large-scale and complex challenges. We are a big company with bigger ideas, and for more than 100 years, we’ve been essential partners to some of the biggest organizations in the world. And yet, our innovation philosophy hinges on four small beliefs. Innovation is necessary for sustainable growth. Building new value is about more that just building new things. New ideas are born from experience. And the brightest future belongs to those organizations that adapt and change.

JOIN THE COMMUNITY @ boozallen.github.io

About Booz Allen

Booz Allen is headquartered in McLean, Virginia, employs approximately 22,500 people, and had revenue of $5.27 billion for the 12 months ended March 31, 2015. To learn more, visit www.boozallen.com. (NYSE: BAH)