Trends in business application development to enable social protection delivery

Tracing an evolution through the custom build, transfer, package and framework approaches

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CÚRAM
RESEARCH INSTITUTE

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Social Protection Programs
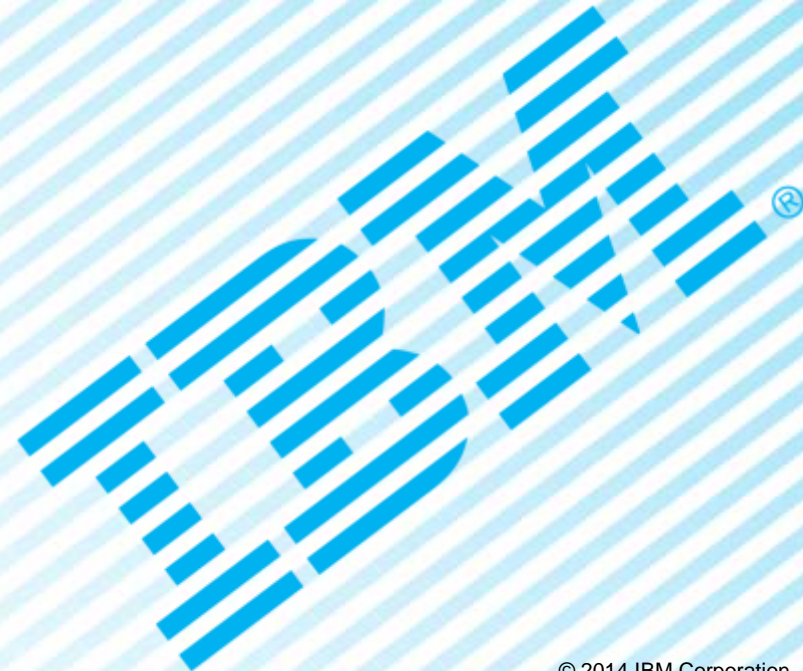
The World Bank

Istanbul May 2014

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Who are we : the IBM Cúram Research Institute

CURAM RESEARCH INSTITUTE

Bridging the gap between Policy & Service Delivery
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What is the IBM Cúram Research Institute?

The IBM Cúram Research Institute is IBM's social policy research arm
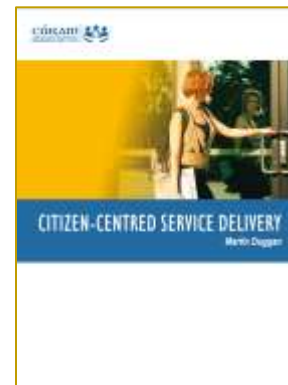
Research Focus

The Institute's research focuses on the cross-over from policy to service delivery with the aim of developing new social business models and the best practices that they encompass

Mission

To foster the development of best practice service delivery models and evidence-based solutions for social program organizations

The Cúram Research Institute creates cutting edge research in partnership with:

– *Universities with a focus on new social trends*

– *Multi-lateral agencies*

– *Think Tanks*

– *Non-Governmental Organizations*

CITIZEN-CENTRED SERVICE DELIVERY

OUTCOMES: A NEW APPROACH FOR POLICY MAKERS AND SERVICE DELIVERY PROFESSIONALS
Martin Duggan

RIGHTSERVICING

CRC Children's Research Center
Advancing Research...Improving Outcomes

European Social Network

PACIFIC COAST UNIVERSITY
FOR WORKPLACE HEALTH SCIENCES

EISS

STEWARDS OF CHANGE
THE BUSINESS OF PUBLIC BENEFIT

issa

IBM

The business context

We are all different – or are we as different as we think

The Business Environment we live in……..

Lack of coordination in the social welfare field has commonly presented communities with major problems. "Duplicating", "overlapping" and "fragmentary" are recurring descriptions of social welfare programmes.

Lack of coordination can represent inconvenience to clients, economic waste for the community, ineffectual use of already available resources, or, in services for maltreated children, further injury or even death to the child.

-- *Australian Social Work,* Volume 22, Issue 4**, December 1969**

This description is as relevant today in as it was in 1969
The IT systems we build contribute significantly to ……*Lack of coordination …..inconvenience to clients, economic waste for the community, ineffectual use of already available resources*

Why is this so?

The first thing you hear when you meet a new social protection organisation institution

And within organisations dealing with multiple social risks and social programs…..

And so the enabling ICT business applications have followed the same line of thinking

We need to build them ourselves – for our organisation and for each social program

And we end up with this - silo based systems – often doing similar things for different social programs

