What Is Digital Transformation?

“I think you should be more explicit here in step two.”
1 What is Digital Transformation?

At a basic level, Digital Transformation is no different than any other form of business transformation. Beyond the basics, however, the differences can be profound. Before exploring those differences, let us look a bit more closely at some of the basics.

From the earliest use of metals in industry and war starting in 5000 BC, through the introduction of advanced digital mechanisms today, human societies have relentlessly exploited new technologies. Each advance has enabled – if not forced – "business" transformations whether of armies or farmers, blacksmiths, or assembly line workers. Transformation is nothing new.

Today though, and for the foreseeable future, the magnitude and intricacies of technology driven transformation outstrip all historical challenges. We will try to explain why.

First, every transformation has the purpose of moving an organization from a current "position" of capability and performance to a new "position" (hopefully one that is characterized by greater capability and higher performance.

In the following, we will explore some of the recurrent themes in Digital Transformations of all sorts. These themes are not speculative. They are tried and true. They have been forged in the crucible of competition and tempered in the stress of economic dislocations. One of the most frequently occurring Digital Transformation themes is "Reduce Costs". (The logic of course is easy: every dollar trimmed away from costs flows immediately to operating profit.)

To make such Digital Transformations work well, we need to understand transformations in general. Let us think of the organization’s starting business condition as the proverbial Point A, and its ending condition as the proverbial Point B. Transformations solve the challenge of moving the organization from POINT A to POINT B. The net change between these two states of affairs we call the delta (or shorthand Δ). It is difference between where we start from and where we wind up.

It is easy to say this in words, but it is not at all a simple journey. Depending on the sequence of steps to move the organization from POINT A to POINT B, the effort can yield higher or lower
**profits**, higher or lower **risks**, increased or reduced levels of **stress** (wear-and-tear) on human participants, or any combination of these measures and others.

The bigger the ∆, the more difficult it is to achieve the desired change, and the more necessary is a prudent and effective change management process.

That "distance" between **Point A** and **Point B** can be a complex entity in and of itself.

There is nothing simple about it. It involves movement along a whole slew of strategic directions and tactical dimensions and directions – some of which may be neither visible nor controllable.

Injecting digital technology into the mix complicates the change process and can lead to a many fold increase in the risk of delay, cost overruns, or even outright failure.

Tradeoffs abound.

Any change, any movement, takes place through some variation in process, or in people (and the decisions they make), or through some differential element of technology the organization applies to its business activities.

**Changes in process**, while potentially complex, can be constrained and thus forced to be straightforward.

**Changes in people's** way of discharging their responsibilities are somewhat more complex than process changes, but are bounded by human behavior, limitations on cognitive capability, and the scope of each individual's decision-making authority. Human behavior is tricky though and can be extraordinarily difficult to forecast with precision.

**Changes in technology** are the most difficult of all. They can be radical in scope. They can be relatively unbounded in complexity. They can have long-term consequences that are unknowable at the outset: Consider atomic weapons or our warming climate as premier examples on the global level.

Technology consequences at the level of individual organizations and their attendant impacts on governance (and human behavior) are no less consequential, being "smaller" only in terms of scale.
1.1 People, Process, and Technology

Change impacts people most, even though (from a management perspective) many of the changes that originate with them can be simplified and controlled.

Changes in processes can force people to acquire new skills and can abridge or expand their decision-making scope.

Changes in technology can be especially impactful. In most cases where technology change is significant, people must acquire deep knowledge of technology-based features. "Front-line" operating personnel who are interacting with new software or new equipment often must go through extensive training. Each of these feature changes can yield process changes to, as well as modifications to procedures, policies, and operational planning.

Circumstances become more involved when changes spill out into environment beyond the enterprise. Changes can affect customers, vendors, and regulators. That can make both implementation as well as evaluation of their effectiveness more difficult and utterly essential.

Any change – no matter how large or small – is a transformation. What differs is the degree of complexity and the demand on management time and energy to manage the transformation to completion. If we merely move an inspection process step to an earlier point in a sequence of steps, then that transformation has little organization impact. But, if doing so allows catching errors earlier, it can yield a substantial increment in net financial gain.

As more moving parts of the operation are modified, the aggregate transformation grows in complexity. Eventually control mechanisms (that is, change management) are needed to keep the evolving transformation on track.
1.2 **The Simpler Digital Transformation Objectives**

Some of the more frequently occurring big winners are below.

