◖◗ Future Processing

DEPENDABLE SYSTEMS MODERNISATION

Predictable Delivery, Smooth Transition,
Future-Proof Architecture and Collaborative Partnership

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LEGACY IMPACT

There is consensus that the burden of legacy systems is widespread – with one recent survey of CIOs concluding that over 50% of all IT assets need modernisation.

Even if we cannot agree on the exact scale of the issue, there can be no doubting the potential serious impacts on your business, including:

- **risk of failure** – because the systems often have sparse documentation and have become so convoluted over time, they cannot be maintained or changed without a risk they fall over,
- **cost of change** – will often prevent innovation, or make it difficult to maintain regulatory compliance,

- **obsolete technology** – no longer supported by the provider, or the scarcity of knowledgeable resources make it difficult or impossible to make changes to the systems, and increase the risk to data breaches,
- **digital agility is impaired or prevented** – inability to interoperate, provide digital touch points for clients or handle dramatically increased transaction volumes can make you uncompetitive, which can become a survival issue.

MODERNISATION CHALLENGES

Unfortunately, whilst the incentives for systems modernisation are usually well understood, particularly within the IT community, the evidence is that many legacy modernisation programmes have been abandoned, postponed or reduced in scope. Or just never started as the risks of failure were considered too high.

There is no doubt that modernisation projects can be complex and require significant effort. However, through experience in delivering successful outcomes, Future Processing has identified some key factors which we believe significantly impact on success. These are:

- **building a compelling business case** – the risks and benefits can be difficult to quantify in monetary terms. A compelling business case needs to articulate clearly the costs and risks of doing nothing,
- **retaining Management focus** – without which management attention may move on to other topics and developments, which may result in resources for modernisation being raided,
- **ensuring sufficient resources are available** – planning and retaining management focus so that staff are available: a) throughout and b) for peak periods,

- **ensuring sympathetic planning** – business staff will be required for acceptance testing and orientation on the new system. This may be rushed if it does not avoid business peaks,
- **transparent outsourcers** – where some, or all, of the work is undertaken by outsourcers' regular delivery and open communication avoids late discovery of delivery or solutions issues.

> **Our systems modernisation service has been designed to support you in addressing these challenges as well as delivering a quality long-lasting solution in a way that provides confidence of delivery.**

DEPENDABLE SYSTEMS MODERNISATION

The four key elements of our service are designed to address the major challenges associated with systems modernisation, and provide additional benefits to our clients.

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1. SMOOTH TRANSITION

- Whilst delivering the modernised solution is far from trivial, it is often the environment surrounding the project that provides the main challenges. Rather than limiting ourselves to delivery, we can also support you in both getting the project established and supported through to successful implementation.

2. PREDICTABLE DELIVERY

- We deliver formal code releases every 2-3 weeks, providing confidence and visibility of progress to all, maintaining support and focus from management and the business community. This also avoids late discovery of issues.

- We have 18 years' experience of delivering systems to clients.

- Quality and security are built in to our solutions through the specialists in our team, armed with tools and processes.

- Regular communication is encouraged and enabled through technology, enhancing collaboration and understanding.

- We have a well-established delivery environment aided by industry standard tools.

3. FUTURE-PROOF ARCHITECTURE

- You are making a significant investment in modernising your systems and will want to avoid having to undertake the same process in the foreseeable future. In common with any professional development organisation, we will deliver applications that are architected to be scalable, extensible and responsive to business change, especially in the user interface.

4. COLLABORATIVE RELATIONSHIP

- We pride ourselves on being an adaptable partner.

  - As well as delivery staff, we can also provide the full range of staff necessary for a successful project, including: project managers, business analysts, specialists in testing, UX and security.

  - We are comfortable in working with you at any engagement level, from combined teams, through to a complete project outsource. We are also happy to discuss risk-sharing commercials where we take on greater responsibility.