But from………

And the many variants of social programs we see today

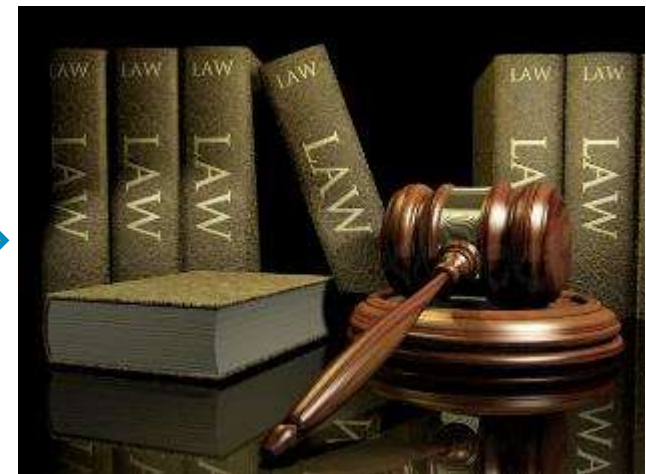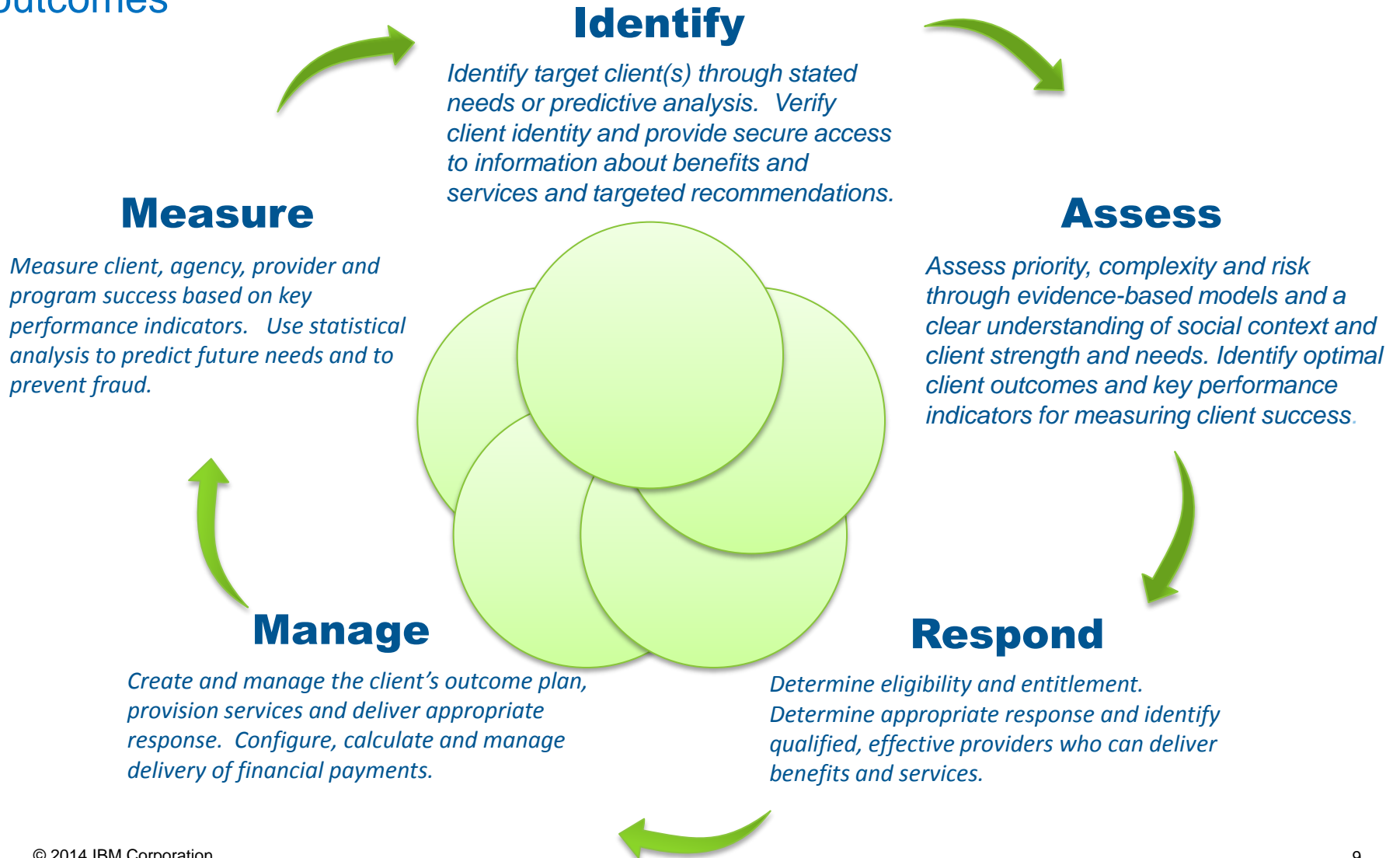| Social assistance | Family services | Employment | Disability management | Pensions | Healthcare reform | Care management |

Our experience from the past 15 years shows the material differences are


Defined in law and/or policy

And irrespective of law/policy, social programs follow a common set of processes to deliver benefits and services to meet needs and achieve outcomes

Identify

Identify target client(s) through stated needs or predictive analysis. Verify client identity and provide secure access to information about benefits and services and targeted recommendations.

Measure

Measure client, agency, provider and program success based on key performance indicators. Use statistical analysis to predict future needs and to prevent fraud.

Assess

Assess priority, complexity and risk through evidence-based models and a clear understanding of social context and client strength and needs. Identify optimal client outcomes and key performance indicators for measuring client success.

Manage

Create and manage the client's outcome plan, provision services and deliver appropriate response. Configure, calculate and manage delivery of financial payments.

Respond

Determine eligibility and entitlement. Determine appropriate response and identify qualified, effective providers who can deliver benefits and services.

