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Digital transformation has become the buzzword used by organisations wishing to improve their performance and their prosperity by implementing the latest technologies. However, if not approached correctly, digital transformation can be intrusive and disruptive, destabilising operations and degrading performance.

This article proposes a philosophy for digital transformation that can assist with the planning and execution of a successful digital transformation.



At the outset it is important to align on the four reasons that should motivate any digital transformation journey.

1. To accommodate changes in the customer's perceptions of value

Consider the new value types important to the digital economy customer, which are:

- **cost** such as the availability of free/low-cost product and service options, and/or, consumption-based pricing;
- experience such as product suggestions based on past behaviour, customisation of products and services to individual needs, and, fast and non-cumbersome delivery options; and,
- **platform** the ability to collaborate with other customers, or, simple and easy access to chat-bots or in person customer services, etc.

These considerations are likely to result in **business model changes** where product and service specifications, and, sales and delivery processes, are aligned with the new value type requirements.

2. To use the mechanisms provided by technology advances

Changing the way in which technology is used in an organisation impacts the operating and resource models of the organisation. **Operating model changes** include making available business intelligence (based on relevant data consolidations across the systems and functions within the organisation) to enable management decision-making; to obtain more intimate knowledge of customers and their behaviours; and, to add value to the customer's experiences. It also includes the automation and optimisation of business processes, which will include relevant system integrations to minimise the amount of manual labour within operations.

Resource model changes refer to strategies where the ownership of resources (such as infrastructure or systems) are outsourced to a provider that specialises in servicing an organisation's functional and non-functional requirements.

Functional requirements can be generic as in online meeting facilitation solutions, or more specific, as in enterprise resource planning (ERP) solutions. Non-functional requirements include, for instance, the ability to scale transaction volumes, which will ensure system capabilities are available as they are needed. It can even address security requirements, such as access control, and many more.

3. To align with our understanding of organisations as "complex adaptive systems" in which cause and effect can no longer be viewed as linear and predictable

Organisations are complex adaptive systems, comprising multiple components (e.g. functional units; people, systems, etc.), each with multiple connections to other components. When a component changes, it will impact the behaviour of all the components connected to it.

All components constantly change and as they change the behaviour, and therefore strengths and weaknesses within the organizational system, change. These changes can be the result of strategic intent. It can be organic, as internal optimisation practices evolve. It can also be the result of ineffective transitioning procedures used in previous transformation initiatives; or, the result of the retention of non-optimal legacy components retained because of a legacy mindset. A system with multiple components and connections can become so complex that the ultimate end result of any planned change can become unpredictable. Any digital transformation should therefore include a simplification of the operational capability of the organisation.

4. To be resilient in the face of internal- and external environmental changes

Resilience implies the ability to align not only to incremental changes within the internal and external environments of an organisation, but also to adverse external situations. Resilience implies the following operational characteristics:

- the availability of cash reserves
- the ability to identify harmful changes in the internal and external environments in a timely manner, and to have adequate information for analysis and solution planning exercises
- operational agility to ensure that the identified solutions are implemented successfully. This usually requires simplicity and standardisation across all models used within the organisation.

These reasons for digital transformation suggest a complete rethink of how we do business and how we enable operations to deliver on customers' demands. The Zeta Digital Transformation Philosophy, in figure 1 below, identifies six considerations, based on the premise that a deep understanding of the capabilities and health of the current operational system and the opportunities and threats of the environment in which it operates, exist.



Figure 1: Digital Transformation Philosophy: 6 Considerations

COMPANY STRATEGY

A company's strategy defines its approach to enhancing operational strengths, overcoming weaknesses, exploiting opportunities and mitigating threats. It is based on a deep understanding of the organisation's operational challenges and the disruptive trends in the external market. It will therefore contain the desired digital transformation objectives as goals within the overall company strategy.

When thinking about digital transformation objectives, the constant change experienced in organisations now identified as complex adaptive systems, and, with the rate of technological change; it is only logical to wonder if it is possible to have an acceptable end state for digital transformation and how this would apply to different types of organisations.