- Our staff desire and are encouraged to "add value" to the engagement, rather than blindly follow specifications. They will suggest improvements in methods, designs and function, where they have experience of better alternatives.

- Our delivery staff all speak good English, with a significant number being excellent. This coupled with a close match between the cultures of professional staff in Poland and the UK, lead to effective communication.

- We attract and retain high quality people through an open and supportive culture with attractive facilities.

We have received a number of awards acknowledging our achievements.

Read the following pages for broader descriptions of each of these four key elements.

SMOOTH TRANSITION

Often it is not the delivery of the solution that is the greatest challenge to systems modernisation, but getting the programme started, and keeping the momentum until successful completion.

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We can help you get the programme off the ground, and continue to a successful conclusion in several ways:

- assisting with the creation of a compelling business case (bringing out the secondary benefits of risk reduction and opportunity enablement),
- assisting with the creation of a programme design that manages the operational risks of the change in solution, provides early demonstration of success and is sympathetic to business cycles (for implementation and input during delivery),

- assisting with the creation of a governance framework that encourages sponsor support, retains business focus, and limits situations where the old system and new system both require updates delaying overall delivery,
- we can, where appropriate and necessary, use your old systems as "specifications" of the new system, releasing your analysis staff to work on new initiatives.

When implementation is complete, we provide a smooth transition to operations. We can offer a support and maintenance service from a dedicated team.

PREDICTABLE DELIVERY

Perhaps the key requirement in seeking a partner to help with your systems modernisation programme is gaining the confidence that the solution will be delivered predictably – of appropriate quality, within reasonable cost and delivery timescale. We achieve this through six mechanisms.

1. DEMONSTRABLE EXPERIENCE
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The strongest predictor of quality delivery is undoubtedly experience. We have been delivering software to our clients since 2000 and have a very strong record of continuing clients (with over 70% of our revenue being from clients who have been with us for greater than 3 years).

2. OPTIMISED DELIVERY APPROACH
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Whilst we are strong proponents of the appropriate use of Agile techniques, our recommended method to delivering a specific project will vary according to its characteristics.

The majority of projects must fit within a business context (with expectations or constraints on dates and/or budgets) and therefore any iterative approach would be within the context of a formal project management approach with overall estimating and progress tracking.

Generally, we expect to apply some form of hybrid method, but in most cases would expect to use these Agile concepts:

- regular delivery – create formal code releases every 2 -3 weeks that can be demonstrated and tested (We see this as particularly necessary in an offshoring environment, so progress can be visible),
- expect change – so avoid spending time creating detailed definitions until just in time,
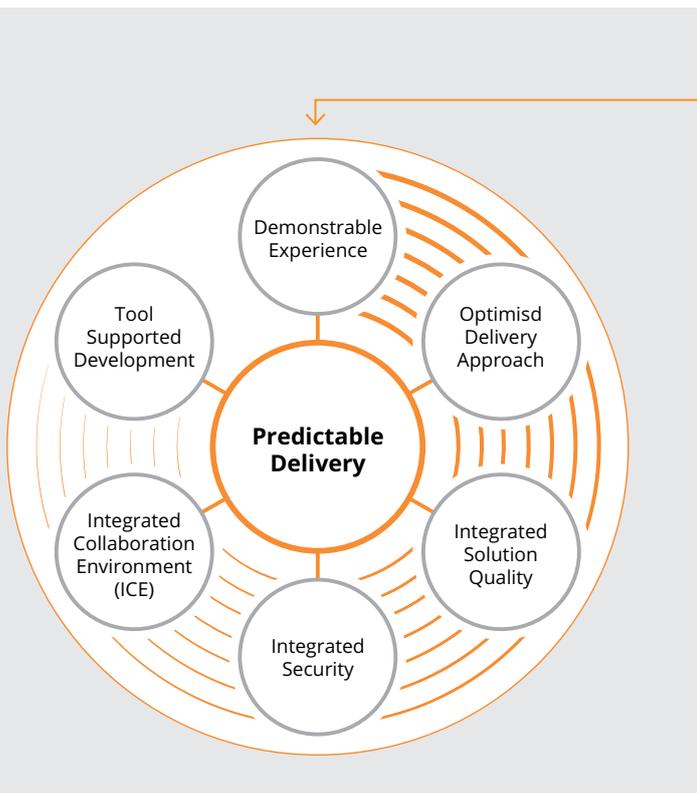
- close involvement of requirement owner – a product owner needs to be regularly involved to review priorities and deal with questions (on a number of projects Future Processing provides a proxy product owner to undertake this role on a day-to-day basis to reduce the workload on clients).

