IT-speak, the missing link

A White Paper by LINQ

IT-Speak – The missing link. A whitepaper from LINQ.IT

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Executive Summary

Communicating the complexities and benefits of Enterprise IT to non-technical senior managers, particularly the CFO, CEO and Board is a challenging task for the CIO, CTO, CDO and Senior Technology Manager. Making informed decisions, understanding risks, benefits, and the ramifications of your actions or inactions can be a daunting task without the right insight.

There is a better way, the missing link.

Your organisation will likely exploit four methodologies to collectively describe the enterprise IT environment: Enterprise Architecture, Business-Process-Modelling, Data/Information Modelling and even HR Roles & Responsibilities Matrix. While important and necessary tools within their own domains, each has a narrow focus and specialist expertise with its own domain-specific language which makes it difficult to communicate value across those domains or to the wider business; particularly those non-technical senior managers. The reality is that most organisations have complex information environments that evolved over many years; typically involving both paper and electronic processes with numerous legacy applications and operating systems often spread across multiple locations.

This White Paper describes a transformational approach to rapidly understand, communicate and leverage the value of information in your organisation. The innovation is in the way the information is captured and analysed in information-supply-chains. 'Profound' and 'transformational' are overused words, but both have been used by Senior IT Change Leaders in describing how this information-supply-chain approach has revolutionised how they think about, describe and communicate their enterprise IT environment and its value to the business.

Manufacturing supply-chains utilise resources and processes to turn raw materials into goods and services that consumers want. Similarly with information-supply-chains; data and information, interacting with and being acted on by staff and systems, progresses through the organisation to form information products that enable and advances the business.

Thinking of that flow of information as supply-chains just seems intuitive and offers a simplicity and flexibility that those other methods lack. This approach is format and technology independent, it can model digital and hard-copy formats along with all the technology, processes and people involved in moving information from its source to the people that use it. It offers a common language that both domain practitioners and non-technical managers alike, particularly the CFO and CEO, can naturally understand. By presenting that complete yet simple picture of the organisations information ecosystem, information-supply-chains provide insights into the impact of proposed change on the wider business. In doing that, it allows the IT Change Leader to understand what aspects of the IT environment to pay attention to, nurture and improve, but as important; what to ignore, stop doing or perhaps discard. This paper describes the methodology for capturing information-supply-chains, a tool for doing that and the benefits an organisation can expect to gain.

Introduction

For most organisations, information is the language of business. Senior managers and decision-makers rely on timely, fit-for-purpose information to make real-time decisions which directly impact the success of their business. Consumer IT has transformed information into another commodity for the domestic user. For the most part; it just works and if it doesn't the consumer can and will simply switch devices or providers. That consumer IT environment is constantly re-setting the technology benchmark which is spilling over into enterprise IT. This becomes a dilemma for the CIO and CTO in trying to describe the challenges and complexity of their enterprise IT environment to those non-technical senior managers who legitimately ask why consumer IT is getting easier, better and cheaper, while their Enterprise IT appears to be getting harder, more complex and expensive?

The Problem

From time to time both the CIO and CFO need to have strategic conversations with the CEO around current issues, emerging threats or opportunities to change and grow. In these situations the CFO has a significant advantage over the CIO. When it comes to money, the CEO and CFO share an understanding and common language when talking matters of finance. The same cannot be said when talking about IT.

Today, even progressive CEO's are struggling to keep up to speed with technology that is continuously changing. Unlike the mutual understanding and language shared by the CFO and CEO around finance, today's CIO or CTO is trying to communicate a highly technical, typically expensive, complex, high-risk and fast-moving environment to the CEO who often has a thin grasp of what you are talking about.

Several disciplines have matured to better describe and communicate information technology and its interaction across an organisation. These include HR Roles and Responsibilities, Business Process Mapping (BPM), Data Modelling (DM) and Enterprise Architecture (EA). While these methods remain important and necessary tools within their respective domains; each has limitations in describing or communicating the complete enterprise picture and business value; both to the other domain experts but particularly to non-technical stakeholders.

BPM is ideal for describing processes, their outcomes and the people doing them. Data Modelling does not concern itself in either the people or process interactions between data entities while Enterprise Architecture tends to ignore analogue (paper-based) processes, data and information elements and people.