Since the reason for digital transformation is the upgrading of an organisation's business, operating, and resource models to provide it with a competitive advantage in the market, the end state would always be relative to that of its competitors. To maintain a competitive advantage the organisation would need to evaluate its position relative to its competitors at set intervals that coincide with its strategy review cycles.

During each evaluation cycle the ability to use digital transformation mechanisms to enhance its strengths, mitigate its weaknesses, identify new opportunities and disrupt threatening competitor strategies, should be considered. Ultimately, after completing a few digital transformation cycles the organisation should have achieved a certain agility, which allows it to be uniquely responsive to changes within its internal and external environments.

CRITICAL SUCCESS FACTORS FOR THE DIGITAL TRANSFORMATION JOURNEY

As an organisation sets out on its digital transformation journey it should consider the following critical success factors as a minimum. However, depending on the scope and magnitude of the company strategy it may be necessary to define additional critical success factors.

1. Create a single, coherent and governed digital transformation vision & plan

An understanding of the complex nature of organisations, where changes to one of the components within the system invariably changes other components within the system, reveals the need for a multi-lateral and consolidated approach to digital transformation. It should never be executed as isolated initiatives within individual business units. A single coherent digital transformation vision & plan should highlight the differences between as-is and to-be states and the approaches and mechanisms used for the achievement of the strategic goals defined for the company as a whole.

A siloed approach to transformation will not only be more resource intensive, from both a cost and effort point of view, but will also create additional complexity in the operating environment, which is the opposite of what digital transformation is all about, namely simplicity and agility. Individual perceptions of what needs to be done can hamper the ability to align goals and outcomes and the all-important creation of a single vision and

plan. Overcoming this challenge is likely to require the establishment of some kind of design authority or governing board that take overall responsibility for the achievement of the organisation's digital transformation goals. It would oversee the ultimate digital transformation design, the prioritisation of initiatives into phases, and the monitoring of accomplishments.

2. Consider more than just technology changes (structural changes)

The digital transformation mechanism toolkit is much bigger than the latest and greatest technology solutions. As per the digital transformation mechanisms considerations presented later in this article, the mechanism types depend on the type of model to be transformed. Changes could include strategic policy changes, functional structure and related skill changes, process optimisations, legacy system upgrades, changes to partner models, and the use of new technologies, to name but a few.

Therefore, when creating the single digital transformation plan, all mechanism types need to be considered.

3. Change iteratively while measuring transformation successes

Changes applied in phases, in parallel if so planned, allow for an evaluation of the effectiveness of transformation approaches, and for the identification of the impact on components that may not initially have been considered as likely to be impacted by the changes. Also, success breeds success, and early successes can therefore be an important motivation for embarking on the overall journey that may seem immense.

The use of a phased approach can also assist where proof of concept tests are required to evaluate approaches, or mechanism options, for future iterations of the transformation journey.

For each iteration, an exact model of the begin-state, a model and measurement conditions for the end-state, and progress in the achievement of the full transformation should be created to avoid any confusion during transformation. Iterations should be concluded with success evaluations after which the individual iteration plans and the single coherent digital transformation plan, should be updated for the following iterations.

THE FACTORS LIMITING THE SUCCESS OF A DIGITAL TRANSFORMATION JOURNEY

Several operational characteristics have been identified as limitations to the success of any digital transformation journey. The relevance of these characteristics must be considered at the start of the digital transformation journey.

1. Operational complexity

Operations can be complicated, especially where intricate and technologically advanced operational practices are required. If these operational practices are well-defined and controlled, digital transformation may have a destabilising impact and will need to be www.ze-ta.co.za Page 5 of 18

carefully planned. However, both complicated and uncomplicated operations can be complex where excessive components and connections exist. This can result in a situation where the ultimate end result of any planned change is unpredictable. Complexity therefore limits the ability of the transformation designer to plan changes necessary for the transformation journey.

