Anatomy of a Digitally Transformed Organisation

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BIL-T CONFERENCE ARCHITECTURE OF TOMORROW

“The best way to predict your future is to invent it” – Frank Herbert

Fragile to Agile
Today’s Agenda

• About Fragile to Agile
• Background/Context of Digital Transformation
• Where are we now? Traditional (or Analogue) Architecture
• Where do need to be? Digitally Transformed Organisation Key Features and Critical Success Factors
• How do we get there?
  • Target state and roadmap
  • Exceptions Based STP
• Successful Outcomes
• Summary
We exist to help visionary leaders transform their organisation’s agility to enable them to survive and thrive in an age of rapid and constant change.

We do this by helping them architect their enterprise to become more adaptable, flexible and responsive.

We offer consulting and management services based on proprietary frameworks and methodologies. Our Enterprise Architecture approach helps businesses and government make the one last big change they need to become permanently agile organisations.
About Fragile to Agile

Our Clients:

About 60% in South Australia, 15% Interstate and 15% overseas
Background/Context

Digital Transformation Globally
$1.2 Trillion is the equivalent of Australia's GDP or just over 6% of the USA GDP

Digital Transformation (DX) Defined

The application of 3rd Platform and related technologies to fundamentally improve all aspects of society. For business this means:

**TRANSFORM...**
New sources of innovation and creativity to enhance experiences and improve financial performance. Simply modernizing the technology underpinning existing systems is not transformation.

**...DECISION MAKING...**
Using information to create an evidence based culture. Companies should plan on doubling the productivity of their knowledge workers by using information more effectively.

**...WITH TECHNOLOGY**
Digital transformation is not to be confused with digital technologies, however, it does use 3rd Platform technologies such as Cloud, mobility, Big Data, and social as well as Innovation Accelerators including IoT, robotics, and 3D printing.

$1.2T in 2019
$1.4T in 2020
$1.6T in 2021
$1.9T in 2022
$6.1T Direct DX Investment
### The Digitally Distraught v. Digitally Determined

<table>
<thead>
<tr>
<th>The Digitally Distraught</th>
<th>The Digitally Determined</th>
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<tbody>
<tr>
<td><strong>54%</strong></td>
<td><strong>46%</strong></td>
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<table>
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<tr>
<th>8%</th>
<th>26%</th>
<th>20%</th>
<th>29%</th>
<th>17%</th>
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<tbody>
<tr>
<td>Impromptu DX initiatives are tactical and disconnected from enterprise strategy</td>
<td>LOB DX initiatives are initiated at the function or LOB level</td>
<td>Short Term DX initiatives are tied to enterprise strategy but with short-term focus</td>
<td>Integrated Strategy: Integrated, continuous enterprise wide DX innovation is in place</td>
<td>DX is the Strategy: The enterprise strategy is to use DX to transform markets with new business models and services</td>
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**Assertion:** Organisation's NOT Digitally Determined are likely to loose out to those who are
What Is Agile?

The Strategic Promise of Digitally Transformation

**Adaptable**
- Able to adjust to new conditions

**Flexible**
- Able to be easily modified as circumstances differ

**Responsive**
- React quickly and positively to change

Adaptability the most important as the current rate of change is exponential and as Charles Darwin said: “It Is Not the Strongest of the Species that Survives But the Most Adaptable”

**Assertion:** A Digitally Transformed organisation is an agile organisation and vice-versa
Relationship of Enterprise Architecture to Digital Transformation

EXHIBIT 2  
At digital leaders, enterprise-architecture teams make more valuable contributions.

Benefits of enterprise-architecture team’s work, % of respondents rating “high” or “very high”

- Digital leaders within or beyond industry
- Other companies

IT benefits (e.g., improving integration, increasing standardization)

- 90
- 63
- +27 percentage points

Business-process benefits

- 60
- 37
- +23 percentage points

Source: Enterprise Architecture Survey, a joint survey from McKinsey and Henley Business School

“Digitally Determined” organisations rate the value of EA higher than the “Digitally Distraught”
The organisations that get the maximum value from EA are those that think and act more strategically.
Organisational Anatomy

Traditional/”Analogue” Organisation
Vertically Layered Architecture (Application-Centric)

Might refer to this as pre-digital (analogue) architecture

Applications fragment overall environment and “hardwire” together channel logic, business services, data and infrastructure
Vertically Layered Architecture (Application-Centric)

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Applications fragment overall environment and “hardwire” together channel logic, business services, data and infrastructure.