- Reduce costs
- Reduce time-to-market
- Reduce cycle times
- Reduce error
- Reduce touch points
- Remove human interactions
- Simplify human interactions
- Gain data that will be useful downstream (maybe much later downstream)
- Increase Revenue

1.3 **The Software Processes**

Although Digital Transformation spans a broad spectrum of concepts, the actual processes for creating software are not different at all. The same challenges, risks, and complexities exist. There is no magic.
2 The Darwinian Enterprise

A business enterprise is a connected, networked Darwinian organism of great production capability, but also potentially of great complexity. Like all Darwinian organisms, an enterprise is in a constant struggle to acquire resources necessary for survival and growth, and to defend itself against attack by competitors. It utilizes PROCESSES, PEOPLE, and TECHNOLOGY to do so.

**PROCESSES**

are the dynamical mechanisms by which the Darwinian enterprises carries out economic activity (as well as political, educational, and philanthropic activity).

PROCESSES include assets. Those assets can be machines, buildings, patents, etc., and other resources which processes incorporate in their execution.

PROCESSES encompass the "planning and determination" of how to configure and deploy those assets and then operate them in the most effective fashion.

**PEOPLE**

are the agents that drive and sustain processes. They are particularly effective when deep reasoning is required to implement processes as well as the individual process steps that comprise them.

PEOPLE are also effective when automated agents (machines and computer programs) cost too much to perform simplistic tasks where deep reasoning is not required or special dexterity is not needed.

**TECHNOLOGY**

incorporates "know-how" as well as electronic logic (algorithms) that can change/improve the way PROCESSES work and the way PEOPLE interact with those PROCESSES.

The categorizations of PEOPLE, PROCESSES, and TECHNOLOGY are not hard and fast characterizations. For example, although some managers may view electronic devices as assets that are part of PROCESSES, others may view electronic devices as TECHNOLOGY that are distinct from PROCESS assets.

The boundaries between the groupings are not as important as the interactions among the various constituents of the groups. The interactions are what enables the Darwinian enterprise to respond to its environment and determine how it captures profit and builds return-on-equity.
3 Key Business Scenarios and the Operations Engine

In this section we discuss several illustrative Business Scenarios against which we can explore various Digital Transformation themes. The core focus of our attention is the operational mechanisms that allow the business to achieve its objectives.

The OPERATIONS ENGINE is a primary enabler of business strategy. It is a good place to start pursuing Digital Transformation objectives. For example, if you have the operational capability to deliver high-quality customer service faster, better, cheaper than your competitors, then you can compete strategically on service. You can extol those virtues through aggressive marketing. You can win and retain customers by out-performing competitors on key measures of responsiveness.

3.1 Market and Operations

Many business challenges can be met and optimized by focusing on just the MARKET and BUSINESS OPERATIONS. Managers can tune strategy and tactics to maximize profit across these two domains. We indicate this by the schematic below:

![Diagram of Market and Operations]

3.2 Competitors, Market, and Operations

The optimization figure above is generally enough to ensure sustained high profits if the business's products and services are superior in the marketplace, and competitors are weak or have poorly performing operations engines. But competitors can be clever. Some are willing to buy market share through pricing moves that can motivate an appreciable number of customers to switch to their products and services. In that case, the following is a better depiction of what we need to optimize.

![Diagram of Competitors, Market, and Operations]

Competent competitors can greatly complicate the management challenge. The operations engine must not only provide basic level of high performance, but also needs to turn in better results than any competitor. Competition drives a constant cycle of improvements to generate an increasing profit stream despite moves and counter moves that constantly change market price points, shift customer demand for enhanced features, and raise the bar for perceived value and responsiveness.
3.3 **Adding Vendors, Investors, and Regulators**

But the story does not stop there. Depending on the industry there may be critical integrations necessary with vendors. And there may also be demanding regulatory constraints. And most importantly for companies with growth ambitions, investors may bring their own rule books that imposed stringent performance requirements – they are looking for homeruns and standout execution that goes well beyond the relatively more pedestrian competitive benchmarks.

All these factors lead to the optimization problem in the figure below.

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**The Digital Platform**

Meeting these kinds of business challenges requires that the OPERATIONS ENGINE be supported by a DIGITAL PLATFORM that interacts with the REAL WORLD. The Digital Platform incorporates a LIVE MODEL of the business. The Digital Platform is connected to the real world through people, through machines, and through links to other Digital Platforms.