The communications challenge in describing Enterprise IT is often evident at budget time. This typically involves senior managers looking at a spread sheet comprising dozens, if not hundreds of budget line items spread across those four disciplines. Against this they must reconcile the organisations budget for the coming year. Which items are the most important or critical to the organisation? Which have dependencies? Which are part of a wider work programme? Which are the least important? 80% of the organisations we talk with report important projects being cut at budget time because of a lack of clarity for value and consequences.

So what is missing? Those same organisations we talk to agree they need a way of:

- Understanding the impact of change; and the status quo on organisational outcomes
- Rapidly identifying and describing the people, systems, processes and information contributing to organisational outcomes
- Identifying which of those items are most important, and which are least important
- Easily communicating across domain experts, users, stakeholders and non-technical senior decision-makers
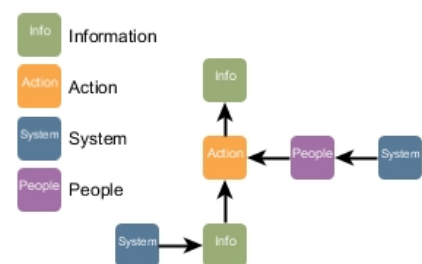
Introducing Information Supply Chains

Rather than focus on the people, processes or technology; attention needs to move back to information as that is the life-blood of an organisation. We could consider:

- What are the organisations most important business outcomes?
- Which staff directly supports those outcomes?
- What information do they need; where do they need it and when?
- Where does the information come from?
- What are all the steps; the people, processes, information and technology that interact and collaborate to make all that happen?

Consider that those organisational outcomes are supported by information-supply-chains. In the same way that manufacturing has used materials-supply-chains for decades; information-supply-chains pull together those existing four domain disciplines; Data Modelling, Business Process Mapping, Enterprise Architecture and HR Management; presenting them as four nodes: Information, Processes (Actions), Technology (Systems) and People. These four elements model the interactions that transform and transport information from its source to the consumer (end user or system).

The diagram at right depicts a simple information-supply-chain comprised of those four elements; Information, Actions, Technology (Systems) and People. We start at the bottom with an information source (green) which is supported by a System (blue)[1]. An Action (orange) is performed against that Information by People (purple) who are supported by another System (blue)[2]. That Action has created new Information, in this example within an Application (green)[3] which is the end of the information supply chain.

