



# Sustainable Development

The Next Frontier for  
Enterprise Architecture





The concept of Sustainable Development has been around for many years, and has become if not a goal, then at least a feature of most major enterprises (through Corporate Social Responsibility and other initiatives) and government organizations. In 2015 the United Nations launched an initiative to address global sustainable development, with 168 target states identified for completion by 2030. However, even this 15-year period is now likely to be insufficient to meet their goals following the impacts of the COVID-19 pandemic. One national government commented on the forthcoming issue thusly:

*“Moving forward, architecture...will be pressed to collaborate on activities which impact the globe to fast track critical aspects of...sustainability. Solely building models for individual companies is gone, and increasingly architects will be required to evaluate the impact of global initiatives on continents, countries and industries by indicating the role that companies can play in achieving these noble goals.”*

Efforts to accelerate sustainable development throughout organizations are likely to become a major focus point over the coming years, with potential impacts for all stakeholders. Enterprise Architecture (EA) will have a role to play. This paper will look at what the push for sustainable development could mean for enterprises, and how EA will be involved.



## Understanding Sustainable Development

Before we dive into the meat of things, a brief primer on what exactly sustainable development is, and what it is not. First, we should clarify that Corporate Social Responsibility (CSR) does not imply that Sustainable Development is being pursued. An enterprise could choose to donate huge sums to charitable organizations and yet still be operating in an unsustainable manner, for example. Inevitably, CSR and Sustainability will have some cross-over, but it is a mistake to state that engaging in CSR means a business is sustainable.

Sustainable Development is fairly simple to define: it simply means continuing human progress without harming the natural environment on which society depends. As a broad objective, it is more applicable to governmental organizations than the business world, which do not tend to have such a broad scope of activities. Nonetheless, architects would do well to remain informed, not just for the possibility of working on governmental EA, but also for the potential of sustainable development EA to spread and impact on other areas of enterprise architecture. Who's to say that a future TOGAF version won't start to consider sustainability or corporate social performance?





Source: United Nations, <https://www.un.org/sustainabledevelopment/>



For governments, the direction of sustainable development largely comes from intergovernmental organizations, principally the UN. The UN defined 17 goals for sustainable development (known as SDGs), which themselves are divided into a total of 169 target metrics. Each target was set to be achieved by 2030. For example, the first SDG is eliminate poverty, which is made up of targets such as eliminating extreme poverty (people living on under \$1.25 per day) and reducing national poverty levels by half. The full list of SDGs can be seen in this image.



The selection of goals is unlikely to be too surprising, encompassing a worthy list of endeavors that practically no one would object to. Unfortunately, progress on many of these has either failed to advance quickly enough or been heavily disrupted by the fight against COVID-19, which raises the prospect that the majority of targets will not be met by 2030. It would not be the first time that the UN has set lofty goals and failed to fully meet them, but the impending failure has placed more pressure on national governments to adopt new approaches. Digital transformation and enhancing the delivery of government services through technology is one such approach. Arguably, governments are too concerned with digitalization, rushing into new technologies without necessarily understanding the use case for them, but in either case government enterprise architecture should have a big role to play. According to **Dr. Pallab Saha**:

*“In their eagerness to show progress, many governments take a piecemeal approach to digital transformation initiatives. It is well-known that a more integrated and holistic thinking is needed, but seldom do lawmakers and bureaucrats have the patience or inclination.”*

Enterprise Architecture for governmental organizations does already exist, with FEAF (Federal Enterprise Architecture Framework) already in use across the US. However, FEAF does not contain any specific guidance for dealing with sustainability and thus further development is going to be required.





## Sustainability and Architecture

There are several approaches to consider with sustainability and enterprise architecture. In one sense there is the generic approach, in which EA does not specifically intersect with sustainability but rather is used as a tool to achieve goals, which can include sustainable goals. Governments around the world have adopted enterprise architecture in order to help address the many challenges they face, particularly with technology. If a government organization architects a new system for energy management within a particular region, then to some extent they could be using EA to help achieve an SDG related to clean and affordable energy. However, what we are more concerned with is the direct approach to considering, reporting on and achieving SDGs.