We have experience with a number of Agile methods, including: SCRUM, Kanban, Disciplined Agile, AgilePM (DSDM), SAFe and Nexus. We have invested heavily in formal training for all members of staff and have a number of Agile coaches who help individual projects. We have even provided Agile training for clients.

3. INTEGRATED SOLUTION QUALITY

Quality is built in to our solutions through people, processes and technology:

Professional QAs	Tool aided testing	Quality Processes	Quality staff
QA assigned to delivery team: - Production of formal Test Cases - Prepare test reports - Carry out function tests and automate them - Perform manual tests at different levels of specificity - Carry out usability tests - Perform regression tests	**Toolaided testing:** - Test automation - Performance testing	**Minimum quality processes:** - Mandatory code review - Automatic code quality analysis (StyleCop, FxCop) - Continuous integration - Continuous delivery - Static code analysis - Test driven development	**All degree educated:** - Majority in computer science degrees - More extensive than UK system - Continuous development expected - Culture of healthy feedback

4. INTEGRATED SECURITY

Our accredited security experts support each development team throughout the project ensuring that security is built in to the lifecycle, rather than bolted on at the end. The solutions will be GDPR compliant, and conform to these standards as appropriate:

- Microsoft Security Development Lifecycle
- OWASP Software Assurance Maturity Model
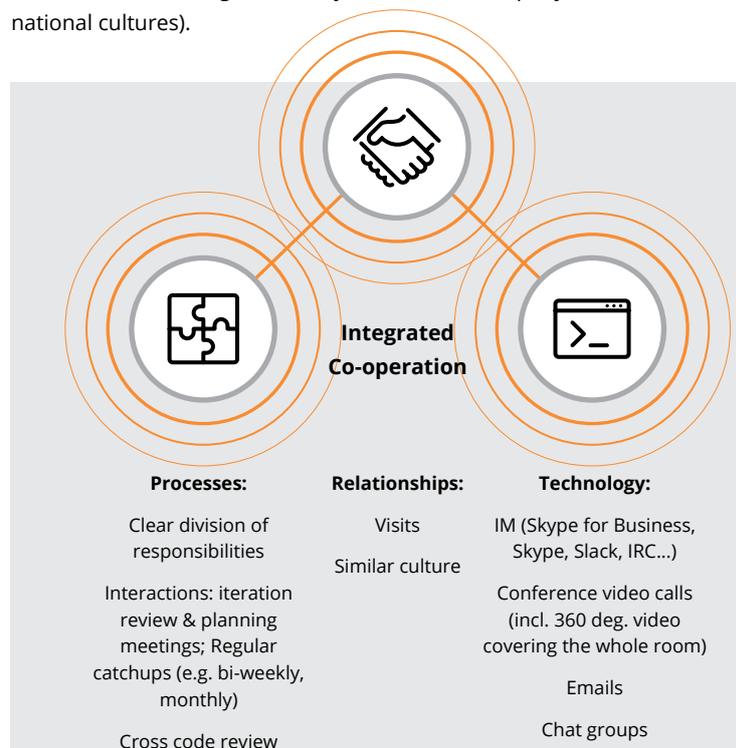- OWASP Application Security Verification Standard

As well as supporting development, the team offer independent assessments for other parts of the system, as well as training.