So it was not surprising in the late 90s, early 00s to see the emergence of business application software leveraging what was common while providing scope to deal with what was different

There has been an evolution rather than a revolution in ICT business applications development – there is no defining moment where the approach changed radically
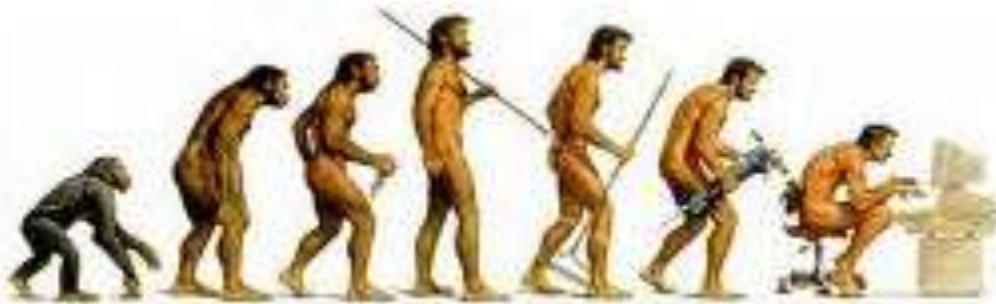
Enterprise Resource Planning (ERP) from the industrial and manufacturing sectors was based on reusable processes across sectors and business units

Purchasing

Finance

Payroll

ERP

Sales

Suppliers

Inventory
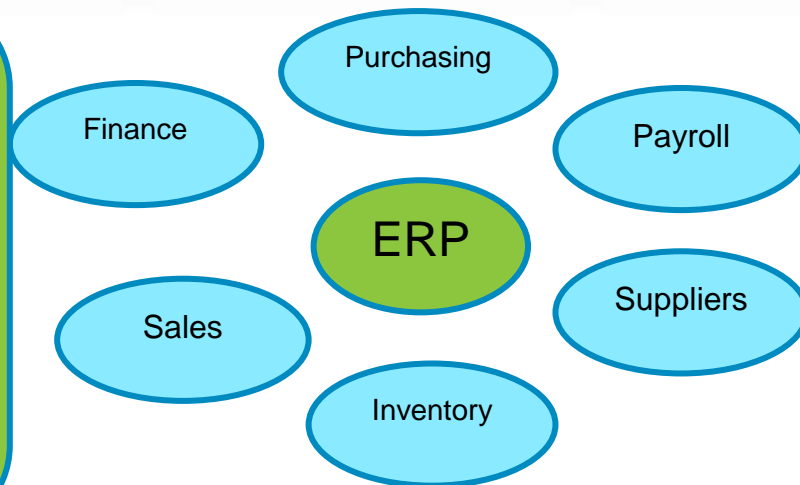
Many doubts at whether the reusability principles of ERP could apply to the core business of social protection
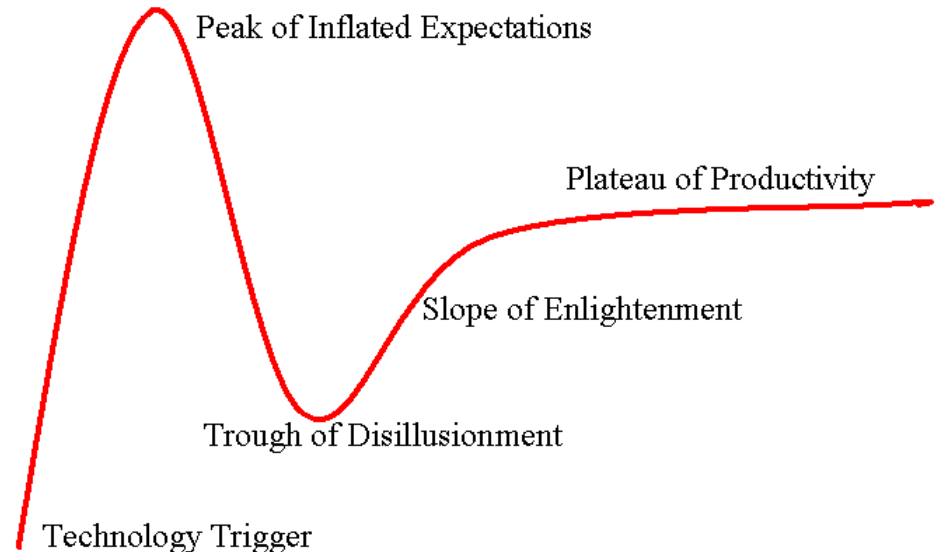
Social protection organisations are naturally conservative when it comes to technology - the bleeding edge of technology is not the place to be

Organisations generally want technology to mature before deployment in a social protection context

As a result, the evolutionary cycle of change is slow and is not linear or universal across the industry

Gartner Hype Cycle

Peak of Inflated Expectations

Plateau of Productivity

Slope of Enlightenment

Trough of Disillusionment

Technology Trigger

The evolution

Business Applications – How and Who to Build, Operate, Run

When sourcing a social protection Business Application, there are three areas to consider

- **Application Method   - how to build**

  - What type of application will I build - custom, transfer, package or an industry framework

  → This will be covered in detail in the following slides

- **Development Approach   - who will build**

  - Develop using the in-house IT shop - in house
  - Engage a systems integrator - outsource
  - A mix of in-house resources and resources from a product vendor or a systems integrator - co-production