Examples of the causes of operational complexity in legacy operational systems are:

- Immature, informal and unstructured manual operations
- Operational silos

Legacy organisations tend to operate in silos, with a structure based on function, region, product line, etc. Silos usually duplicate functional components, each with their own processes, people, systems and data and controls, in worst-case scenarios. Silos can therefore create complexity.

Goals for digitalisation include agility, which is achieved through operational standardisation and the ability to have single views of the information used within operations, such as a single view of customers and their behaviours. It is therefore clear that operational silos will exacerbate the amount of work required to build a digitalised organisation and will therefore add complexity to the digitalisation journey. Many organisations will therefore have to consider restructuring their operating models as part of the transformation process.

Uncoordinated change implementations

Changes within functional units applied for optimisation, capacity upgrades, functional changes, risk mitigation or various other reasons, are usually executed internally without fully considering the impact it may have on other organisational functions using their services. As we have seen in the theory of complex adaptive systems, changes in one component always impact the behaviour of connected components, and it is therefore necessary to start planning all changes multilaterally.

• Legacy components

Legacy components can exist in both the business model (such as products used only by a select few legacy customers) and in the operating model (such as legacy systems whose technologies are no longer supported and sometimes are no longer understood). These legacy components are no longer full contributors to the operational performance of the organisation and their maintenance adds a level of complexity not ideal within a digital system.

It is therefore imperative to constantly monitor the current, and changed, "complexity state" of operations. If during the digital transformation journey it becomes apparent that the complexity state of the operational system has increased, changes to the transformation plan should be considered.

2. A limited understanding of the strengths and weaknesses of the operational capability

It is impossible to plan a digital transformation if the health or performance baseline of the current operational deployment, or the root causes of any weaknesses, are not understood. The considerations for this digital transformation philosophy (as shown in Figure 1), were introduced on the premise that the organisation understands the internal and external environments of its operations. The internal environment will contain strengths and weaknesses and the external environment will present opportunities and threats.

As a partner to our philosophy, Zeta has introduced its DNA Health Criteria framework in figure 2 below, which is used to identify the strengths and weaknesses within the internal organisation. These strengths and weaknesses don't refer to the specific functional requirements of a particular organisation, but rather to the alignments and enablement's that need to exist within an operational system.

Each criterion is associated with a number of metrics, with which compliance heat maps are created. This evaluation process identifies issues to be resolved via digitalisation mechanisms, whether through operational restructuring, or, the implementation of technology mechanisms.

It is therefore imperative for any organisation embarking on a digital transformation journey, to start by evaluating their current performance and defining their organisation's ideal performance requirements.

3. Significant Changes in the External Environment

It is very important for organisations to identify any changes in their external environment. The following changes are very important considerations for digital transformation planning:

- Changes in customers' value requirements (as discussed above)
- Disrupted B2B customers and/or suppliers. If the businesses of customers or suppliers can no longer operate as previously the relationships with these parties will have to change
- Disruption from competitors where their new business, operating, and resourcing models place them in a better position to satisfy the value requirements of the current customer market. When an organisation is threatened by a disruptive competitor, it has one of two options, it can either **defend its current position** by withdrawing to niche markets where the competitor can't compete, or by using its own economic and brand strength to hamper the competitor's ability to establish trade agreements; or, it can **disrupt the disrupting competitor** by creating partnerships with the disruptor or other organisations that will provide a competitive advantage, or, by creating its own innovative solutions to the customer's value requirements.



Figure 2: DNA Health Criteria indicating the ability of an organization to be sustainably prosperous

DIGITAL TRANSFORMATION PRINCIPLES

A very important step in the creation of a digital transformation plan is the definition of the principles to be used for coherent and consistent decision-making throughout the transformation process. The number of principles employed should be limited, and the reasons for the choice of a principle should be well motivated. Zeta proposes the four principles set out below as a minimum.

1. Holistic approach

Base the digital transformation strategy on an understanding of the entire organisational ecosystem, its interdependences, strengths and weaknesses.