5. TOOL AIDED ENVIRONMENT

As you would expect from any professional software development organisation, we employ many industry standard tools to manage our projects and code. We have used others and have the experience of picking up new ones quickly, where necessary.

6. INTEGRATED CO-OPERATION

Our approach is to develop as close a relationship between our team members and your team as is possible. We ensure that interaction occurs through standard processes (including regular visits either way). We enable the communication through easy to use tools, and find that honest and open communication is engendered by our culture (company and national cultures).

Integrated Co-operation

Processes:

Clear division of responsibilities

Interactions: iteration review & planning meetings; Regular catchups (e.g. bi-weekly, monthly)

Cross code review

Relationships:

Visits

Similar culture

Technology:

IM (Skype for Business, Skype, Slack, IRC…)

Conference video calls (incl. 360 deg. video covering the whole room)

Emails

Chat groups

FUTURE-PROOF ARCHITECTURE

Organisations make significant investments in modernising systems. It is therefore important that the replacement solutions are designed to provide years of use. We address this need in several ways.
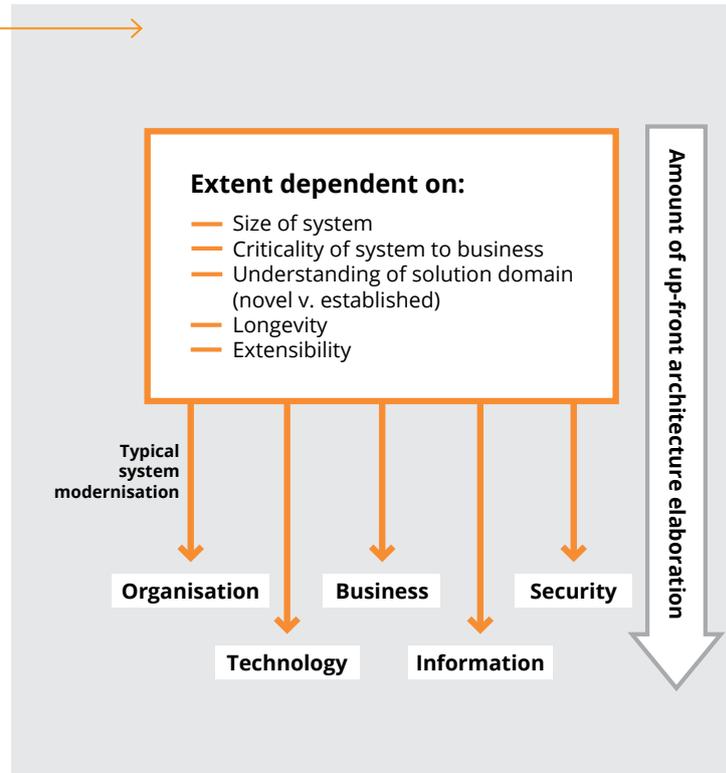
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1. TECHNOLOGY

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A common driver for the replacement of many systems is that the underlying technology has become obsolete. Whilst we cannot guarantee that any technology will be not replaced, we will if required, help you select an appropriate technology.

2. UP-FRONT ELABORATION

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Whilst we believe strongly in iterative development, we also believe in putting in an amount of up-front effort commensurate with the demands of the solution. The factors below influence the degree of up-front elaboration required for any system:

- **size of system** – the larger the system the greater refactoring expected in the absence of initial architecture. This, coupled, with the expectation of interfacing, would lead to significant increase in effort, and elapsed time,
- **criticality** – the more critical a system to a business the more important it is that the solution can be easily amended,
- **understanding** – Agile is ideal where new business models are developing, and architecture evolves. At the other extreme, a business may be well understood, and we are looking at replacing systems. In this case, the architecture will be well known (and may already be documented),
- **longevity** – a mobile application may be used for a predefined period and then replaced. A core business administration system should be capable of being changed and used for years,
- **extensibility** – if a system is required to support new products and operating models then the reasonable boundaries of this should be known and incorporated in to the design.