Additional Detail:
- Islands of Data
- Islands of automation
- Fragmented processes
- Inconsistent user experience
- Large unit of change
- Very complex integration requirements (or lots of “Swivel chair” integration)
Vertically Layered Architecture - Application-Centric or analogue?

Assertion: Application-centric organisations are inherently Fragile as they are wide open to digital disruption
Organisational Anatomy

Critical Features of a Digitally Transformed Organisation

https://www.youtube.com/user/FragiletoAgile2
Assertion: All aspects required to be truly Digital (and Agile)
DISCLAIMER 2: Unapologetically Nirvana

- This is a deliberately a statement of what perfection looks like
- Most organizations will never reach this perfection
- It’s your “North Star”, “Beacon on the Hill”
- Critical success factor is to design the transformation to deliver value quickly and often
- Difficult piece, outside of a planned (“Digital”) transformation is to fund the key enabling platforms/technologies
- Significant benefits all the way on the journey if mapped out well
- We will see case study at the end of what can be achieved even when only ~30% of the way there
Assertion: The “ducks have all lined up” and the time is now right. The real question is how far and fast you want to go.

• A lot of this may seem familiar – True - the basic pattern has been around for over 20 years – good patterns have a habit of surviving
• It’s all about the timing – Things are VERY different now

Business Context:
• Digital Transformation
• COVID/WFM push
• Channel innovation – Augmented reality, Voice etc.
• Disaggregation of the business model – Boundaries of an enterprise blurring
• Supply chain disruption adaptability
• Data Science
• Not just an efficiency play – now also a business model play and in some cases survival play

Technology Context:
• Lighter weight products/tools available – e.g., API Management tools versus ESBs;
• Low-code platforms
• Domain-driven architecture
• Agile delivery methods
• Big data, AI/ML
• Microservices
• DevOps
• Cloud/SaaS/PaaS/IaaS
• API enablement/roadmap (almost) universal in software solutions

• Learnt the lessons of the past – e.g., Minimal Viable Product rather than “boil the ocean”
• Most importantly, the pattern is fractal in nature – while today talking about whole of organisation the same pattern can repeated in an individual solution area or Business Unit and then expanded across organisation
Horizontally Layered Architecture (Service-Centric)

Horizontal layering of functionality with clear boundaries of responsibility for each layer
Horizontally Layered Architecture (Service-Centric) – Channel Layer

- **Identity & Access Management**
  - Solution
    - Data
    - Infrastructure

- **Channel Management**
  - Online
  - Social Media
  - B2B
  - Phone
  - Email

- **Business Process Management**

- **Integration Layer**
  - AI Engine
  - “Big Data” Store
  - Analytics and Reporting
  - IOT Data
  - External Market Data

- **Service Providers**
  - Service
  - Solution
    - Data
    - Infrastructure

**Separation of Channels and channel logic from rest of your systems critical to future proofing/adaptability**
Horizontally Layered Architecture (Service-Centric) – Channel Layer

Critical Success Factors:

- Channel Independent
- No business logic in the channel solutions
- No business data stored in the channel solutions
- Customer-centric design – “outside-in” design
- Re-envisioned digital interaction – not just putting paper forms online
- All inbound information converted to digital format at the channel
- All outbound data in digital native format

Separation of Channels and channel logic from rest of your systems critical to future proofing/adaptability
Horizontally Layered Architecture (Service-Centric) – Process Layer

Identity & Access Management

Channel Management

Business Process Management

Integration Layer

Service Providers

Service Providers

Solution

Data

Infrastructure

Service

Solution

Data

Infrastructure

Service

Solution

Data

Infrastructure

External Entities

All major processes extracted from point solutions, re-envisioned as digital and implemented on a process automation tool
Horizontally Layered Architecture (Service-Centric) – Process Layer

- **Identity & Access Management**
- **External Entities**
- **Channel Management**
- **Integration Layer**
- **Business Process Management**
- **Critical Success Factors:**
  - All major processes digitised
  - Process Automation Platform enabled – BPMS, Power Apps – number of options
  - Process Automation Platform must include support for automated process steps and human executed
  - Includes Business Activity Monitoring and Real-time Analytics
  - Exceptions based Straight-Through Processing paradigm

All major processes extracted from point solutions, re-envisioned as digital and implemented on a process automation tool
Horizontally Layered Architecture (Service-Centric) – Integration Layer

- **Identity & Access Management**
- **Channel Management**
- **Business Process Management**
- **Integration Layer**
- **Service Providers**
- **External Entities**