  → Where can the skilled resources be accessed for the chosen Application Method at a value for money price
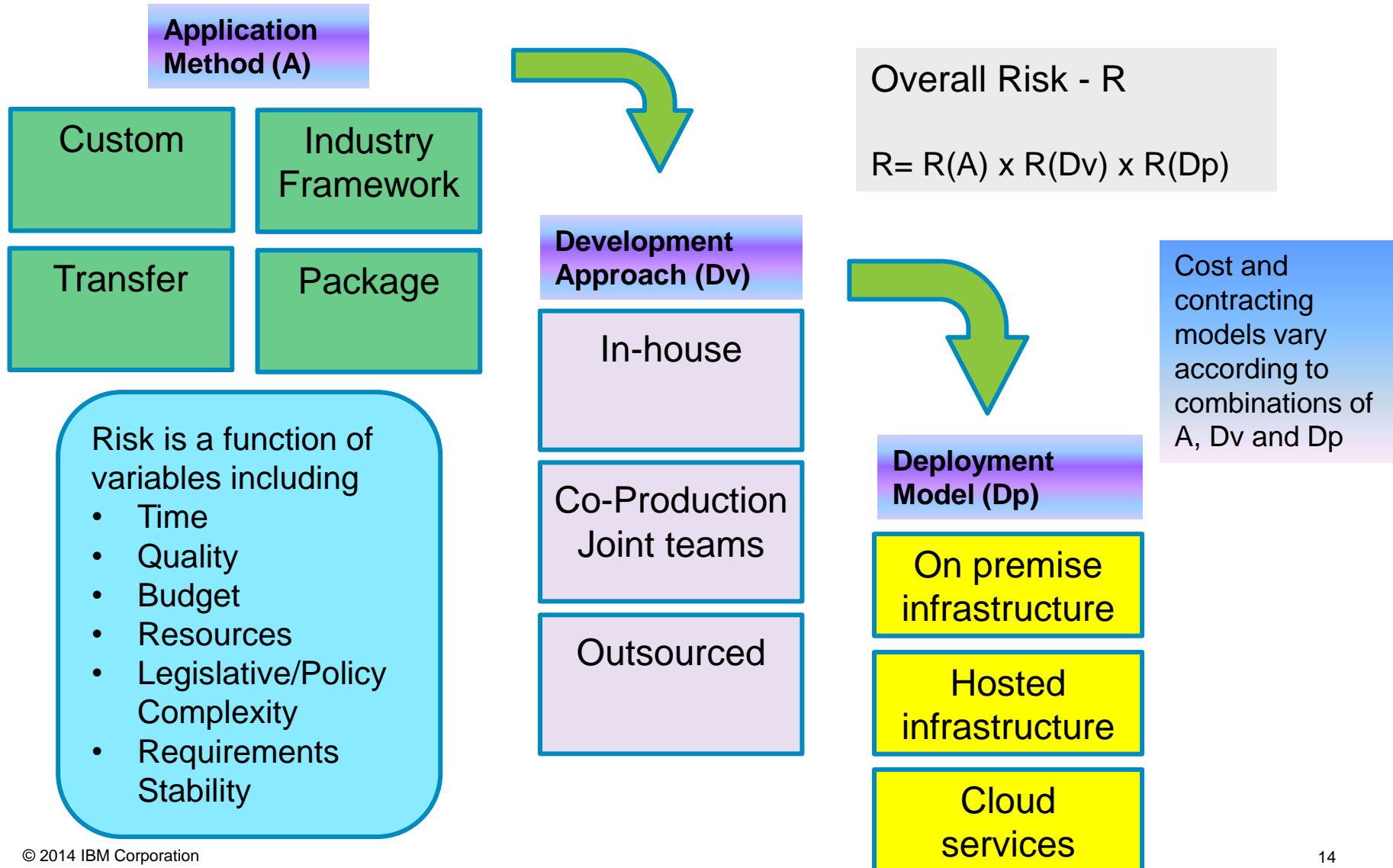
- **Deployment Model   - operate and run**

  - On my own infrastructure - on premise
  - Managed infrastructure - hosted
  - Infrastructure and applications as a service – cloud services

  → Managing and operating the assets and associated infrastructure - access to skills and availability of operating expense vs capital expense

The Application Method guides the Development Approach and Deployment Models

These areas contribute to risk – project risk is a function of Application Method, Development Approach and Deployment Model

Application Method (A)

Custom	Industry Framework
Transfer	Package

Risk is a function of variables including
- Time
- Quality
- Budget
- Resources
- Legislative/Policy Complexity
- Requirements Stability

Development Approach (Dv)

In-house

Co-Production Joint teams

Outsourced

Overall Risk - R

$R = R(A) \times R(Dv) \times R(Dp)$

Cost and contracting models vary according to combinations of A, Dv and Dp

Deployment Model (Dp)

On premise infrastructure

Hosted infrastructure

Cloud services

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The Application Method : The traditional solution method for business applications development in social protection is Custom Build (also known as bespoke)

- The traditional and still the most common approach especially for large national level institutions

- Provides the ultimate in flexibility to meet requirements - you get what you want

- Over time the flexibility becomes a limiting factor as business rules change leading to architectural and design decay with an increase in costs and risks

- Cost and risk rise as the organisation gets caught in a technology trap of obsolescence