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[1] This could be asset or customer information within a database or a hard-copy form completed by a customer.
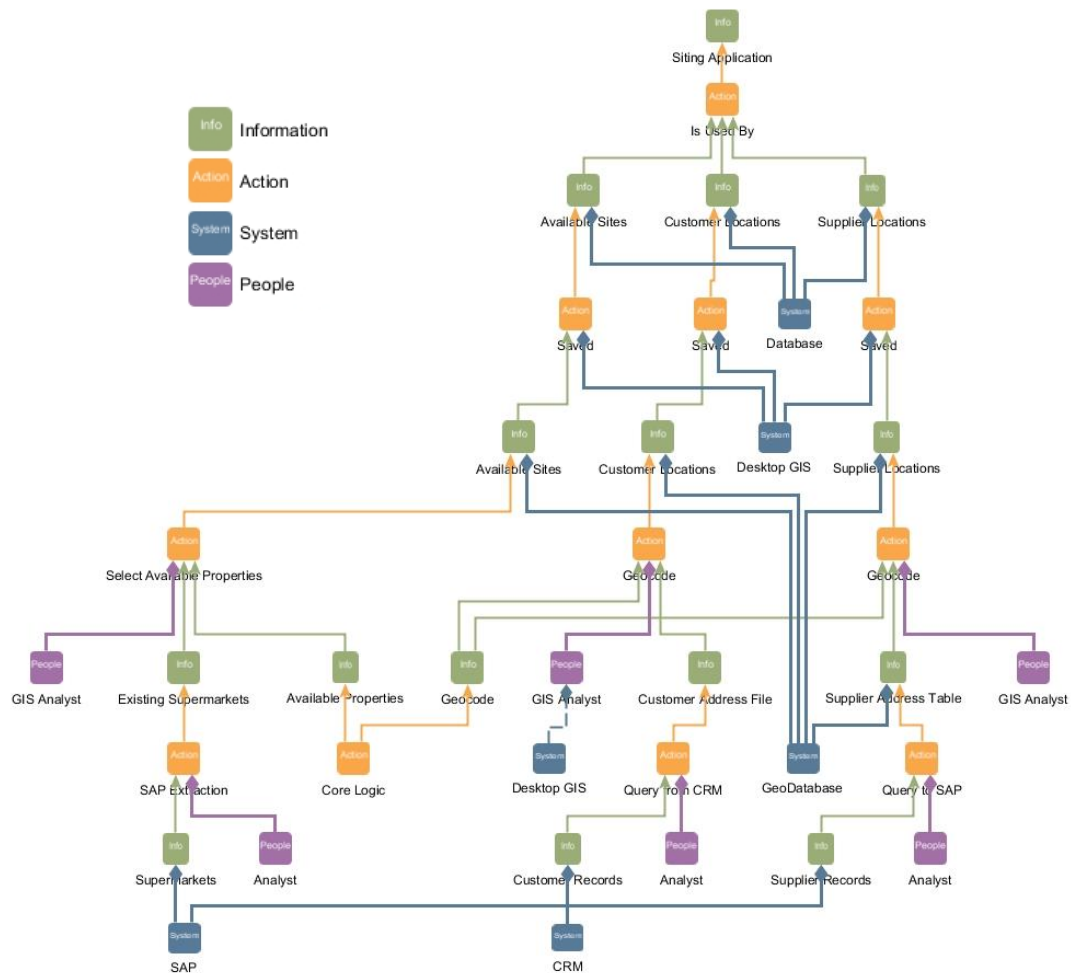
[2] This could be a staff member performing a query or assessment on the database or processing and approving a customer form and entering it into an application.

[3] The result of the staff query and action or entering data from the hard-copy form into an application has created new information.

This is a simple example with a single information source, single action and single information outcome (App) yet even the description alone is confusing while the diagram, the information-supply-chain is easy, even intuitive to follow. Most business environments are considerably more complicated than this simple example involving multiple information sources, several people or teams, numerous processes and different systems. This can still be successfully, and quickly modelled using an information-supply-chain approach.

Simplicity from Complexity

Below is a more complicated information-supply-chain[4]. This incorporates three information sources (at bottom) with a single decision-support (siting) application at top. As with the earlier example, the information-supply-chain comprises a series (chain) of information/action nodes. People perform actions, supported by a System or Systems directly perform an action i.e. an automated or scheduled database task.
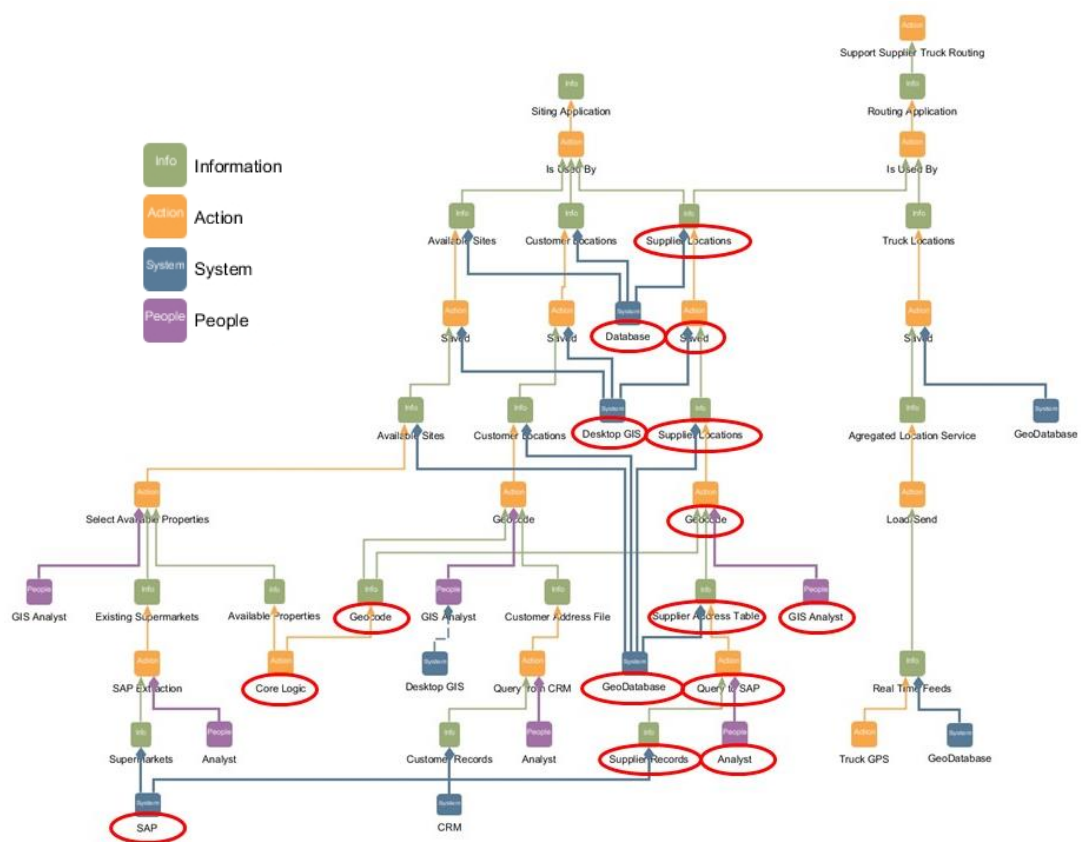

