***Advances in Project Management Series***[1]

# Managing change in complex environments

*By Jonathan Whelan*

Today's technological and competitive pressure is forcing organizations to achieve greater efficiencies while meeting ever-declining price points. As customers expect more for less, organizations have to deliver better service and greater value for money year-on-year.

To survive, organizations must provide customers with great customer offerings and at the same time maintain their ability to change or reinvent themselves, and do so with agility – responding ahead of the competition is a differentiator. Increased competition fuelled by an expanding and maturing global marketplace and the penetration of technology into the home has led to rising customer expectation. To do better than just survive, organizations must offer something unique; in the industrial age a key differentiator was price, but in the information (or, arguably, knowledge) age there are many dimensions including, but certainly not limited to, customer experience, personalised customer service, responsiveness, agility and innovation. These are the dynamics that today's organizations face.

But change has always been present and it has always been a necessity for organizations to master change if they want to excel. Many organizations respond by reorganising themselves and others by re-inventing themselves. Take, for example, 3M, a company who started out as a niche mining company and evolved into a multi $billion solution provider to customers in over 200 countries with over 55,000 product solutions.

The most successful companies adapt to embrace and exploit change; others (but not all) survive.

## Increasing Competition and Globalization

The response to constant change is not a simple case of modernising or refreshing an existing product or service line. The Internet as a distribution channel has removed geographical borders and allowed even the smallest companies to compete with the largest. The Internet has shrunk the world and provided access to a global community to ramp up competition.

Addressing these dynamics is leading organizations to restructure and reorganize themselves in a more integrated fashion not just to the existing business model but to a

[1] *The Advances in Project Management series includes articles by authors of program and project management books published by Gower in the UK. Information about the Gower series can be found at http://www.gowerpublishing.com/advancesinprojectmanagement. See the author's profile at the end of this article.*

reinvented one. At the same time organizations are extending out to third parties and offshore locations creating an ecosystem of collaborating entities. The pressure to squeeze out inefficiencies of more conventional, siloed organizations is irrepressible. Whether the silos exist as individual legal entities under the umbrella of a holdings company or as disparate local and international divisions within a single entity, organizations are focusing on developing capabilities that drive strategic differentiation. Furthermore, they are exporting capabilities from the core to the external reaches of the ecosystem where they are commoditised and/or most efficiently served.

Organizations are eliminating, rationalising, standardising and reusing common labour, products, services, processes and technology. And they have to do so against a backdrop of increasing regulation – one of the "costs of doing business" – and corporate and social responsibility.

In some cases, changing the existing organization is too hard. We saw this with the Internet boom at the start of the 21st century. "Bricks and mortar" organizations were just too slow. To compete with new market entrants, start-ups were incubated and grown alongside their "bricks and mortar" parents and either subsequently integrated or left to operate alone under a differentiated branding. This model is still likely to be necessary going forward.

However, the ability for organizations to disassemble and reassemble is, in most cases, not feasible because no-one really understands how their organization works and which of its activities are decisive in making profit and loss. Rarely can any one individual understand all the complexities of today's conglomerates.

## The Influence of Technology

Change may be constant but the pace is not: technology is a major accelerant. So dramatic is technology's influence, it has the power to redefine the business landscape, to shape the structures and behaviour of organizations, to ultimately determine the success of organizations. With such an influence, organizations cannot ignore technology; they must embrace it. As organizations develop technology, exploit technology, sell technology they must ensure that they refresh and rejuvenate their business models to ensure they are not wrong-footed or even marginalised by competitors.

New technological advances are creating opportunities for start-up organizations to challenge the fundamental business models of industry sector leaders, sometimes leaving them stranded and struggling to survive and compete. Examples include Amazon vs. Book Stores, iTunes vs. Music Stores, Google vs. traditional advertising; the list goes on. If those examples don't convince, today there are organizations that can attract more revenue from the advertising on their web site than they can from the products and services they channel through the web site.