Our philosophy is that we want to be an ecosystem. Our philosophy is to empower others to sell, empower others to service, making sure that other people are more powerful than us. With our technology, our innovation, our partners – 10 million small business sellers – we can compete with Microsoft and IBM

ЈАСК МА

In the digital economy organisational power does not only originate internally, but also from the networks it creates within its ecosystem. Also, agility as the most important ingredient required for resilience, is underpinned by a standardised, simplified and well understood core supporting all operational delivery.

Fragmented changes to the core, or any components interacting with the core, which are often initiated as critical tactical upgrades, may disturb the balance responsible for operational successes. Similarly, the implementation of innovative solutions to business problems - widely publicised as the most important tactic to achieve digital transformation – can have wide and unintended consequences if the impact and risk of the solution on the ecosystem are not considered holistically.

Therefore, it is important to holistically understand the potential and limitations of the core and connected components (of the current organisational ecosystem), to plan the desired end state based on this understanding, and then to plan the different change phases in the transformation journey.

> If you just focus on the smallest details, you never get the big picture right. $\mbox{LEROY HOOD}$

2. Simplicity in design

Find those simple patterns to be used as the foundation of all solution designs.

Simple can be harder than complex: you have to work hard to get your thinking clean to make it simple. But it's worth it in the end because once you get there, you can move mountains. STEVE JOBS

Simple design patterns are not only easy to explain and remember, but also easy to optimise and reuse as core components of complex solutions.

Creating simple designs begins with a view of the end / optimal state. It requires an innate ability to distinguish essential requirements from those that are peripheral and optional. The essential requirements make the greatest contribution to resolving the root cause of a problem. To achieve simplicity, it is necessary to first consolidate the requirements and potential solution components (current and new), then evaluate all components for cost/effort versus contribution, filter to the basics (as done during standardisation), and finally to recombine the most beneficial components in the most eloquent manner, thus obtaining less is more elegance.

Genius is making complex ideas simple, not making simple ideas complex. ALBERT EINSTEIN

3. Long term agility

Consider the long-term implications of decisions made now.

Everyone here has the sense that right now is one of those moments when we are influencing the future. STEVE JOBS

This principle relates mostly to technology where the pace of change is fast. Solutions found to be easy to use, or cheap to purchase today may not provide long-term value. Considerations should always be given to the operational agility and growth mindsets of vendors, conditions experienced after initial contract termination and the effort involved and losses suffered in cases of vendor changes. Loss of information and related business intelligence is difficult to calculate, but the impact on any organisation can be destructive.

Resiliency (not perfection) is the signature of greatness, be it in a person, an organisation, or a nation.

JIM COLLINS

4. Choose your battles

Focus transformation efforts on the changes that will have the most impact in achieving the end state.

Start by doing what's necessary, then do what's possible, and suddenly you are doing the impossible.

FRANCIS OF ASSISI

Pareto's law (known as the 80/20 principle) states that in a given situation 20 percent of the effort accounts for 80 percent of the benefit; implying that not all solutions to a problem should be treated as equal. One should have some way of prioritising the implementation of transformation solutions.

I have always found adapting the Eisenhower matrix to be useful in prioritisations – as shown in Figure 3 below.



Figure 3: Zeta's Transformation Priority Matrix

Focus is a matter of deciding what things you are not going to do. JOHN CARMACK

DIGITAL TRANSFORMATION MECHANISMS

Digital transformation mechanisms refer to tactics or tools that can be used to facilitate the digital transformation of an organisation. Some of the mechanisms refer to the use of technology, others are of a strategic nature, such as the development of new policies, practices and structures, and some will require a combination of both.

The main reasons for digital transformation are upgrading the business, operating and resourcing models to the requirements of the digital economy, while at the same time achieving a state of agility in the organisation. Examples of the mechanisms that can be used are listed below under each of these models.

