

MANAGING PROJECTS IN THE HEALTH WORLD

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One of the biggest challenges facing businesses in the current economic environment is the ever-increasing rate of change. This is driven by globalisation, rationalisation and the disruptive use of technology. Most businesses are struggling to deal with the rate of change that greatly exceeds the levels to which their executive management handled in their formative days, but which the Millennial generation are familiar with (Figure 1). In the 1980s, it might be expected that major changes only occurred every 2 or 3 years (black line); by the 2000s, as much time would be spend changing as in a steady state (blue line) but currently, successful organisations need to be in continuous change (orange line).

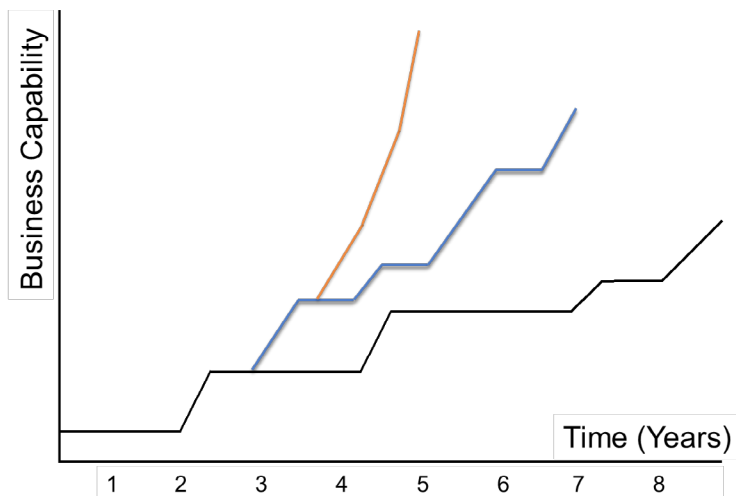


FIGURE 1. Increasing rate of business change.

In the field of health, there has been a major drive towards bio-derived materials, both for sustainability and effectiveness reasons. In delivering change, a critical distinction is between «efficiency» and «effectiveness». These terms are so closely linked that in the Scandinavian languages they are the same word, but there is a vital difference between them – effectiveness relates performance to the achievement of goals, and efficiency relates performance to the use of resources. In delivering change, there is no point in being efficient if the change is not effective i.e. the goals must be achieved to deliver any benefits.

Bio-derived products offer the potential to be more effective in healthcare, but also, through sustainability, can support efficiencies as understanding grows of the impact on our environment of using oil-based materials.

In the UK in particular, there has been a tradition of responding to economic pressures by improving financial efficiency – typically by cutting costs. However, any cost represents a mixture of capability and waste. Whilst it is beneficial to cut waste, there are consequences to cutting capability, as effective change requires capability. Cost-cutting often reduces change capability, leaving the organisation to fail in its change efforts, or forced to buy in expensive consultants, which is not efficient when change is continuous. Successful organisations are characterised by improving their effectiveness through investment, and there are many cases where companies, receiving the investment they needed, have seen their performance rise substantially.

How should an organisation aim to deliver more change, more economically? Experience suggests the need to focus on effectiveness first, then improve the efficiency progressively. Delivering «the right changes, right» demands:

1. Effective change governance – choosing the right strategic changes to invest in
2. A deep understanding of the problem and solution implications – delivering the right solutions to deliver the chosen changes

1. GOVERNANCE OF CHANGE

Over recent years, as the discipline of project management has developed and matured, it has been split into three tiers, Portfolio, Programme and Project (Figure 2).

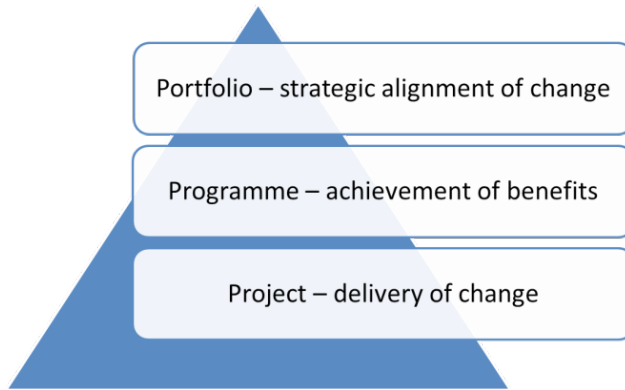


FIGURE 2. Change governance hierarchy.