The Digital Platform is not a passive mechanism. It can sense and respond to real world events. It can issue instructions, take direct actions, and cause indirect action.
4 The Digital Platform

A Digital Platform is necessary to solve business optimizations problems like the ones in the previous section. Without such a platform the problems are just too complicated, too messy, and too hard to manage using manual methods.

The Digital Platform is defined by the total collection of logic, data, and interfaces (of all sorts) established by Digital Components. It represents, supports, and contains the important elements of the business.

It encompasses both regular operating functions as well as less repetitive, even one-time, single-use business capabilities. Digital Platforms can be complex. Often it consists of a mix of software technology stacks, architectures, and applications that are quite heterogeneous and rarely align well.

4.1 Operating Function

Operating functions are composed of Business Components, usually several of them. Such Components are managerially controllable collections of people, the plans the people formulate, the decisions they make, the activities they carry out, and the results they achieve.

Central to the structure, function, and operation of the Business Component is a kernel of technology: the digital components which support as well as drive the Business Component's behavior.

![A GENERAL BUSINESS COMPONENT](https://ms-strategies.com/docs/DT-what-is-digital-transformation.docx)
4.2 What Constitutes the Digital Platform?
Each Business Component depends on functional capabilities as well as provides functional capabilities to others. These capabilities are embedded within a structural framework that enables their orderly operation. The structural framework is a platform that facilitates integration of human actions and digital actions. The digital actions best employed when they are in "reusable" form and can cover a range of requirements.

Each significant technology-based apparatus contains a kernel of "technology" that solves a business problem through a logic mechanism; sometimes hardware, sometimes software, sometimes both. For each Business Component, the technology kernel participates in a underlying digital framework.

The union of these individual technology kernels constitute the Digital Platform.

The Digital Platform is not a single monolithic construction. Rather, it can be a federated ensemble of many separate computational resources. Together the federation comprises the aggregate and multi-faceted Digital Platform.

The separate digital components can be integrated (both technically and operationally) to provide a comprehensive digital experience across multiple interfaces, and multiple applications.
Business Components act in concert to yield aggregate performance.

The Digital Platform supports tracking of Real-World Events. Executive coordination is needed to define strategic objectives and then move from the high-level concepts to the gritty details of lower-level implementation.

For each Business Component, there is a split between human-based logic and machine-based logic. Initially, machine logic was simple and uncomplicated. It is now much more mathematically rigorous. Modern platforms are trending increasingly toward decisions that are reached through analytic tools and synthetic cognitive resources.
Figure 2

What should the Digital Platform do? How should it work? Answering these questions can present extraordinary challenges, particularly in a rapidly changing competitor situation or unsettled market conditions or circumstances stemming from an unexpectedly stressed economy.

Some companies excel in meeting these challenges, others achieve only modest results, while still others miss the cut and are relegated to the realm of low performance.

Establishing the Digital Platform can be done most effectively by determining how strategic objectives are best supported by the constituent Business Components. As an introductory example, consider a company that after some debate and planning decides at the executive level that they must compete on Order Processing. They determine that (great) changes are necessary to keep pace with their competitors.

There is a collection of different facets to this strategy. One of them is the operations objective of "Fast Response" to customers whenever they engage with the company.
means digital mechanisms that can immediately acknowledge orders and send customer notifications instantly to confirm them. This extends to the Fulfillment Department which needs to validate all line items in the order and assure that they are entered in the processing queue and shipped promptly. And Customer Service needs to respond with minimal delay to customer queries, product feature questions, order changes, cancellations, and so on.
5 Models of the Business

What you say is not only not right, it is not even wrong.
Wolfgang Pauli (Nobel Prize in physics, 1945)

Models are essential to Digital Transformation success. Without them, it is difficult to fully understand how the business works now and, more importantly, how it will work in the future after transformational changes have been made. Models enable the development of digital components that manage business data and activities. The ability to construct digital components depends intrinsically on having competent models of the business.

Digital components contain data that represents what happens in the real world – from orders, to deliveries, to customer service, and so on. In this sense, they constitute a digital representation of the business, and for digital transformation efforts this is the most important part. Of course, there is a larger model that encompasses elements that are NOT stored in digital components. That large model includes what and how people conceive of the business. We need to be cognizant of the totality, but what concerns us most are the Business Elements that we have to embody in the digital component representation.
Organizations make progress by manipulating a shared operational model of business activities. Such models are rich in Business Elements that are directly related to the real world. In fact some parts of the model are indeed exactly elements of the real world.