By focusing on the flow of information i.e. the information-supply-chain itself, several insights are immediately obvious; we can observe the people/teams and systems

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[4] In this example to information product is presenting viable sites to locate a new Supermarket.

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involved in the information-supply-chain, what actions are being performed and by who, what information is being used and where it comes from.

While the above information-supply-chain is more complicated than the first, it still does not approach the complexity of a typical business environment. This is better reflected in the example below. Now, in addition to the original information-supply-chain above; there is a second with overlapping elements. By overlapping we mean there are Information, Actions, People and Systems (highlighted in red outline) which are supporting both outcomes. Immediately we can see that these overlap areas, in supporting two separate outcomes, are delivering more value than other information-supply-chain elements supporting only a single outcome. Anything that impacts these overlap areas; positive or negative, will impact both decision support applications and ultimately the business outcomes they support.
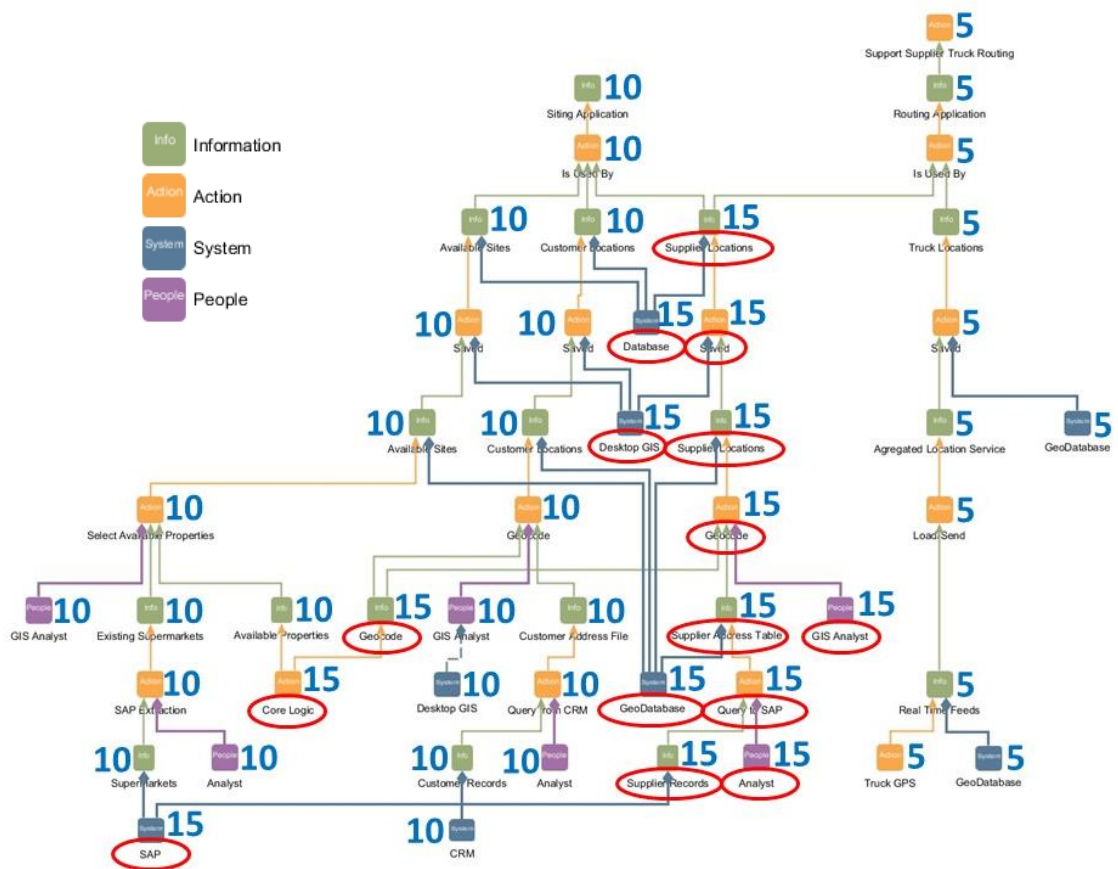