**AI Engine**

**“Big Data” Store**

**Analytics and Reporting**

**External Market Data**

**IOT Data**

**Analytics and Reporting**

Exposes services/APIs for consumption by process layer and externally (via channel systems); consumes external services/APIs
Horizontally Layered Architecture (Service-Centric) – Integration Layer

Critical Success Factors:

- Stateless services based Integration Pattern
- Covers “common concerns” e.g. monitoring and logging
- Business Data Model based, i.e. single common language
- Must support invocation of external services (from other organisations) and cloud based services
- Supports Event-Driven Architecture (EDA) pattern
- Must cater for integrating “legacy” applications

Exposes services/APIs for consumption by process layer and externally (via channel systems); consumes external services/APIs
Horizontally Layered Architecture (Service-Centric) – Services Layer

- Identity & Access Management
- Channel Management
  - Online
  - Social Media
  - B2B
  - Phone
  - Email
- Business Process Management
- Integration Layer
- Service Providers
  - Service
  - Solution
  - Data
  - Infrastructure
  - Service
  - Solution
  - Data
  - Infrastructure
- External Entities
- AI Engine
- “Big Data” Store
  - Analytics and Reporting
  - IOT Data
  - External Market Data

Exposes business logic from solutions (internal and external) to the integration layer to be “wrapped” as services/APIs
Horizontally Layered Architecture (Service-Centric) – Services Layer

**Critical Success Factors:**

- This layer exposes business services to the integration layer
- Contains all the non-process flow business rules/logic
- They must be true business/enterprise services
- They must be atomic, stateless and leave the business in a consistent state
- They can then be called from the process layer or directly from the channel layer as required
- They can be provided by in-premise solutions, cloud solutions, outsourcing partners or external service providers
- Getting the granularity of the services right is one of the most important critical success factors and the hardest bit to get right

Exposes business logic from solutions (internal and external) to the integration layer to be “wrapped” as services/APIs
Horizontally Layered Architecture (Service-Centric) – Data Layer

- **Identity & Access Management**
- **External Entities**
- **Service Providers**
  - **Solution**
    - Data
    - Infrastructure
  - **Service**
- **Integration Layer**
- **Business Process Management**
- **Channel Management**
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- **AI Engine**
- **“Big Data” Store**
  - Analytics and Reporting
  - IOT Data
  - External Market Data
- **External**
Horizontally Layered Architecture (Service-Centric) – Data Layer

It’s not just about having lots of information/data it’s about it’s quality and using it in anger, in real-time.
## Data-Driven - Information Hierarchy

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
<th>Example</th>
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<tbody>
<tr>
<td>Data</td>
<td>Data is raw material for data processing and relates to facts, events and transactions.</td>
<td>23121976</td>
</tr>
<tr>
<td>Information</td>
<td>Information is data that has been given meaning by way of a relational connection.</td>
<td>23rd December 1976</td>
</tr>
<tr>
<td>Knowledge</td>
<td>Knowledge is the collection of information such that its intent is to be useful. Knowledge has useful meaning, but does not in itself infer further knowledge.</td>
<td>My partner’s birthday is the 23rd December 1976</td>
</tr>
<tr>
<td>Understanding</td>
<td>Understanding is a cognitive and analytical process which synthesises new knowledge from previously held knowledge. If knowledge is “memorising” then understanding is “learning”.</td>
<td>I must not forget the significance of this day.</td>
</tr>
<tr>
<td>Wisdom</td>
<td>Wisdom is an extrapolative, non-deterministic, non-probabilistic process. It asks questions to which there is no easily achievable answer or maybe no answer at all.</td>
<td>If I forget my partner’s birthday I will be in trouble for which the punishment will be severe!</td>
</tr>
</tbody>
</table>

**Assertion:** Without achieving at least the understanding level AI efforts will be futile
How do we get there?
Target State, Roadmap & Exceptions-Based Straight-Through-Processing (STP)
Target State Architecture
Without a target state and a roadmap to get to it (EA) the Digital Transformation will build tomorrow's legacy.
Exceptions Based Straight Through Processing (STP) Explained

Why We Contend Digitally Transformed and Agile Are So Strongly Linked
Exceptions Based Straight Through Processing (STP) Explained

Why We Contend Digitally Transformed and Agile Are So Strongly Linked

Assume every step can be automated; manual queue where not; exceptions queue where partially automated (MVP)
Exceptions Based Straight Through Processing (STP) Explained

Why We Contend Digitally Transformed and Agile Are So Strongly Linked

- Assume process fully automated from the start – “digital by default”
- One to one relationship between process step and a service
- Every process step has an exception queue for processing failures manually and/or dealing with incomplete services
- Processing continues after each step identically irrespective of whether it was executed automatically or a manual exception handled
- Makes MUCH easier to deploy Minimal Viable Product by decoupling process delivery from service delivery
- Particularly powerful for large multi-business unit organisations and cross-government agency service delivery
- Key to transitionary benefits, quick wins and responsiveness

Critical Success Factors:

Assume every step can be automated; manual queue where not; exceptions queue where partially automated (MVP)
Exceptions Based Straight Through Processing (STP) Explained

Robotic Process Automation Opportunity (and the only one!)