## The Whole and the Parts

A modern day motorcar has over 10,000 parts on average and a Boeing 747 has six million parts. Each of these has some form of architecture in place. Construction of motorcars and aircraft is complex but their design and manufacturing has been constantly refined over the last 100 years or so. In other words, their architecture is well understood. This architecture is relatively static in nature: once these machines have been designed and manufactured they are largely expected to operate to the same functional and quality specifications throughout their working life.

The complexity of these manufactured items compared with a living ecosystem is relatively simple – they are tangible, broadly predictable and measurable, and hence manageable. Of course the design and engineering feats required to create something like the Boeing 747 should not be underestimated – it is without doubt one of the most recognisable icons of the 20th century. But developing an architecture for something that is constantly changing in purpose, operation and nature, that contains as many dynamic agents as it does static agents, represents another level of challenge, and one that every large organization faces each day.

Managing complexity in this way drives up the number of parts in a "solution". Organizing the parts structurally and determining how they behave and interact requires an architecture to ensure that the collective set of parts operate optimally.

With a solution like an aircraft, with thousands of different kinds of parts, without an architecture composed of super-structures, structures, assemblies, sub-assemblies and parts, conception would be difficult and construction and maintenance would be harder. Furthermore, the aircraft has to be designed to cope with the challenges it will face in the skies!

It's not sufficient to optimise each of the parts individually: having each part optimised for its own aims doesn't necessarily mean an optimised whole. A car with a super powerful engine able to achieve 300km/h is not much use unless the brakes are up-rated accordingly.

## The impact for project and Project Managers

Although I make comparisons to complex machines, organizations are not mechanistic but largely social. Organizations are full of people and so organizations must be designed to maximise the human potential - as well as the technology. In many ways society provides useful parallels to understand the problem facing business owners, managers and architects. Deciding to swing towards or away from employing stronger architecture and more command-and-control across an organization with less freedom to the individual parts is akin to political swings in society: swings between greater or less private sector and public sector contribution to society; swings between powers of the state and powers of the individual. The real challenge for organizations is getting this balance right. And when it comes to managing change, project managers are the keystones of the transient structures that are programmes and projects that deliver change.

## Using Business Architecture as a change tool

Business Architecture:

- Provides a way to describe and visualise the components of an organization
- Enables organizations to be viewed holistically, providing traceability from intent (investment of financial and human capital) to outcome (operational cost reduction, faster time to market, reduced cost-to-market and cost-in-market, customer satisfaction, shareholder satisfaction and so on)
- Provides a mechanism to balance risk with opportunity
- Is a collection of assets, methods, processes, directives and resources that combine to realise a purpose, a goal, a vision
- Is complementary to other disciplines (such as P3M, Business Strategy and Enterprise Architecture).

Business Architecture is not "the solution". Business Architecture serves to facilitate change and the identification of change "work packages" (programmes or projects) necessary to take the organization from where it is today to where it wants to be in the future, following a defined roadmap. Crucially, this change is not based upon a "Scrap and Rework" mentality but a "Learn-Adjust-Deploy" evolutionary cycle. I suggest that a "Scrap and Rework" mentality is borne out of short-sightedness. "Learn-Adjust-Deploy" is borne out of foresight; foresight that change is inevitable and experience that scrap and rework is not economically efficient over time.

## The Value Proposition of Business Architecture

Business Architecture is intended to support the management and evolution of organizations. It aims to break down complexity through the application of holistic analysis and design techniques. So, (Business) Architecture provides a way of decomposing the business in a way that enables it to improve.

Often organizations say "we haven't got time for architecture "and "it's not adding value to the here and now". It seems that those organizations don't have time to consider the longer-term consequences but they do have time to "deliver". But they ultimately fall short of success and then try all over again – Scrap and Rework. There is confusion between motion and action; that is, between doing the right change at the right time and doing the change right, the latter of which is P3M space. Too often organizations are "fire-fighting" rather than architecting.