Flexibility/Fit to requirements

Custom

Total Cost of Ownership
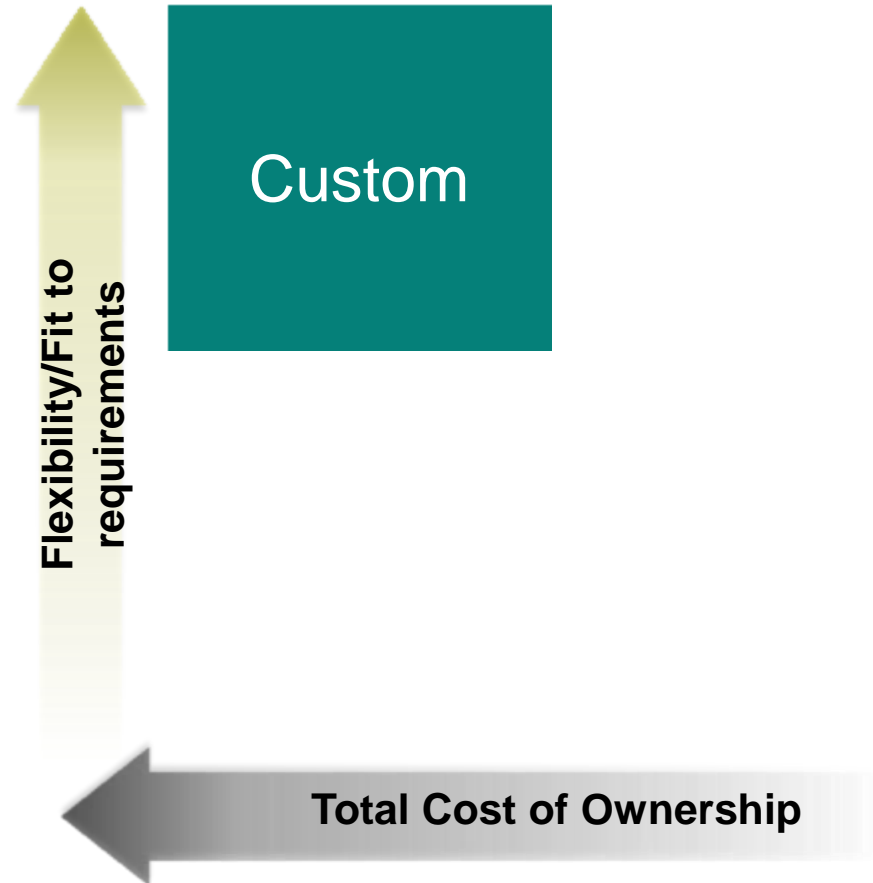
Organisations with similar business requirements have adopted a Transfer approach

- The proposition is simple – business requirements/business rules are similar so a transfer of the business application from one organisation seems logical, low cost and low risk

- The downside is accepting another organisation's design decisions on technology and business processes

- Custom build systems are typically designed and built for a single organisation – repeatability and reusability are not design features - issues arise in scalability and maintainability

- This is a widely used option within US state human service administrations as a requirement for federal funding

Flexibility/Fit to requirements

Custom

Transfer

Total Cost of Ownership
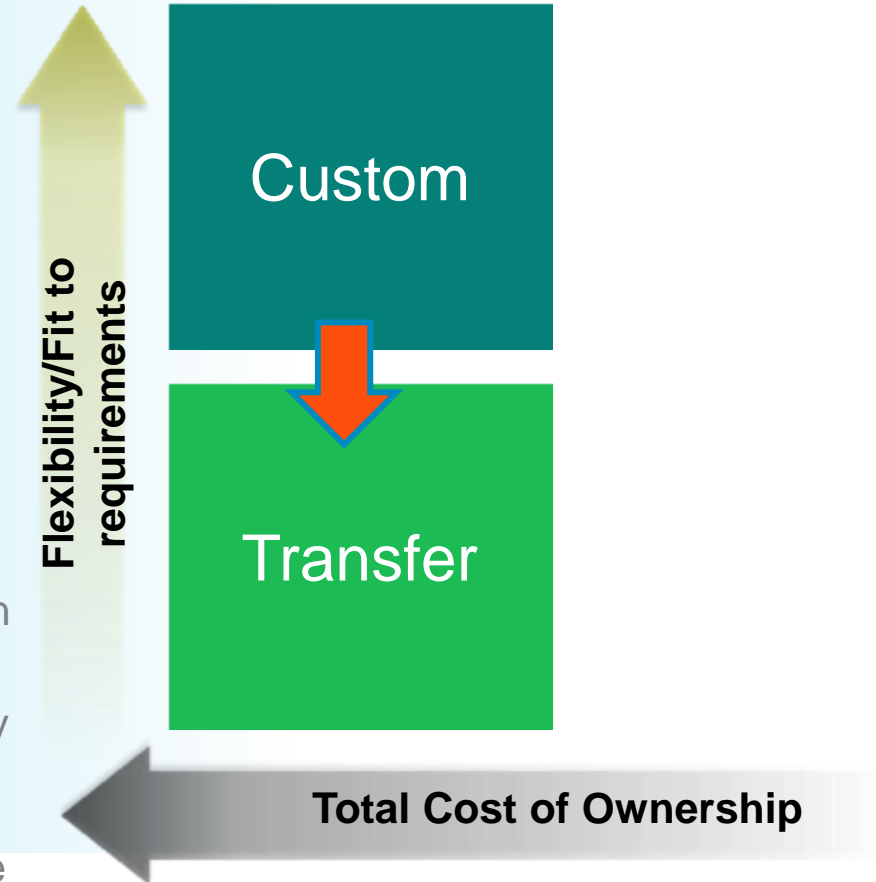
Advancements in ERP* and a similarity in some functional requirements such as customer relationship management led organisations to consider adapting ERP packages to the business of social security
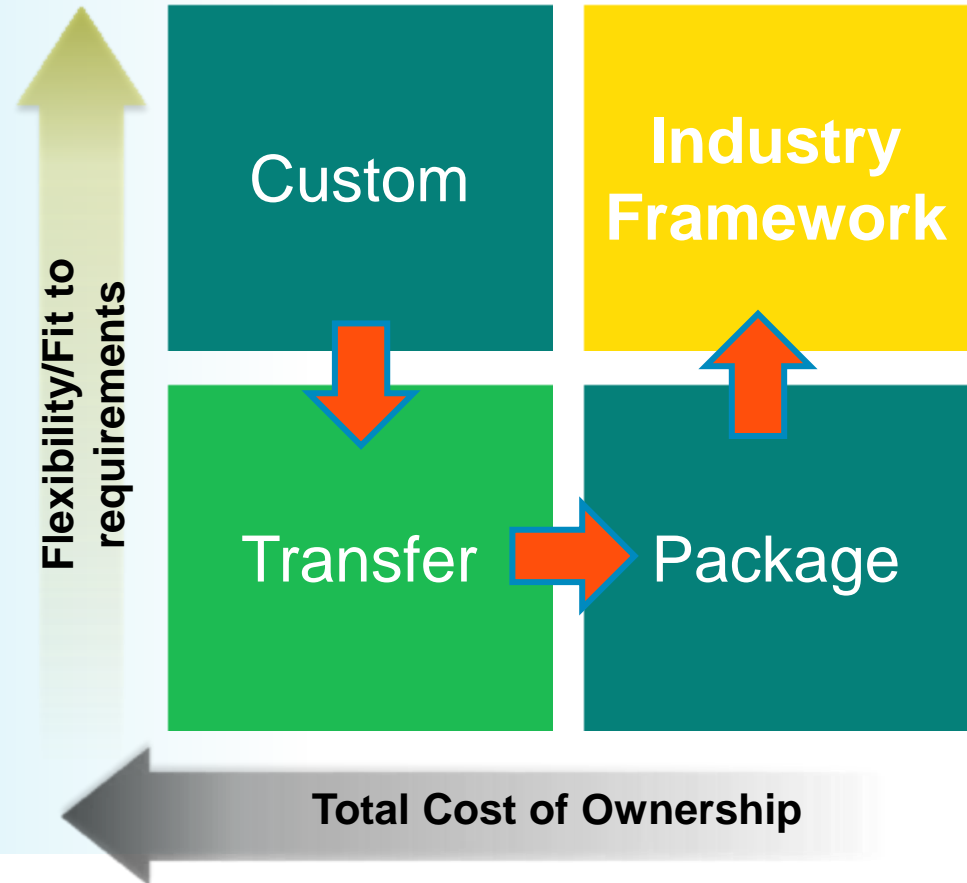
- ERP Packages – effectively a transfer of business logic from the commercial sector to the social protection industry