For systems modernisation engagements it would be typical to require a reasonable level of up-front architecture design.

Extent dependent on:
— Size of system
— Criticality of system to business
— Understanding of solution domain (novel v. established)
— Longevity
— Extensibility

Typical system modernisation

Organisation   Business   Security

Technology   Information

Amount of up-front architecture elaboration

3. APPLICATION "SHEARING"

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Within the construction industry, the concept of shearing has been developed to explain that different facets of a building are associated with different replacement timescales – so the foundations and structure would be expected to change minimally over the life of the building, but the organisation and contents of rooms would expect regular change. This applies similarly to applications. We look to isolate those areas subject to regular change. Therefore, we would separate navigation and presentation from logical business services. Another area, if new products and services are envisaged, would be to isolate product information to enable new products and services to be introduced more swiftly. To support these, the underlying product data model would have some levels of data generalisation.

COLLABORATIVE PARTNERSHIP
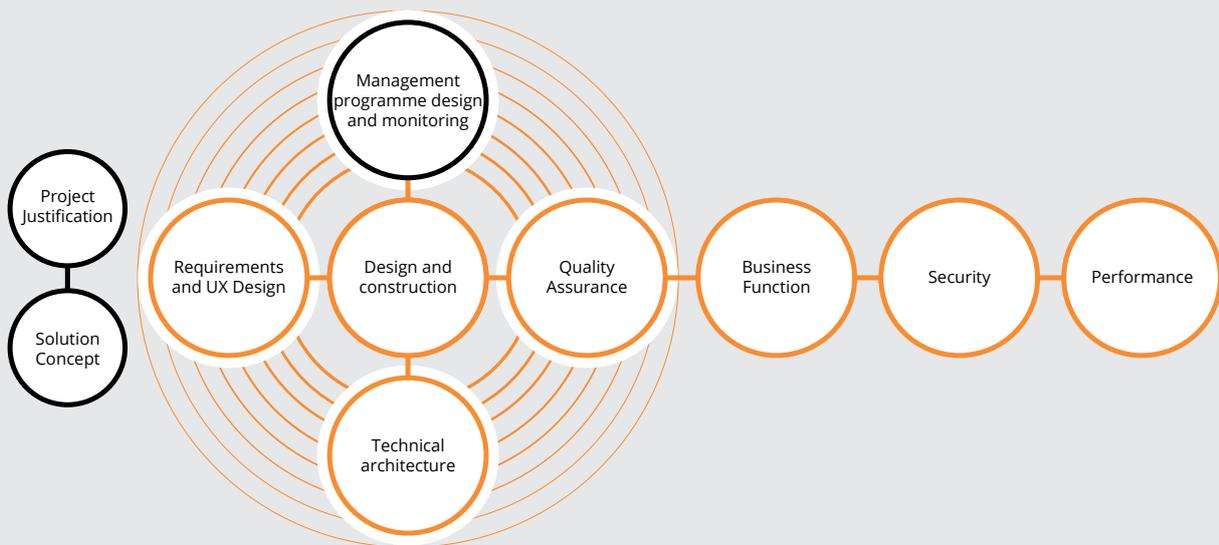
FLEXIBLE ENGAGEMENT MODEL

In undertaking a systems modernisation programme, organisations will have varying needs in terms of people available, and the extent to which they require a partner to take responsibility.