Architecture should embody the longer-term perspective and not preclude shorter-term tactical decision making; architecture isn't a hindrance if developed at the right level of detail. In fact it can usefully inform how far off a proposed strategic path a tactical manoeuvre takes an organization and what subsequent alteration will be required to get back on track.

Nevertheless Architecture is often perceived to slow things down. To return to the car analogy, a car has brakes so that it can be slowed down and stopped. But that also means that the car can be driven faster because it can be slowed down when necessary. So having brakes gives the driver greater control over the speed at which they can travel.

Business Architecture encourages the identification and use of the components (or building blocks) of which organizations are composed in the same way that a chemist uses the elements of the periodic table. With the elements identified, chemists are now able to concentrate on combining them to form new compounds - that is chemistry. Without the knowledge of the elements it is not chemistry being practised, it is alchemy.

A primary activity of Business Architects is the communication of the organization's Business Architecture, including its goals, objectives, benefits and so on. That communication should support the activities of Programme and Project Managers. Business Architects should work with Programme and Project Managers (and vice versa) to foster a win-win partnership for the benefit of all stakeholders (and not just the Programme/Project managers and Architects).

## Planning and delivering change

Business Architecture has not evolved because programme/project management disciplines are lacking. It is a complementary discipline that can be developed to support different levels and dimensions of change. In descending levels of detail, architecture can be used to inform and govern change portfolios, programmes and projects. The higher levels may describe target capability while the lower levels describe how the architecture will evolve through time using roadmaps. Roadmaps present current and target state views and intermediate views that illustrate the "stepping stones" or transition between the current and target states.

Business Architecture can also be developed to describe the business at the highest level. If necessary this can then be decomposed into sub-architectures that in a few cases decompose into further sub-architectures. To illustrate, a global organization may develop a global or group level architecture that is then broken down into regional architectures that is then broken down into country level architectures.

Many change programmes and projects fail to meet their objectives and fail to deliver business value. Often this is because:

- the full business context is not understood
- the business community are not necessarily "bought in" to execute the change
- initiatives are led from IT without cognisance of the business priorities, the practicalities of business change, and without alignment or traceability to business goals and objectives
- the portfolios and programmes fail to achieve cohesion and begin to work against themselves.

Having a Business Architecture underpinning a portfolio of business change helps to deliver optimum results. We believe there is room for the development of Business Architecture at a programme and at a project level to ensure all stakeholders know why the change is happening and what outcomes are expected.

## The bottom line

The objective of programmes and projects is to achieve desired business outcomes. Pivotal to achieving this objective is developing a description of the desired outcomes and outputs so that they can be easily understood by members of the programme and project board who are responsible for the delivery. It also makes alignment with other change initiatives easier if the same language is spoken and common views/viewpoints are taken across the change portfolio. The description can be used to agree the scope of work and to decompose the scope of work into tangible, deliverable capabilities. This description should provide sufficient insight to enable the construction of a viable work breakdown structure and to guide the detail specification, delivery and deployment that follows.

Programmes and projects undertake this kind of activity on a day-to-day basis. However, many projects proceed without creating cohesive outputs, or capabilities that are aligned with the strategic objectives of the organization. Business Architecture should form a part of every programme and project to ensure that new capability is aligned on a consistent and impartial basis with strategic objectives.

## About the Author

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**Jonathan Whelan** is an established Business Architect who has over 25 years' experience in a variety of change-related roles within leading organizations. In recent years his focus has been exclusively on Business Architecture and specifically the formulation of Business Architecture for global institutions.

As well as having considerable practical experience, Jonathan is a Chartered Engineer and a Fellow of the British Computer Society. He is also TOGAF 9 certified and Zachman certified.

In his spare time, Jonathan writes on business technology issues and opportunities. A broad spectrum of businesses have benefited from his observations and a number of his papers have led to significant programmes of work within corporate organizations. He is the author of numerous books including '*email@work'* (Financial Times Management) and '*e-Business Matters'* (Prentice Hall). His books have received wide acclaim from government and professional organizations and senior business executives.

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