Portfolio management is seen as a continuous process, funding change that implements corporate strategy (MoP, 2011). Programmes are temporary activities, managing uncertainty to deliver the capabilities, outcomes and benefits that realise corporate strategy by commissioning projects and other activities (MSP, 2011). Projects, in this model, have reduced responsibility for managing uncertainties and delivering benefits, being focused by their parent programme on delivering specific outputs that enable the programme’s outcomes (APM, 2012; MSP, 2011). The following table (table 1) summarises the critical differences, and their similarities:

TABLE 1. Comparison between tiers of governance

Portfolio	Programme	Project
Strategy Winning acceptance of the need for change Prioritising change against: Strategic objectives Capacity to deliver Budget Funding change programmes (and projects) Tracking effectiveness of investment Risk management Stakeholder Engagement	Realizing the vision creating «blueprint» and «road map» Initiating and tracking projects Managing dependencies between projects Managing outcomes & realizing benefits. Transforming business-as-usual Risk management Stakeholder Engagement	Creating plan for delivery Initiating and tracking work Delivering products and capability of benefits Managing dependencies between workpackages Implementing the results Risk management Stakeholder management

2. DEFINING THE RIGHT SOLUTION

Once the right problems to address are identified, it is vital that the right solutions are chosen, reflecting a thorough understanding of the nature of each problem, its complete scope, and the implications of implementing the solution selected. Often solutions look sound until tested in use, at which time unforeseen consequences are revealed. Sadly, sometimes these consequences are directly opposite to the results aimed for.

Systems Thinking is a discipline that seeks to understand the problem comprehensively, especially the dynamic interaction between solution elements and people, to foresee all the implications and prevent unsuitable solutions being built.

The Association for Project Management (APM) has a Specific Interest Group looking into applying Systems Thinking as a guiding discipline in achieving successful change, and has been collaborating with INCOSE (UK), the Systems Engineering professional body. Together, the following model (Figure 3) shows how the professions interface in the typical V-model of change.

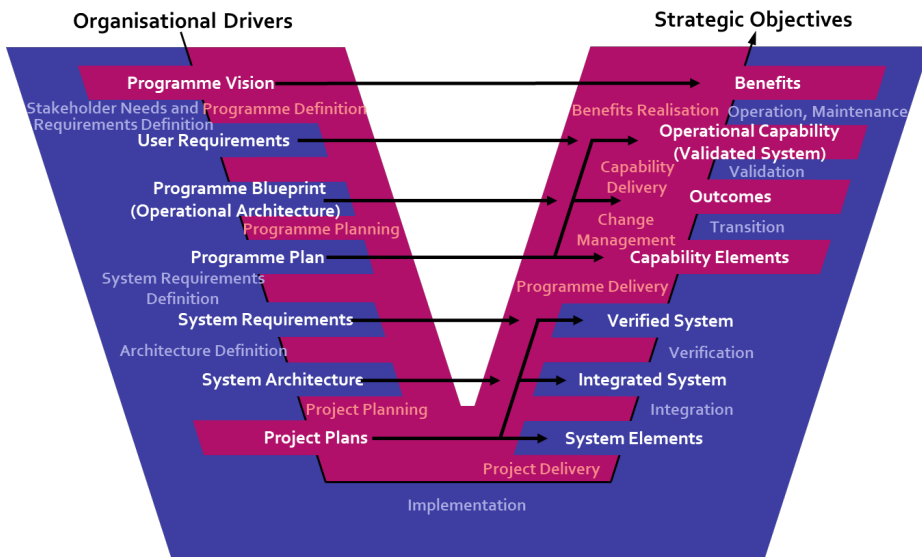


FIGURE 3. Integration of project management and systems engineering.

3. WHAT MAKES A PROJECT?

Any project, health-related or otherwise, has some basic characteristics in common:

- Has an aim or purpose
- Has a beginning
- Takes a finite length of time (and budget)
- Has an end
- Has a result

Achieving the aim in time, within budget, requires optimising efforts. At its most simplistic, this is balancing the «Iron Triangle» or «Triple Constraint» of project management (Figure 4):

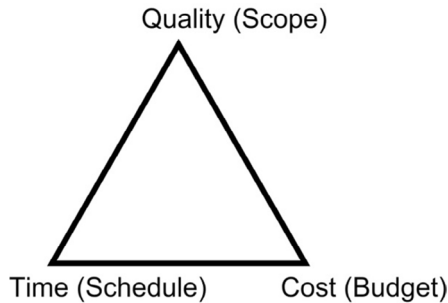


FIGURE 4. The Iron Triangle.