In olden days – until the mid-twentieth century – the model of the business as well as the world itself were simple and generally uncomplicated. Not so today: the real world, and the model as well, are complex.

Before digital components became ubiquitous, senior managers could directly visualize a direct pathway from the high-level characterization of the business all the way down to the lower levels of implementation and operational details. It was easy to forecast the immediate impact and longer-term consequences of business changes on the dependent, supporting activities. Today, that is more difficult, and in some cases not even possible except through persons who can serve as technology proxies. Technology innovations are too advanced and non-technical managers cannot easily grasp the subtleties and implications of their functioning. To complicate matters, the dollar costs of misjudgments are much greater than say buying the wrong piece of machinery in the past. Now, technology misjudgments can leave an organization substantially short of marketplace excellence, and essentially well out of the competitive race.

Competing successfully now requires high-grade, conceptually powerful models of the business. In most cases these models track the real world with fidelity, but unfortunately not always. There are sometimes small but debilitating inconsistencies between the digital model and the actual real-world behavior.
5.1 Facts

Facts allow businesses to change the models of their businesses and be reasonably confident that the real world will follow suit. But not every change works as intended. The complexities of the models defeat many such attempts. Models are composed of electronic logic in conjunction with physical devices and computational resources. They are not simple. For example, it is terribly easy to miscalculate which actions to take in response to marketplace events. (Sometimes, it is a struggle to even just properly categorize marketplace events.)

Business Elements are rooted in DATA, specifically FACTS that represent commonly held concepts about the various aspects of the business (its strategies, its operations, its environment) and circumstances surrounding those aspects. FACTS are verifiable data that underlie the business concepts that allow managers and operating personnel to achieve their objectives.

A Business Element has a "concrete" representation within a model. It may be intangible, but it definitely has a visible representation. It is sharable across individuals within as well as outside the organization. It forms the basis for fundamental agreements through the facts it encompasses. Consider how a company might approach reducing failures in on-time deliveries to customers. There may be several conflicting views on why they occur. However, there can be little disagreement or dispute of a postal address involved in a missed delivery. The address may be incorrect, but all parties (company, delivery service, recipient) agree on the FACT of the address. If the address is correct, then some other cause must be found for incorrect delivery.

All organizational participants can agree on the factual representations of critical parts of the business – they hold these representations in common. Such representations allow participants to act in concert. Participants can build awareness of problems, issues, and obstacles as well as devise ways to address them and manage them to resolution.
So, Business Elements are the foundation of commonly held, shared, universal business "beliefs". The Fiscal Calendar is one of the simpler examples of a Business Element. All departments, all teams agree on the Calendar without question. To make it an actionable concept, it needs to be available for access by business managers and operating personnel. To access or manipulate a Calendar (e.g., establish holidays, irregular fiscal periods, etc.) you need a "cognitive handle", that is a User Interface (UI) with supporting functionality that can be carried out via the UI.

Setting a day to be a holiday can be accomplished at the technical level through SQL statements or a programmer workbench, but it is best done (in terms of organizational ergonomics) through an "easy-to-use" user interface.
6  Data

6.1  Achieving Objectives

Data is a powerful resource for achieving business objectives. Fundamentally, data is a resource for “thinking” about the business and its environment. To achieve a business objective it is paramount that an organization capture and utilize the data necessary to do so.

Determining what data is necessary to support a specific objective is a problem every organization must solve.

Objectives start out as very high-level concepts regardless of their degree of specificity or generality. But objectives cannot be accomplished at the high-level, and data in particular must be resolved at whatever level of detail makes it possible for people and processes to go forward smoothly. Many objectives begin as Vision Statements, or as aspirational goals (even the ones that may have quantitative values associated with them). For example:

<table>
<thead>
<tr>
<th>Vision, Goal, Objective</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>“be the best”</td>
<td>Aspirational</td>
</tr>
<tr>
<td>“achieve 10% ROI”</td>
<td>Quantified</td>
</tr>
<tr>
<td>“reduce material cost by 5%”</td>
<td>Quantified (e.g., derived from “achieve 10% ROI”)</td>
</tr>
<tr>
<td>“reduce delivery errors”</td>
<td>Quantified</td>
</tr>
</tbody>
</table>

What is required to achieve the goal or objective? The objective is not translated until Business Elements are exposed and specifications exist for each.
6.2 **Data = Cognition**

Data is a cognitive resource. It provides the details that support an organization’s objective-seeking efforts.