We can provide a full range of resources (as well as developers and testers, we have project managers, UX designers, business analysts and security experts). Our responsibilities have varied from augmenting your existing development capability, through to undertaking full projects (as illustrated in the diagram below).
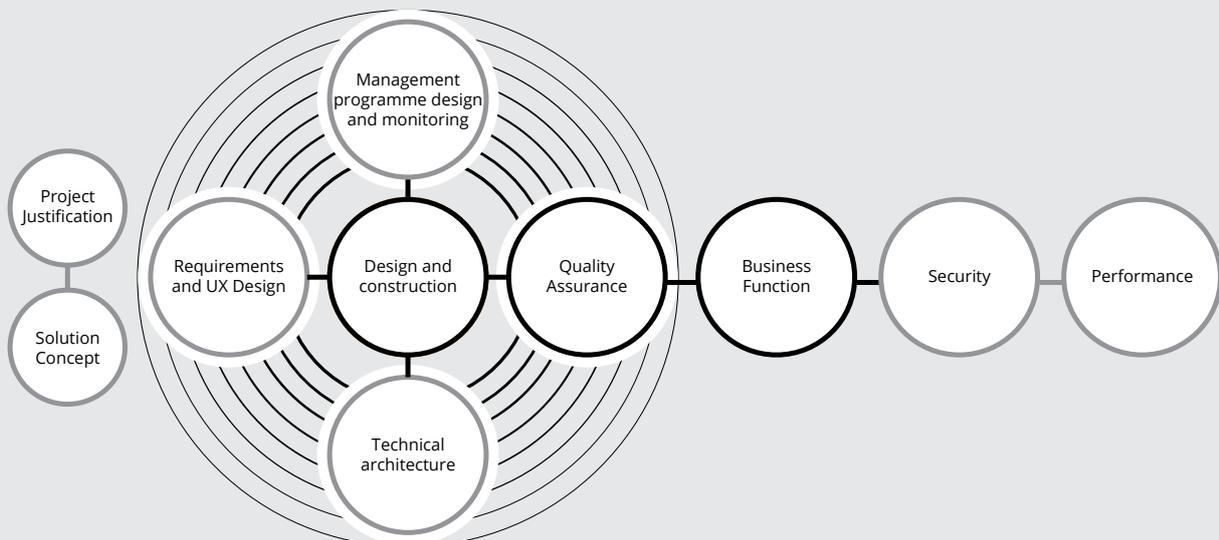
FLEXIBLE COMMERCIAL MODEL

We can undertake full projects on a variety of commercial models, from fully time and materials through to fixed price. In appropriate cases we would also consider usage pricing models and investment.

MANAGED SOFTWARE PROJECT / PROGRAMME

- Project Justification
- Solution Concept
- Management programme design and monitoring
- Requirements and UX Design
- Design and construction
- Quality Assurance
- Technical architecture
- Business Function
- Security
- Performance

TEAM AUGMENTATION (MINIMUM ENGAGEMENT)

- Project Justification
- Solution Concept
- Management programme design and monitoring
- Requirements and UX Design
- Design and construction
- Quality Assurance
- Technical architecture
- Business Function
- Security
- Performance

OUR EXPERIENCE IN SYSTEMS MODERNISATION

IMPROVING CUSTOMER SERVICE THROUGH SYSTEMS REPLACEMENT

Our client wanted to change their systems to provide a step-change in their levels of customer service, from an already high one.

They wanted to automate more of their business processes to increase speed and reduce risks of error, which also included much greater integration of their core systems. Finally, they wanted their systems to be more adaptable to future change, including the ability to more easily scale and implement new products. They quickly concluded that in order to do this, their 45-year-old Cobol systems would need to be totally replaced by more modern technology. The core insurance function was to be written in .NET, integrated with standard packages.

Future Processing was selected due to similar previous experience and a good cultural match in close partnering, especially open communication and Agile development. An Agile approach was implemented to demonstrate progress and encourage business involvement. High level requirements were created up front, but the iterative approach was used to refine the function throughout the project.

The client was delighted with the delivery and quality of the team, especially when compared with previous experiences. Future Processing was responsible for over 90% of the development of the solution as well as a number of other activities including: quality assurance, UX and UI design, security and performance audits, CRM development, and data migration from legacy systems. The organisation has publicly recognised the contribution of Future Processing and the relationship continues.