Starting with time; why are deadlines there? Projects exist to deliver benefits, and naturally they are wanted as soon as possible, and no later than the planned date. Where do they come from? They can be externally imposed (by Government, regulators such as the US Federal Drugs Administration (FDA), the European Union (EU) or by the organisation's management setting internal targets in meeting business objectives.

It is easy to measure time, so the temptation is to focus on timeliness as a key performance measure for projects.

Moving on to cost; where does funding come from? External sources include the European Union, national Government or customers, or internal investment by the organisation itself. All want to see that their money has been spent wisely and well.

It is easy to measure cost, so cost is another easy measure for project performance tracking, but doesn't necessarily help prove it is well-spent.

This leaves quality; but what does quality mean? There are two standard definitions:

1. Fitness for Purpose
2. Meeting requirements

These are NOT easy to measure; yet failure to get quality right will normally result in substantial delays and additional costs, even complete failure.

In classic waterfall (sequential) project methodologies, the very last activity is acceptance testing, which often reveals that the solution isn't quite fit for purpose, especially in software development. This has driven the development of formal «Agile» methodologies that use incremental development to validate the requirements step-by-step. Avoiding developing solutions to invalid requirements saves time and cost, and incremental development can allow earlier delivery of benefits (Figure 5).

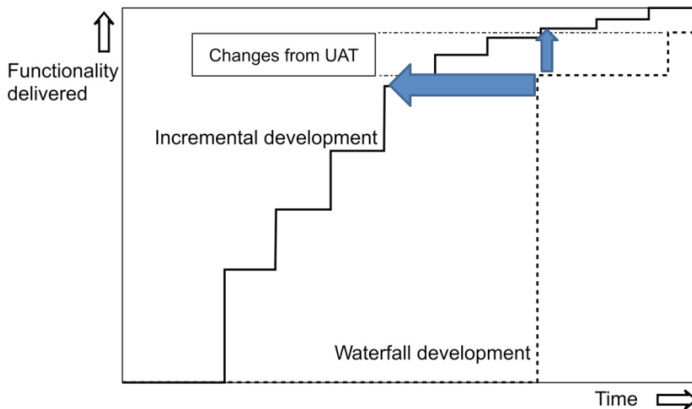


FIGURE 5. Benefits delivery by waterfall and Agile projects.

Examples of «normal» projects include constructing a new bridge, building a new railway and installing a new computer system. These have little flexibility in outcomes; the bridge must cross the river, the railway carries trains between cities, the new computer system does what it has to. Success is measured against doing what you planned; negative results are a failure.

Health projects include new drug treatments, new surgical techniques and robotic prosthetic limbs. These are often characterised by uncertainty in outcomes; Penicillin was a chance discovery from completely unrelated research, Viagra was developed for treating heart conditions, Minoxidil was developed as a blood pressure medication, but is much more popular as a treatment for hair loss. This means that in healthcare, success is often any exploitable outcome, even proving a negative result.

4. THE CHALLENGES OF MANAGING SUCCESSFUL HEALTH PROJECTS

Health projects have special requirements too; patient safety, researcher safety, regulation – restrictions on what can be done, licensing – definitions of what must be done (and costs) and ethics – what testing can be accepted.

Health companies also need to secure a fair commercial return on the vast investment needed, through managing security, intellectual property, licensing of manufacture and patents.

Clever and innovative technology to carry out healthcare research has been progressing steadily for many years, but increasing capability comes at ever-increasing cost due to the restricted market size.

5. INFORMATION TECHNOLOGY'S POTENTIAL IN HEALTH PROJECTS

The key area where capability has expanded greatly without much greater costs is in computation, where the use of information technology has allowed all sorts of industries to change fundamentally the way they operate, but there are key barriers to this.

Many IT solutions simply automate current manual processes that Charles Dickens would recognize. Disruptive solutions need IT expertise to be allowed to help drive the business, making IT a partner in success, not slave or servant. This is not common, for two primary reasons:

- The Interest Gap - Business people/scientists are typically not interested in information technology, and IT people are often not interested in business/science.
- The Language Gap - Business people/scientists don't understand IT terms and IT people don't understand business/scientific terms.

One company illustrates this well. There was a constant e-mail «War» between the IT department and the Management Accounts team. The key people never met face to face, communicating by e-mails (copied to everyone). They had no understanding of each other's challenges. After a coaching exercise, face-to-face

meetings took place, each party understood the challenges facing the other, IT solutions were designed and delivered to meet the business needs, based on a deep understanding, and peace broke out.