Data is a primary constituent of business operations. Data constitutes the representational clay with which essential Business Elements are constructed at the digital level.

It defines what managers and operations personnel can "think" about.

Data serves as the fundamental raw material for the kind of business reasoning that endures beyond the short-term reactions of the moment. Available data shapes understanding.

Data allows us to track the outcomes of actions we take. We use it to ensure that those actions are in accordance with management decisions and policies.

Data determines the degree to which managers can optimize operations. It allows managers to track undesirable or anomalous events and to analyze the effects of "BAD EVENTS" on revenue and costs. Managers sometimes need to drill down deeply into data to determine and analyze root causes of unfavorable outcomes.

Data is a primary way of characterizing Business Elements of interest. We tend to view data as an inert, and inactive characterization of whatever is happening at a “higher” perceptual level.

But data is more than a lifeless conglomeration of facts. It can be a vibrant resource, constantly...
growing, accumulating, and making accessible the dynamical history of the business. Properly utilized, data is a direct steppingstone to higher levels of business performance. It is better to have too much data than too little – only the economics of capturing, storing, and organizing data should restrain us. Fortunately, those costs are low and are continuing to move lower still.

In order for people to be maximally effective, they must be able to reason capably about the business and the surrounding environment.

For this a MODEL is required – one that can clarify principal Business Elements and their relationships.

But equally important are data streams from both the model and the real world.

Data supports such models. In fact, data constitutes the foundation of models as well comprising most of their higher-level conceptual structures.

6.3 Data Can Represent Anything

Data representations are characterizations of the real world. Data can represent anything. It can represent any aspect of reality and (theoretically at least) do so to any level of detail. Data can be quantitative, qualitative, operational, customer-experience related, etc.

Quantitative data

- Time series, such as stock prices, interest rates, global temperatures
- Geometric measurements (height, width, breadth), geometrical dimensions of a part

Qualitative data

- Color, fabric type (e.g., linen, twill, silk), presence-or-absence of a feature
- Audio, images, DNA base pairs, and polypeptide conformations.

Operations Data

- Direct data about operations processes, events, etc.
  (Some data come from machines and is easy to capture. Some data comes from people...
and it is more difficult to capture especially when the action is an entirely manual operation.)

6.4 **Observables**

Make no mistake: it is an enormous challenge to take high-level vision and strategies coming out of the Board Room or the corner office and translate them down to trench-warfare level of the digital technology environment. To achieve this we need both “language” resources and natural intelligence. A significant part of the “language” resources is a descriptive, action-oriented framework. The framework characterizes the business, its environment, as well as with the executive aspirations expressed as vision and goals and the strategies for reaching them.

Most unfortunately, current digital technology cannot operate successfully at that high level of executive thinking and management action. At least, not yet. So we have to introduce an intermediate mechanism. We do this through the abstraction of **Observables**. This allows us to map business objectives into Business Elements that we can then use to drive digital technology.

Observables are those parts of the business and its surrounding environment that are needed to design, implement, and manage goals, objectives, and strategies. Observables are measurable elements within the business. The easiest ones to think about are those that we can see, feel, hear, or touch directly; for example, a “26-Inch, High-Carbon Steel Mountain Bike”. But
intangible observables exist too, e.g., the radioactivity within a nuclear plant. We cannot see, feel, or hear radiation, but it is real nonetheless, and prolonged exposure to it can have fatal consequences. We measure such intangibles through some indirect representation or mechanism.

Observables allow us to characterize Business Elements and to reason about them. Typical Business Elements include:

- Customers
- Products
- Orders
- Price Books
- Vendors, etc.

Observables also allow us to deal with Business Variables. Such variables reflect things that can change in the environment. It is not possible to directly control most variables, e.g., factors of production. For example, the price of electricity in Texas on February 15, 2021 skyrocketed beyond control during the depths of a climate-change-driven freeze. Some Business Variables do respond to our control. They reflect factors we can change, including factors that react in a causally-indirect or time-delayed fashion. Often, we devise metrics and dashboards to track these effects.
6.5 Customer Experience Data
This data includes facts about customer experiences, relative to Business Elements or interactions with the environment, e.g., total time of interactions with a customer.