The big question is how enterprise architecture and its various sub domains will adapt to requirements for sustainable development. To one extent, existing EA structures do have the capacity to support sustainability. To the extent that digital transformation will enable the achievement of the SDGs, of course EA is going to be vital to that achievement, but we should dismiss the capacity of TOGAF and the likes to support SDGs. These frameworks have been built to be flexible and encompass a huge variety of different industries and business models.



We can at least foresee the ways in which EA will have a direct influence. Ultimately, the SDGs are data-driven goals, with quite clear success/failure conditions, and EA is well positioned to handle such things. Mapping of SDG targets to architectural domains will reveal the requirements of the project in terms of the information, processes and business capabilities required.

To delve into further specifics, modeling is one route that could prove particularly useful. Projects that seek to address SDGs ought to be able to describe how they will meet the targets. The Business Motivation Model (BMM) from OMG is a natural candidate for this. The BMM is a decision making model which can be used to document a desired future outcome as a result of a decision. By creating a motivation model for the SDGs, organizations can determine the questions they will need to answer to enable them to meet each goal; essentially, the model allows architects to start building a solution by identifying the people and processes they need and how they can feed into the strategy for an SDG.





Once a BMM is complete, architects can create an operating model which details the structures needed to achieve the outcomes specified by the motivation model. The operating model can then be contrasted with current business capabilities to determine architectural maturity, and identify the capability gaps that will need addressing in order to reach the desired future state.

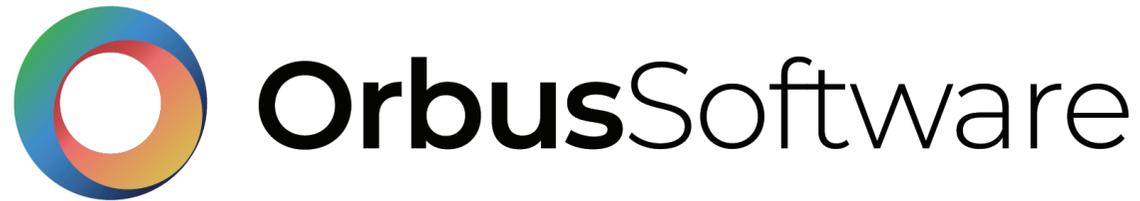
We can also look at specific examples that exist for architects to learn from. Dr. Pallab Saha, as referenced above, [provides the example of the IndEA](#) (India Enterprise Architecture) framework, a TOGAF based framework with a number of dimensions that specifically address the SDGs. Saha highlights a performance tracking model, a business model that maps services to goals, a data model which determines what information an organization needs to achieve the SDGs, and an integration model which details how different aspects of the overall reference model feed into each other and need to be integrated achieve the ultimate goals of the organization. This kind of specialized framework will need heavy adjustments for different governments and commercial organizations but illustrates the kind of approach that may be necessary.

# Summary

Despite the words expended on this topic, we must admit that this is still only a surface analysis. As sustainability comes to the fore on the world stage, it is inevitable that the likes of The Open Group will take steps to look at the integration of sustainable development within EA frameworks. The impacts of the SDGs are not likely to extend beyond governmental organizations for some time, and how we think about sustainable development may radically change in that time.

Nonetheless, sustainable development is undoubtedly an important area for enterprise architects to think about. Aside from the simple fact that we do not want to waste our world's resources and leave people in poverty, national governments are likely to become more serious about achieving the SDGs and this could filter down in many ways. It's certainly not impossible that private companies are recruited in the fight for sustainable development, or that regulations pass which compel better reporting and activity towards some of the goals. We all have a requirement to think about how sustainable development can be enabled.





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