REFRESH OF SYSTEM TO ACCELERATE CLIENT DEPLOYMENT AND SUPPORT MOBILE ACCESS

Our client provides software for the management of large property portfolios, the assets within those portfolios and the management of risks and associated governance from a legal and business perspective.

It handles regular and ad hoc activities, provides management information, and manages project planning and geo-spatial information.

For years, the company had been very good at providing their clients with niche bespoke solutions, but the needs of their clients have shifted towards a more package-type approach. This, together with a desire to expand, meant the solution needed to become more of a standardised product. In addition, there is a need to deliver the function across a range of devices. The solution relied on historical document management technology that was limiting and required a separate build for each client resulting in long boarding times for new clients, along with complex configuration management.

The company investigated the use of a package replacement, but concluded that significant refactoring of the existing solution would retain competitive advantage. The company sought an organisation that was more experienced in developing code for multiple clients, more capable of delivering software as a service and proficient in Microsoft technologies to alleviate the challenge of finding enough local staff.

The programme not only met the needs for smoother implementations through clearer separation and minimisation of client specific code, but also took the opportunity to modernise the user interface.

> *What Future Processing brought to us was new knowledge and new dimensions in understanding the way that we wanted to take software products to market. The way that my team has worked with the Future Processing team has been an absolute pleasure, and I think that they would all back me up with that, so it's been great to work with you guys.*

REJUVENATION OF EMPLOYEE BENEFIT AND PENSIONS MANAGEMENT PLATFORM TO MEET NEW MARKET NEEDS

Our client's core business is the provision of an employee benefit and pensions management platform.

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The introduction of pensions auto-enrolment changed the use of the platform from small numbers of large employers, to a much greater number of employers. The platform design needed to transform to support this effectively. In addition, the older technology was starting to create some application performance challenges. The client, working along with Future Processing, concluded that a total redevelopment was essential. Future Processing was chosen not only to undertake the development, but also to undertake key roles to supplement the client's team, including UI design and that of a business analyst role embedded in the client's product development team. Whilst the initial plan was to deliver the pensions support capabilities first, there was a strategic shift, requiring the benefits capability to be accelerated. The delivery plan flexed to meet the new market needs, with FP continuing to deliver in line with client expectations. There was no loss in overall programme momentum. The rollout of the new software has been performed iteratively starting with migrating a small number of clients onto the new platform, refining the process to avoid issues associated with subsequent migrations.

PROVISION OF A CENTRALISED TICKETING SOLUTION USING LEADING EDGE TECHNOLOGY

Our client creates delivers world-class innovative, intelligent transportation and parking solutions in over 4,000 cities and towns, in 55 countries worldwide.

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The client was selected by the prime contractor to provide a comprehensive set of devices for a new prestigious city-wide scheme. The decision was taken to create new components to provide centralised management of the devices and take advantage of new technology to future proof the solution (node.js)

Future Processing had already been delivering software to other business units within this organisation since 2008 and was introduced to the project following performance issues with a local supplier. Since that initial involvement, Future Processing's role was expanded based on success, to the point where the peak team size was 35, and as well as developers included user experience specialists and solution consultants. Through Future Processing support, the client was able to deliver on schedule.

Future Processing continues to provide significant support for the client in both its established and pioneering areas of its business due to its technical excellence and reliability.

ELIMINATING OBSOLESCENCE RISK OF OLD TECHNOLOGY FOR A MARINE INSURER

The client's key challenge was the risk associated with operating core business systems built on obsolete technology. The rapidly diminishing number of experienced developers available, and general risk of obsolescence, made replacement a key action.

The decision was made to port the solutions to a modern (.net) framework. We delivered the revised solutions in line with the initial programme timeline, managing to suggest and implement some user improvements during the programme. We delivered the programme such that a significant business peak was avoided and proved the solution and approaches on the smallest system first. We were not provided with specifications (except for limited new functions), but through systems overviews, and code analysis, were able to generate the new solutions.