1. Business model mechanisms

Business model transformation mechanisms aim to strengthen the business model by aligning with the perceptions of value of the digital economy customer. Examples are:

- Product / Service Catalogue type mechanisms
 - Simplification of the product / services portfolio by removing legacy and nonperforming options
 - Updating product / service definitions to include unique and customisable features
 - Changing pricing structures to include limited or free use options.
- Customer service & channel type mechanisms
 - Improving what the business knows about its customers a single view of customer behaviour across the organisation, supplemented by social media data and customer satisfaction rating scores
 - Improving sale and distribution options including the use of online sales and support channels, augmented by the use of the customer's historical behaviour to customise their sales experiences
 - Aligning all customer journeys, regardless of the channel used for contact with the customer.

2. Operating model mechanisms

Operating model transformation mechanisms aim to improve both the operational efficiencies, and, the agility and scalability attributes of the operational environment. Examples are:

- Functional improvement type mechanisms
 - Functional structure simplification with capacity analysis and alignment as in the removal of operational silos
 - Process re-engineering and control requirement optimisation
 - Consolidation and upgrading of research, analysis and innovation experimentation capabilities

- Consolidation and upgrading of collaboration and change management capabilities – especially as the use of non-permanent, use-as-you-need skills, have become prevalent in the digital economy.
- Technology type mechanisms
 - Collaboration platforms with the idea being to create only a single platform for the organisation to interact with its employees, its customers and business partners
 - Mobile applications
 - Data augmentation (with external unstructured data), consolidation and alignment of internal data sources, warehousing /creation of data lakes for the storage of both structured and unstructured data, and modelling of data for decision making purposes
 - Augment organizational insights with machine learning and artificial intelligence capabilities
 - Process automation accompanied by integrations to business- and technology fit technology solutions
 - Removal of legacy and complexity in the technology architecture landscape
 - Use of software-as-a-service components to standardise and align to best practice functionality
 - Use of system integration with APIs for data and processing capability sharing across the technology architectural landscape
 - Real-time operational monitoring capabilities implemented through the use of operational technology (OT) solutions
 - Event monitoring tools for risk management purposes.

3. Resourcing model mechanisms

Resource model transformation aims to optimise the use of resourcing throughout the organisation. Examples are:

- Financial type mechanisms
 - Redefinition of funder models to ensure availability of cash in adverse economic situations (such as a redefinition of shareholder schemes, or structuring of arrangements with financial institutions)
 - Consolidation of financial data to ensure detailed operational consequence traceability through to root causes
 - Renegotiation of customer and supplier terms to optimise cash flow management.
- Infrastructure ownership mechanisms
 - o Disintermediation to reduce costs and improve efficiencies
 - Establishing partnerships with customers to increase the size and reach of the sales force
 - Establishing partnerships with competitors or suppliers to create disruption in the market.

- Optimise resource capacity requirement calculations, such as office space requirements relevant to work-from-home policies
- Use of externally-owned infrastructure to reduce the cost of owning, maintaining and upgrading of such infrastructure. This can be as simple as using cloud infrastructure, or as encompassing as the Airbnb model where external infrastructure is being used as products on which only services are sold
- Review of critical suppliers and key customer dependencies, to remove consolidation risk in times of adverse economic situations.

Therefore, when creating the single digital transformation plan all mechanisms should be considered as potential solutions for digital transformation. As an example, Figure 4 below shows such a planning exercise, where the DNA Health Criteria was mapped against the use of digital transformation mechanisms. Based on the strengths and weaknesses in the internal environment, it is then easy to identify the mechanisms that will contribute most to the digital transformation journey.