Looking at organisations that have really grown successfully in the last 20 years e.g. Amazon, they wanted to exploit IT in a new way to disrupt the existing business models.

6. CASE STUDY: USING IT TO TRANSFORM HEALTHCARE - THE NHS DIRECT WEBSITE

The UK's National Health Service (NHS) set out to use digital technology to transform the delivery of medical advice to patients, so reducing unnecessary visits to doctors (free under the NHS) and provide a much quicker digital age alternative.

The target solution was an on-line advisory service, including diagnostic symptom checkers powered by applied Artificial Intelligence. These would be maintained by clinical experts, supported by other content managed directly by a specialist editorial team. Given its purpose, it had to be disaster-proof (or almost so).

It was the first clinical diagnostic Expert System in large-scale public use, integrating different technologies for the first time; specialist Expert System and commercial website content management system. It faced challenging requirements; high performance – supporting thousands of concurrent users, and disaster resilience. It was subject to a range of challenges, especially changing requirements and very tight timescales. In addition, the partners had never worked together before, and had very different cultures. Some suppliers were contracted direct to the customer, not to the prime contractor, creating contractual and management overheads. The customer's Clinician team were not technically-orientated, so it was necessary to sub-contract knowledge-base development to meet the demanding timescales. The overall project team was spread widely, over 10 locations in the UK and one in New Zealand.

The project was rated a great success by the NHS, for a number of reasons; the solution was delivered in 6 months, not the 12 originally envisaged; it met functional, and exceeded performance, requirements; it was delivered within budget and enabled growth from 5 symptom checkers to 44 in just 6 months. The customer was delighted, estimating a saving over £60 million in its first year of operation, and the project attracted four awards, including a Queen's Award.

This was achieved by building a team spirit across organisational boundaries, working closely with individuals, focusing on success, not process or money. Team-working enabled renegotiation of work allocation for the best people to do each task, and the openness and honesty necessary to understand what could go wrong and prevent/plan for it.

7. CASE STUDY: FLEXIBLE APPROACH TO PROJECT MANAGEMENT - EXPLOITING SUSTAINABLE MATERIALS IN HYGIENE

For well over a century, personal hygiene has been recognised as a key factor in health.



The Exilva project is a European project funded by the Bio Based Industries Joint Undertaking under the European Union's Horizon 2020 research and innovation programme under grant agreement N°709746.

Exilva is a recently-developed micro-fibrillated cellulose product, produced sustainably from wood in Borregaard's Norwegian bio-refinery. Borregaard, the lead partner in the project, is building a new production line to deliver Exilva on a commercial scale.

The project has been looking to assess the value of Exilva as a sustainable alternative to oil-derived ingredients in hygiene products.

The first personal hygiene product gave promising results, but requires expensive manufacturing process changes and capital investment, not commercially justifiable on a low profit-margin product. The team is now investigating some unusual properties that could improve the business case. The flexibility in thinking, and willingness to explore other avenues of investigation, has moved this work on well past the first, potentially show-stopping, challenges.

The second hygiene product successfully replaced oil-based ingredients with Exilva, with some useful additional characteristics, as targeted. Unlike the first product, all research went smoothly, and progress was rapid. Like the first product, it needs manufacturing process changes, hence substantial capital investment but despite the good progress, no potential savings have been identified yet, and a potential customer acceptance issue has been identified that could increase packaging costs.

Progress in both products is the result of effective team-working under strong leadership.

8. CONCLUSIONS FOR SUCCESSFUL HEALTHCARE PROJECTS

Taking all the insights together, we draw the following advice:

- Invest in building strong teams. High levels of challenge can be met through team-working across organizations and cultures
- Apply strong and active risk management. Understand where there is uncertainty and manage it actively; what if X happens? What if Y happens? What if nothing happens?
- Manage the customer's expectations actively and honestly, to build trust from stakeholders who are used to certainties; what has been achieved, what your plans are for all scenarios, how ethics/regulation/licensing are covered in each

These are very uncertain times - some will win, some will lose. Winners will see what they have to do, and do it quickly; losers will do too little, too late. Effective change needs clear analysis and strong decision-making, and requires investment. Systems thinking helps guide sound investment through understanding the whole problem, not just parts of it, and the end-to-end requirements and implications.

Investment can be managed through boosting effectiveness and efficiency with IT, using multi-skilled teams that understand what the business needs.

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