- Functional areas such as maintaining customer data and contacts, collecting information and applying business rules were deemed similar with potential to be used within social protection organisations

- Business processes had to be adapted to fit the out of the box functionality of the package - many of these processes didn't readily fit well to the business of social protection

- Material changes for social protection requirements often proved to be costly, time consuming and/or not possible

Flexibility/Fit to requirements

Custom

Transfer → Package

Total Cost of Ownership
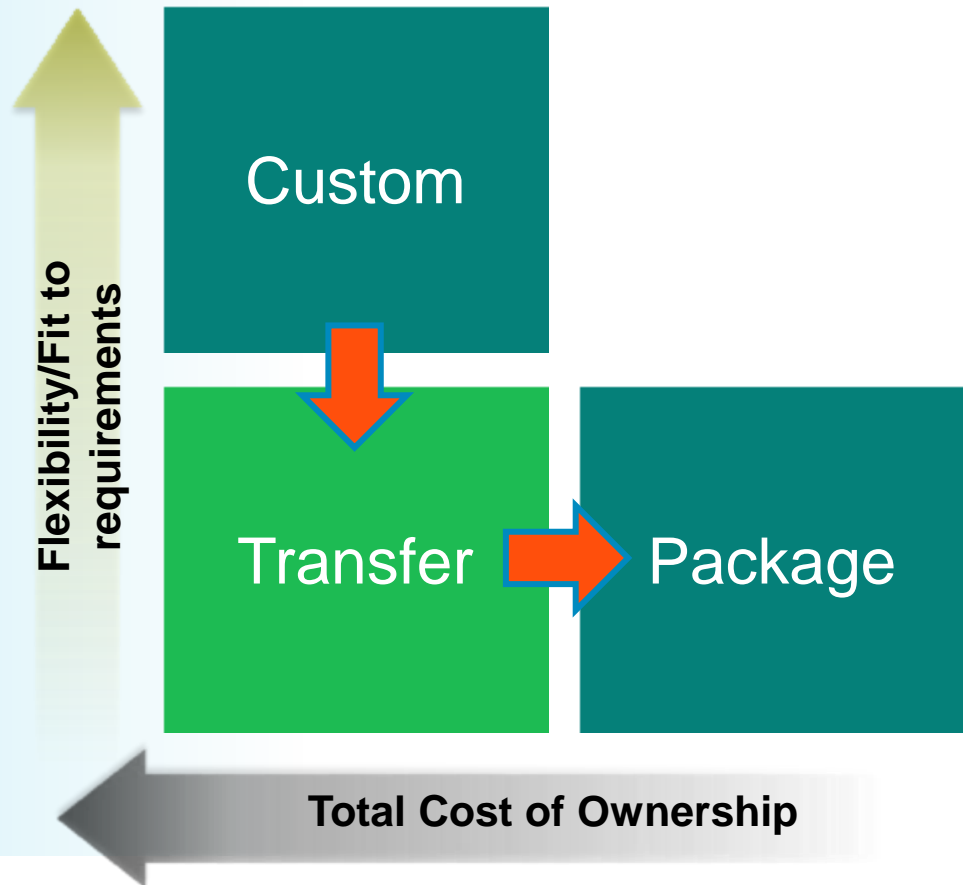
*ERP – Enterprise Resource Planning