Working out value.

What are the most valuable parts of the organisation? Which are the least valuable? Where should your limited resources be spent to maximise value? What is the impact of proposed change? These are daily questions for the IT Change Leader.

Value is subjective. This paper will not go into the mechanics of how an organisation might define value[5]. That will be different for each organisation. For the purposes of this paper, value could be considered the sum of these questions: What are the

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[5] Many organisations use their own 'value' or ROI methodology. If your organisation has one, use that. In the context of this paper, the methodology is less important than its consistent application across the entire model i.e. do not use one methodology/approach for one part of the model and a different one for another.

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organisations most important business outcomes? What decision support applications or information products (enterprise application, reports etc.) support those business outcomes?
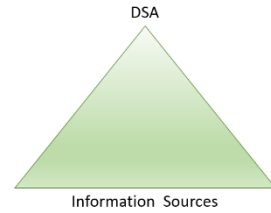
In the diagram below we have assigned a value for the two information outcomes at top using a simple MoSCoW[6] method, scoring them 10 (must have) and 5 (should have) respectively. We can identify the value of underlying information-supply-chain elements by cascading these values down through the supply chain, aggregating the scores (in blue) for any overlap areas i.e. the overlaps inherit the combined scores of the nodes above them. This simple approach identifies the most important; and least important parts of these two information-supply-chains; in this case those overlap areas, highlighted in red, are scoring 15.

These two information-supply-chains are still relatively simple compared with those of most organisations. Can the same methodology be used in more complex Enterprise IT environment with multiple, complex, overlapping information-supply-chains? Yes it can.

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[6] The MoSCoW method is a prioritisation technique used to determine a common understanding of value. The term MoSCoW itself is an acronym derived from the first letter of each of four prioritization categories (Must have, Should have, Could have, and Would like but won't get), with the interstitial o's added simply to make the word pronounceable. Using this method, a value of 10 represents the highest value (must have); 5 would represent somewhat important (should have) while a 1 would represent not important at all (could have).

For simplicity when completing this 'value' process in complex environments, you can represent the information-supply-chains as pyramids (right). As with the previous examples, the multiple information sources at the bottom with the decision support application (DSA) at the top.

Using this approach in the example below, we have five overlapping DSAs represented by a dashboard of five pyramids. These have been 'valued' using the MoSCoW method described earlier. The higher the number the greater the value. The resulting scores from left: 2 (orange), 5 (yellow) and three scoring 10 (green). As described above, the scores cascade down through the information-supply-chain, aggregating in the overlap areas. This method highlights two high-value information-sources supporting multiple DSA; one scoring 30 and another 35.