Customer Interactions with online interfaces, history of navigation through website.
During purchase, the customer supplies data, e.g. size selection for Kmart blue jeans in the relaxed fit style. The customer engages with the product representation, investigates price, evaluates delivery options, and the like.

6.6 Intangible Representations
Most data relevant to the conduct of business activities is no longer in tangible form. Until roughly 80 years ago (mid-20th century), data consisted only of marks on paper. Data was visible and manually manipulable, with physically controlled security. If a mistake were made, an eraser might be enough to fix it, or possibly a partial retyping it would serve. Our data management protocols evolved in this medium and grew on this physical substrate. So, data operations were essentially physical operations. Such protocols are plainly irrelevant now, and will be increasingly so in the future.

Data is still physical, but it is encoded in a medium where it is for the most part intangible. Management protocols can be lightening fast. They can evolve with great speed as well. This
means protocols that were effective a year ago may be of marginal utility today and could well be entirely inappropriate a year in the future. More telling, many critical data concepts have no tangible counterpart, e.g., security certificates for safeguarding web-based activity.

6.7 **Data Structure**

6.7.1 **Data Manipulation**

Because data is intangible, it is not possible to manage it through direct manual mechanisms. Managing data can only be carried out through the agency of a computer or similar device. This has profound implications for Digital Transformation: namely, there is a technology expertise hurdle that makes it difficult to access and apply one of the most powerful resources for managing the business. Companies that overcome the technology barrier will have far more effective management processes than those companies that cannot.

Part of the challenge is to represent data effectively in the database system. Each Business Element of interest must have a digital structure that enables low-cost (e.g., time) and high-performance (e.g., accurate and reliable characterizations of business operations). There must be tools and techniques – possibly unique to the individual business operations – that allow businesspeople to control how data is manipulated. For example, there must be tools and techniques for carrying out operations in the digital medium like ADD, CHANGE, DELETE, ACTIVATE, INACTIVATE, and so on. (More on this in later sections.)

6.7.2 **Data Representations Require Definition and Ongoing Change**

Data systems work best when their contents can be *easily* defined and controlled. The faster and more accurately we can relate data to the real world, the more competitive (and hence profitable) the business will be.

Some data representations are reasonably static in terms of their definitions. We do not expect many changes in their properties over longer periods of time. Data that track quickly evolving business circumstances will change in definition much more frequently. But regardless, sooner or later, changes do happen. Properties come and go. Relationships expand or contract in character and scope.
All data systems (whether traditional SQL in character, or more recent NO SQL versions) must have mechanisms that enable businesses to create and maintain representations. Further, but possibly far more important, there must be tools to support the activities of developers as they strive to create, test, validate, and deploy applications that depend directly on data representations.

In some data environments, developer-supporting tools are even more critical to users that the user-visible aspects of data, for without them user-oriented capabilities would take far longer to construct. For example, during development of digital components, it is very frequently necessary to reset databases to “initial conditions” or some other known state. To do so requires deleting all data and rebuilding encoded relationships from scratch. But that is a cumbersome manual process, requiring painstaking surgical technique. Automating it means such testing can proceed with extraordinary speed, thus shortening time-to-market for critical user features.

6.8 Data Visibility
Although for all practical purposes data itself is intangible, its representations are fully within human sensory domain. We can see, hear, feel, and touch data representations. The easiest representations are visual ones – the representations that we interact with through the agency of a User Interface, or a printed report. But there are also highly effective 3D printing machines that can bring to life the shape data we generate through product design software. Data can also be presented through the agency of digital mechanisms (e.g., Application Programming Interfaces) to other environments whether in the next room, another continent, or on the moon or Mars.

6.9 Data is Indelible
Data has long term value. It is indelible once captured and stored in a data system. Properly custodied it effectively lasts far longer than any present need. Only intentional acts or error can destroy it. Left undisturbed it will persist “forever” with very low maintenance cost and with essentially 100% fidelity.
7 Requirements

Requirements are not monolithic – they have structure, and varying degrees of detail. They are multi-faceted, presenting different aspects to different participants.

Each Requirement needs a CONTEXT. It is expressed relative to a business purpose and a business process, a technical purpose, and a technical process/environment.