The experiences of ERP packages and transfer systems showed the potential of reusability, fuelling a new development mindset from the late 1990s for social protection industry specific frameworks

- Industry specific frameworks are designed on the premise that social protection organizations have common sets of industry unique business processes

- Unique requirements are satisfied by extending the base application via configuration and an integrated development environment

- Frameworks adopt high degrees of configurability for core social protection processes

- Frameworks strength is also a weakness – the flexibility to make custom build add-ons can push up costs when project governance is weak

Flexibility/Fit to requirements

Custom

Industry Framework

Transfer

Package

Total Cost of Ownership

There is now a mix of solutions available covering the (4) evolutionary phases. A new definition of custom build has emerged using modern reusable software components.

- Industry Framework providers have adopted a Service Orientated Architecture compliant approach to facilitate more 'mix and matching' of software components

- ERP Package providers have invested in creating more dedicated social protection framework like capability - ie. adopting industry framework principles

- A custom build only mindset is being gradually replaced with a 'buy before build' mindset

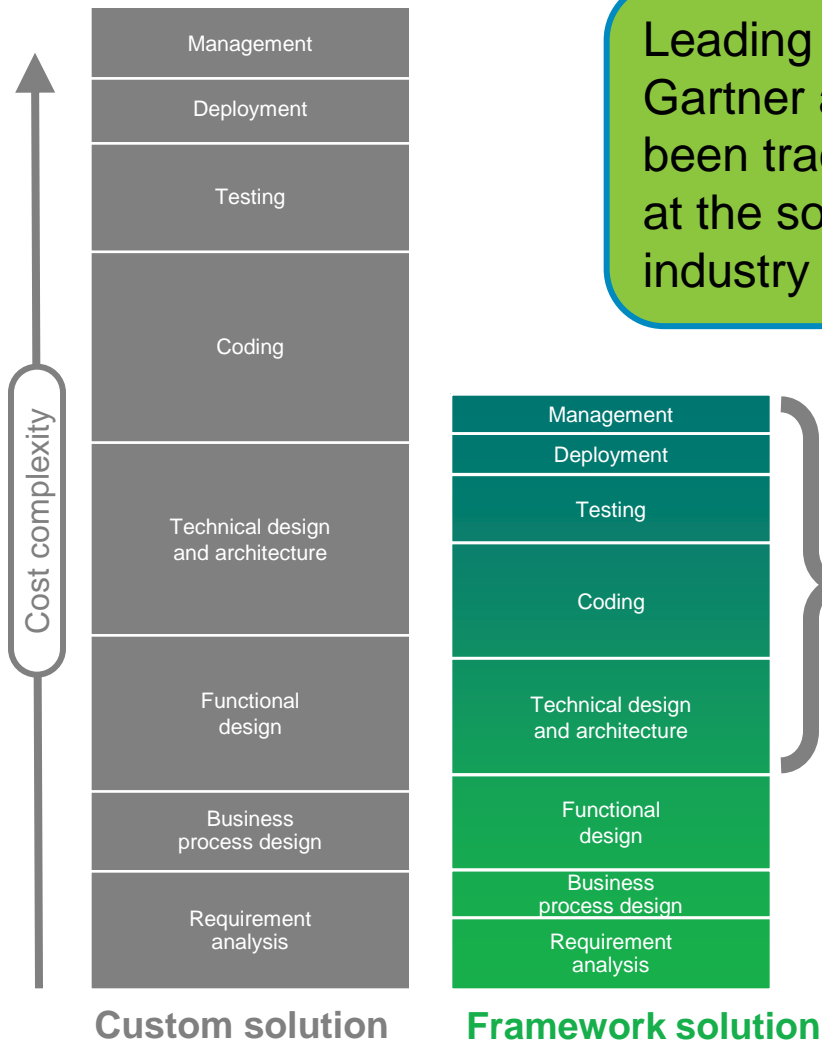- We have seen attempts to Transfer package built solutions with limited success