The same methodology offers insights into areas of operational expenditure (OPEX) based on each Action within the information-supply-chain [7]. This is represented in the figure below. An analysis shows that the greatest OPEX spend is $3M in the red area. This coincides with a high-value area identified in the figure above with a MoSCoW score of 30. Such a high operational expense might seem reasonable for such a high value area. The same model below shows an OPEX spend of $2.1M in the orange area at left. This coincides with a MoSCoW score of just 7 in the figure above, indicating an area of relatively low organisational value. This indicates significant organisational resources being used in a relatively low-value area of the business.

Many of our customers report that previously they relied on anecdotal or gut-feel in establishing value and spend; particularly for lower-level parts of the organisation. The approach described here can provide the empirical evidence many IT Change Leaders have always desired but struggled to articulate. Again, many of our customers report that when it comes to moderating the budget across the organisation, this level of insight becomes instrumental in making the right decisions.

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[7] The methodology to establish OPEX (Operational Expenditure) is relatively simple but is not discussed here. Essentially it establishes the cost of individual actions within the information-supply-chain based on the duration and frequency of the Action combined with the overhead rate in hours of the person or team performing that action.

We can use a similar approach to analyse resilience[8]. This is depicted in the figure below where green represents high-resilience through to red for low-resilience. The large section of red at far left indicates an area of low-resilience. This coincides with a low-value MoSCoW score of just 2 from the first diagram above. The IT Change Leader might consider poor resilience in such a low-value area acceptable. The other area of low resilience is indicated by the red triangle at centre-right. This coincides with a high-value MoSCoW score of 30 suggesting this is an area for attention.

Again; as with the OPEX example above; many of our customers report that; while they believed they had resilience issues in parts of the business; they relied on gut-feel to establish if it was a priority or not. And again, they report that the level of insight information-supply-chains provide is profound, providing a simple, pragmatic way of identifying and communicating organisational priorities and risk to senior managers; the executive and the Board.

The Business Benefits

Board and Executive-level insights

While non-technical senior managers struggle to understand the technical languages traditionally used to describe enterprise IT[9], information-supply-chains and particularly the pyramid dash-boarding technique described above offer a simple, easy to understand method of describing and communicating that complexity; in particular the impact of any proposed change on the business.

Strategic Investment

Having a holistic view of the IT eco-system from both a risk and investment perspective de-risks investment decisions and inherently makes them more strategic; auditable and defendable.

Describes the relationships

By focusing on the information-supply-chains it describes the specific relationships between information, actions (processes), systems (technology) and people and how those relationships support organisational outcomes.

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[8] As with value; resilience might be considered subjective and vary between organisations. For the purposes of this analysis, the method for determining resilience is less important than its consistent application across the entire model.

[9] Existing technical languages for describing the Enterprise IT environment include: HR matrixes, Business Process Diagrams, Data Model/Dictionaries and Enterprise Architecture Diagrams.

An organisational view

Information-supply-chains offer an authentic model of how the organisation fits together with all the pieces; information, actions (processes), systems (technology) and people.

Common language

Information-supply-chains bridge the conceptual and communications gap between IT domain specialists and non-technical users alike by offering a single view and common language for an organisations information ecosystem.

Abstracts away from technology

By focusing on the flow of information, it moves the conversation away from the technology and other 'sacred-cows' in the organisation to focus solely on organisational outcomes and the information that supports them.

Dependencies and consequences

In identifying how information, actions, systems and people fits together to form information-supply-chain, managers can for the first time identify the dependencies and consequences of proposed change or the status quo regards any of those elements. This creates the opportunity to design hypothetical scenarios (the future state) and assess organisational impact before detailed planning or actual implementation.

The outcomes

IT investment prioritisation

In identifying elements of most value using a MoSCoW method in conjunction with this information-supply-chain methodology, senior managers have a simple, easily communicated approach for identify and prioritising areas of spend across the entire organisation. This includes staff (people) and processes (Actions); not just information and technology. At the Executive or Board-level; while they struggle with those domain-specific concepts, they easily understand information-supply-chains. This can be presented as simply as the table below. This incorporates the MoSCoW scores in the left column (highest to lowest); then columns for each element comprising the organisations information-supply-chains (Information, Action, People and Systems) with the OPEX spend in the right-hand column. Issue, task or proposed-project items are highlighted in red under each information-supply-chain element. The information-supply-chain can be sliced to report a number of ways depending on the focus i.e. is that resilience? OPEX? Training?