This is the ONLY place where Robotic Process Automation (RPA) should be used but if volume justifies it can be major quick win
Successful Outcomes
Customer Base: 300,000 (then - now 590,000)

Product
- 27 separate products, including both legacy and new
- Retail, Business and Wholesale Product Groups
- Transaction Accounts
- Savings
- Investment
- Credit Card
- Unsecured Personal Loan
- Home Loans
- Business Lending
- Leasing

Channels
- No Branches (NOW!)
- Call Centre
- Online
- Mobile Lenders
- Workplace Banking
- Brokers
- Partnerships
Link to:  
Pega ME Bank Video.
When we planned transformation we had the option to renovate the house or build a new one. While more challenging, we chose the latter. The new systems are state-of-the-art and will keep ME competitive well into the future. The result is a brand-new piece of banking architecture that’s been built to be updated — future-proofing the Bank. That’s a structural advantage other organisations would be envious of.”

*Jamie McPhee, CEO, ME Bank*
ME Bank – Benefits Realised

Reduction in effort by 73%*

Before RO
Increased volume resulted in increased effort

15 Sep 2013
Pega Introduced
Effort reduces to below volume for the first time.

3 Feb 2014
Co-op introduced, volume increases over 200%, less than 50% increase in effort

Apps Received

Hours effort
ME Bank – Benefits Realised

• Financial:
  – ROI has grown from 5% to 8.4% with the goal of reaching double digits
  – Net Profit Up 25% in the first 12 months whilst Holding Costs remain flat
  – Significantly improved Cost-to-Income Ratio = High 90’s to below 60’s
  – 98.7% of all deposit Account opening processes now automated from 4 person hours manual effort
  – New Product development reduced to less than 10% previous costs

• Operational:
  – Transaction Account completely online = ZERO human intervention
  – Deposit processing previously took 5 days now completed in 5 minutes
  – Loan Application took minimum of 3 days now reduced to 30 minutes

• Competitiveness:
  – Time to Market for New Products = 3 months versus 12 months previously
  – Improved ability to rapidly adapt to Changing Market Conditions
  – Better positioned to meet the Demands of Digital Customers

We have proven that a modern technology environment (Digitally Transformed), correctly architected for the organisation, delivers a step change in efficiency; time-to-market; cost-to-income, customer satisfaction and critically agility
ME Bank Case Study – Awards

Best Bank Award – 2018
Mozo recognised ME as the most successful bank over the last 12 months. Having picked up awards for best value in home loans, credit cards, savings accounts and term deposits, ME was found to have the widest range of highly-ranked products of any bank.

Money Magazine Award – 2019
Money magazine, Money Minder of the Year is awarded to the provider most likely to have an account that delivers value for money and includes personal transaction accounts, children’s accounts, regular saver accounts, online saving accounts and term deposits

Canstar Award - 2017
Canstar ranks transaction accounts based on value-for-money measures and then awards a star rating according to rank. The top accounts will be awarded a five-star (or outstanding) rating

ME Bank’s Mark Gay named Finance CIO of the year – 2016
Large-scale transformation effort nabs prize. A five-year, sweeping overhaul of ME Bank’s IT infrastructure has earned its chief information officer Mark Gay the top prize in the Finance category of the iTnews Benchmark Awards
Summary
Summary – Traditional ICT to Digitally Transformed/Agile
Summary

Key Take-aways

• Digital Transformed = Agile = Digitally Transformed
• Horizontal layered and service based architecture not application-centric
• Channel independence is critical due to level of innovation in channels
• Re-envisioned “digital first” processes implemented on a process automation platform
• Exceptions Based Straight Through Processing key design paradigm
• Integration layer required to expose/consume internal/external services/APIs
• Integration layer is both a ticket to play in the digital economy externally and internally the bridge between the new world (higher layers) and the old world (legacy service providers) during transition
• Target state and executable roadmap, with frequent delivery and quick wins, mandatory – They will change but you still need to have them

Done right it will be the last transformation you’ll need as thereafter you will be positioned for continuous evolution
Thank You – Questions?

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