Flexibility/Fit to requirements

Custom

Industry Framework

Transfer

Package

Total Cost of Ownership
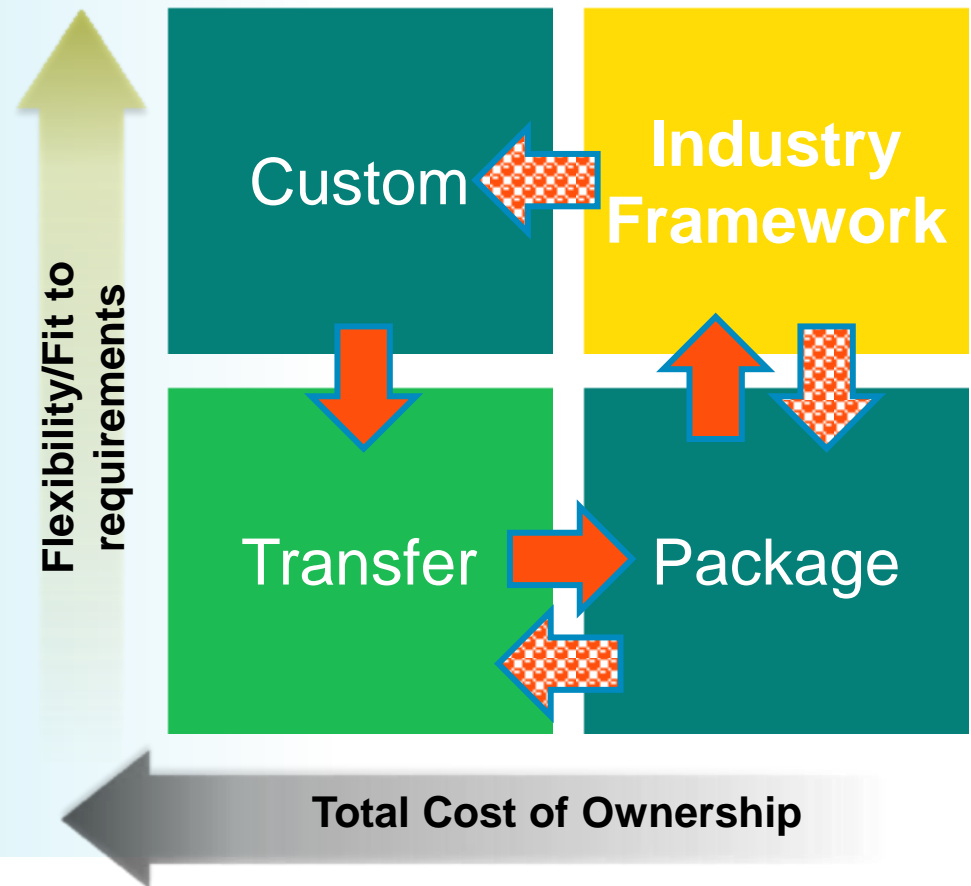
Determining the best approach is aided by evaluating requirements against a

Social Programs Reference Architecture

Example only

A social protection framework approach aims to cut development time and costs by reducing risk

Cost complexity

Custom solution

- Management
- Deployment
- Testing
- Coding
- Technical design and architecture
- Functional design
- Business process design
- Requirement analysis

Framework solution

- Management
- Deployment
- Testing
- Coding
- Technical design and architecture
- Functional design
- Business process design
- Requirement analysis

Leading ICT Analyst firms – Gartner and Forrester have been tracking developments at the social protection industry level since 2006

30%–50% reduction

Gartner Industry Research

Strategic Technology Map for Government Human Services Agencies

The Forrester Wave™: Human And Social Services Enterprise Frameworks, Q3 2006

TECH CHOICES

Packages/Frameworks
- Half the cost & time of a custom build
- Must consider the lifetime licence costs of the software

In determining the Application Method (A), organisations must confront the competing interests within the IT industry influencing the Development Approach (Dv) and the Deployment Model (Dp)

| Software vendor packages and frameworks (A) | • Licence based revenues driven by the level of the out of the box fit and configuration |

| Systems Integrators SIs (Dv) | • Services based revenue based on deployment and providing add-ons to the out of the box capabilities packages/frameworks
• Fixed price or time and materials |

| In-house IT shop – (Dv) | • Maintain skills and employment opportunities in the face of the threat of packaged/ framework based software and Sis
• Funding for ongoing research and development in the business application |

| Hosting and Cloud Services - (Dp) | • Privacy and data protection
• Perpetual or term licencing
• Contract terms and conditions
• Range of services offered - subscription model |

A revolution is coming

New modes of application delivery

The evolutionary approach for business applications development is entering a new phase and will continue to evolve

Recent developments in the IT industry have the potential to cause a revolution in acquiring business solutions

- **How we procure - Software as a Service - SaaS**

- **How we deploy/consume - Cloud computing**

The fundamentals of matching business requirements to the business application remain the same

Cloud computing and SaaS offer many advantages
- Pay for what you need
- Pay for what you use
- Fast deployment

Several key issues need to be carefully managed
- Where is my data
- Is it secure
- Is my application scalable, flexible and maintainable – what is the Applications Method
- Will I retain control over my business application to ensure it continues to meet my needs

Be wary when 'cloud' is offered as the core component for a solution to a business problem. Understand what cloud is and what it isn't

Under the auspices of the International Social Security Association's (ISSA), ICT Technical Commission, leading companies in the IT industry with a global focus on social protection are examining:

- Development of a generic reference architecture (including business components) the industry can support

- Companies could develop products/components directed at specific components of the architecture

- Business requirements could be evaluated against the reference architecture to determine best solution options

- Through a Service Orientated Approach there can be options to mix and match IT components to address different components

- The reference architecture could be further decomposed to a more detailed industry model to provide an even more granular product/solution evaluation tool

This is a work in progress and it is early days – what is important is for the social protection industry to come together with a single voice and drive the IT industry towards better products suited to the industry

The ICT industry is continually evolving with expectations for better quality products rising in line with more IT savvy consumers

"The first generation of "Digital Natives" – children who were born into and raised in the digital world – are coming of age, and soon our world will be reshaped in their image. Our economy, our politics, our culture and even the shape of our family life will be forever transformed."

Palfrey, Gasser: Born Digital, 2008

"No, you weren't downloaded. Your were born."

➤ **Business applications are at the heart of social security administration in delivering efficiency and service excellence**

➤ **There is much room for improvement - too often ICT projects have failed to deliver the expected benefits**

➤ **Be demanding of your ICT partners for proof of industry specific insight and content within their product and service offerings**

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