Priority Scores	Information		Action		People		Systems		Aggregate Cost
	Nodes	Resilience	Nodes	Resilience	Nodes (FTE)	Resilience	Nodes	Resilience	(Annual)
35	2		10		6		4		$400k
30	23	#723 no backup policy	45	Undocumented Processes	15	3 Uniquely skilled individuals	20	3 servers in earthquake prone buildings	$5,000k
27	4		20		0.5		2		$100k
25	12	#34 no Backup	40		0.6		4		$400k
20	167		180		8		20		$1,200k
20	34		45	Undocumented Processes	11	1 Uniquely Skilled Individual; 3 nearing retirement	17	Obsolete System	$1,900k
17	70		60		3		4		$200k
15	12	No backup policy	30	Many Manual Processes	1.1		2	Obsolete Systems	$200k
10	5		8		1.5		2		$300k
10	64		55		7		13		$900k
10	23		23		2		2		$200k
7	68	Largely file-based	120	Undocumented, project-based processes	12	3 Uniquely Skilled Individuals	16		$2,100k
5	34	No retention policy	45	Undocumented Processes	9		13		$1,100k
2	9	No Policy	80	Many Manual Processes	3	High Turnover; Low Morale	4	Obsolete Systems	$300k

Data currency, suitability, accuracy, assurance

Information-supply-chains are ideal for identifying what information and data is required to support organisational outcomes. This can be down to the level of specifying format, timeliness or quality. Almost as important, it can identify what data is no longer required. As organisations grow and change they typically collect or acquire new data with supporting processes. Our interactions with organisations suggest that almost none of them review existing data collection, acquisition and use to see what data is still required. Information-supply-chains are ideal in identifying the most important data to the organisation, and that which is redundant.

Communication and collaboration

Information-supply-chains are always comprised of information and action pairs. The methodology identifies the actions and the people performing those actions; the systems, and the people responsible for and/or using those systems. This creates an opportunity to have all the people with a stake in a particular information-supply-chain to collaborate. It represents a unique and powerful communications and change opportunity.

HR Management & Development

Information-supply-chains offer a basis for both role descriptions and training requirements. In identifying which system/s staff use it is possible to create training needs i.e. what skills are required to successfully use those systems. Similarly, in identifying which actions a person or team performs it is possible to create a role or job description for the individual or team based on the expected outcomes of those actions.

Summary

Non-technical staff, particularly senior managers such as the CFO and CEO have historically struggled to understand the complexities or investment priorities of their Enterprise Information Environment. Data Modelling, Business Process Mapping and Enterprise Architecture, while important and necessary within their respective domains, all struggle to describe or communicate beyond their domain and none of those approaches adequately describe or communicate the entire information environment.

Information-supply-chains, comprised of Information, Actions, Systems and People present an intuitive, breakthrough approach for the modelling, analysis and reporting of the Enterprise Information Environment that both domain experts and non-technical audiences alike can easily understand. It provides the IT Change Leader a dynamic snapshot of the entire picture; at a glance and provides opportunities to solve issues, remove roadblocks and share that with the entire organisation.

Where to start?

This information-supply-chain methodology was born out of hundreds of hours of workshops; across New Zealand to the UK; Christchurch to Auckland to London with IT Change Leaders in diverse organisations from Local Government to Retail Banking to Manufacturing. You could configure existing tools like MS PowerPoint, MS Visio or a free node/edge editor such as yEd; indeed those are the tools we initially used to develop the methodology. Or, if you don't want to reinvent the wheel or go through all the pain; the methodology is now available; along with a comprehensive education, training and support package, all bundled with a fully-functioned, easy to use, inexpensive cloud-based SaaS tool. We call it LINQ. LINQ combines all the capture, analysis and reporting tools the IT Change Leader needs to see their entire enterprise; to identify and solve problems; to share and communicate the impact of change with the rest of the organisation.

To sign-up for LINQ or find out more about how LINQ could add value to your organisation; click on 'LEARN ABOUT LINQ', visit the website or phone us:

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