		Business Model Mechanisms							Operating Model Mechanisms													Resource Model Mechanisms						
		Produc	t / Service Ca	talogue	Customer Service & Channels				Functional				Technology									Financial			Intrastructure Ownership			
		Product/ Service Features	Pricing Structures	Distribution Tactics	Integrated Customer Servicing	Use of electronic agents (e.g. chatbots)	Create consistency across channels	Collect & Intepret Customer Experience Data	Structure Simplification & Capacity Alignment	Process re- engineering & Control Optimisation	Research & Development Capaabilities	Change and Collaboration Management	Platform	Mobile applications	Data Consolidatticon & Warehousing	Process Automation	System Integration and use of API's	Software as a Service	Artificial Inttelligence & Machine Learning	OT Technoologies	Event Monitoring	Financial data consolidatioon & traceability	Renegotiate Customer and Supplier Terms	Redefine Funder Models	Partnerships & Disintermediation	Capacity Requirement Redesign	Cloud / External providers	Reduce consolidation Risk
ness	Known Influences							х							х				х									
ol Aware	Identified Opportunities & Threats							х							х				х									
Edern	Extended Visibility							х							х				х									
lei	Growing Market Share & Strong Brand	х	х	х	х			х					х	x	х				х									
ness Mo Strength	Competitive Advantage	х	х	х	х	х	х	х					х	x	х				х									
Bus	Relevant Product/Serices Portolio	х	х	х	х	х	х	х					х	х	х				х									
cy	Aligned with Strategic Goals														х							х						
d Efficien	Managed Complexity								х	х			х		х	х	х	х								х	х	
berations	Enabling Resourcing																			х					х	х	х	х
ő	Risk managed within Appetite								х	х											х							
Allah	Meaningful Business Inteligence							х					х		х				х		х							
r & Scolo	Innovative Solution Designs								х	х	х	х																
Agility	Successul Change Implementations										х	х																
mance	Availability of Capital																					х		х				
ol Perfor	Profitable																					х	х		x	х	х	
Financi	Managed Cash Flow																						х		х	х	х	

Figure 4: Matrix used to plan the use of Digital Transformation Mechanisms



THE DIGITAL TRANSFORMATION ROADMAP (PLAN AND PROCESS)

Figure 5: Zeta's Generic Digital Transformation Roadmap

A phased transformation process is suggested, the phases of which would depend on the current strengths and weaknesses within the organisation, and, the level of disruption experienced by the organisation. It is very important to fully understand the starting point or baseline, the desired endpoint, and the mechanisms to be used for the transformation. The transformation roadmap will constitute the journey of mechanism implementation with a good understanding of the impacts of, and dependencies between, changes.

Achievements throughout the process can be a huge motivation for employees. It may serve as an opportunity to embed new ways of work before more changes are applied and provide a valuable progress reporting mechanism for the management teams. It is therefore suggested that the transformation roadmap is broken into phases, after which the successes and failures can be evaluated and used to restructure future roadmap phases for more efficient and successful delivery. It may also be possible to consider different scenarios as the solution for a particular issue. In such instances it is prudent to use a single phase for evaluation purposes, and to get buy-in from all participants before moving onto the next phase.

Such an understanding would include identifying the addition or removal of components and connections between components since the previous evaluation exercise, therefore knowing if the complexity of operations has increased or decreased. The transformation plan will have to be updated after each evaluation to re-align transformation activities and ensure achievement of the planned end state: a digitally transformed organisation.

SUPPLEMENTARY INFORMATION - KNOWING YOUR ORGANIZATIONAL SYSTEM

As shown above it is key to have a single system's view of the organisation; and, more detailed complexity analysis diagrams for specific areas under evaluation. Both As-Is and To-Be models should be created as part of the Digital Transformation Plans created after each evaluation phase of the organisation's transformation journey.

There are some examples below of model templates developed by the author when performing optimisation requirement exercises in organisations. As an example, the first model (Figure 6) shows an organisation with a single product/services portfolio operating in different countries. Because of different resourcing constraints within each country, each country is allowed to create their own resourcing strategy model, and each country has its own local operational entity. More detailed diagrams, as per the example in Figure 7 below, would be required to analyse the differences, and therefore transformation requirements, for each country.



Figure 6: Example of a LEVEL 1 model created of an Organization

Figure 7 clearly shows all the components and connections used by the Functional Unit to execute on its functional responsibilities, which is a critical requirement for planning a digital transformation journey. For example, it is clear from the detail in the model, that process optimisations and application system replacements would be required before a process automation plan can be implemented.

Comparing more than one such model, for duplicate functional areas, would also clearly show the differences in complexities and inefficiencies within the compared functions, thus providing details of the different transformations required by each function.



Figure 7: Example of a DETAILED Component and Connection model created for a Functional Unit within an Organization

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