DOWNLOAD PDF THE FUNDAMENTAL PRINCIPLES OF ANALYTICAL DESIGN

Chapter 1 : Tufteâ€™s â€œFundamental Principles of Analytical Designâ€• Â« SaltCityRevue

principles of analytical design Andit is at the Nieman River, where the invasion began and ended, that we see a small butpoignant illustration ofthe First Principlefor the.

No Tags Uncategorised What does the 6 stand for in j6 design? Lets look at what each does. The elements and principles of design are the building blocks. The elements of design are the things that make up a design. The Principles of design are what we do to those elements. How we apply the principles of design determines how successful the design is. The elements of design LINE â€” The linear marks made with a pen or brush or the edge created when two shapes meet. SHAPE â€” A shape is a self contained defined area of geometric squares and circles , or organic free formed shapes or natural shapes. A positive shape automatically creates a negative shape. Horizontal suggests calmness, stability and tranquillity. Vertical gives a feeling of balance, formality and alertness. Oblique suggests movement and action SIZE â€” Size is simply the relationship of the area occupied by one shape to that of another. Color has three main characteristics: A large shape close to the center can be balanced by a small shape close to the edge. Balance provides stability and structure to a design. It provides a focal point. Aligning elements allows them to create a visual connection with each other. It helps to create association and consistency. Repetition can create rhythm a feeling of organized movement. Contrast allows us to emphasize or highlight key elements in your design. SPACE â€” Space in art refers to the distance or area between, around, above, below, or within elements. Both positive and negative space are important factors to be considered in every design. Watch this video to see it in action: Our blog We are firm believers in sharing our knowledge. We love to help others succeed in doing what inspires them.

Chapter 2 : The principles of design | J6 design Australia

The deep principles of analytical design are derived from cognitive tasks of analytical reasoning. This is appropriate, for the purpose of analytical displays is to assist evidence-thinking. All this might have something to do with the field of human factors.

Completely randomized design C. Randomized block design R. Latin square design L. We may briefly deal with each of the above stated informal as well as formal experimental designs. Before-and-after without control design: In such a design a single test group or area is selected and the dependent variable is measured before the introduction of the treatment. The treatment is then introduced and the dependent variable is measured again after the treatment has been introduced. The effect of the treatment would be equal to the level of the phenomenon after the treatment minus the level of the phenomenon before the treatment. The design can be represented thus: The main difficulty of such a design is that with the passage of time considerable extraneous variations may be there in its treatment effect. After-only with control design: In this design two groups or areas test area and control area are selected and the treatment is introduced into the test area only. The dependent variable is then measured in both the areas at the same time. Treatment impact is assessed by subtracting the value of the dependent variable in the control area from its value in the test area. This can be exhibited in the following form: The basic assumption in such a design is that the two areas are identical with respect to their behaviour towards the phenomenon considered. If this assumption is not true, there is the possibility of extraneous variation entering into the treatment effect. However, data can be collected in such a design without the introduction of problems with the passage of time. In this respect the design is superior to before-and-after without control design. Before-and-after with control design: In this design two areas are selected and the dependent variable is measured in both the areas for an identical time-period before the treatment. The treatment is then introduced into the test area only, and the dependent variable is measured in both for an identical time-period after the introduction of the treatment. The treatment effect is determined by subtracting the change in the dependent variable in the control area from the change in the dependent variable in test area. This design can be shown in this way: This design is superior to the above two designs for the simple reason that it avoids extraneous variation resulting both from the passage of time and from non-comparability of the test and control areas. But at times, due to lack of historical data, time or a comparable control area, we should prefer to select one of the first two informal designs stated above. Involves only two principles viz. It is the simplest possible design and its procedure of analysis is also easier. The essential characteristic of the design is that subjects are randomly assigned to experimental treatments or vice-versa. For instance, if we have 10 subjects and if we wish to test 5 under treatment A and 5 under treatment B, the randomization process gives every possible group of 5 subjects selected from a set of 10 an equal opportunity of being assigned to treatment A and treatment B. Even unequal replications can also work in this design. It provides maximum number of degrees of freedom to the error. Such a design is generally used when experimental areas happen to be homogeneous. Technically, when all the variations due to uncontrolled extraneous factors are included under the heading of chance variation, we refer to the design of experiment as C. We can present a brief description of the two forms of such a design as given above figure. Two-group simple randomized design: In a two-group simple randomized design, first of all the population is defined and then from the population a sample is selected randomly. Further, requirement of this design is that items, after being selected randomly from the population, be randomly assigned to the experimental and control groups Such random assignment of items to two groups is technically described as principle of randomization. Thus, this design yields two groups as representatives of the population. In a diagram form this design can be shown in this way: Two-group simple randomized experimental design in diagram form Since in the sample randomized design the elements constituting the sample are randomly drawn from the same population and randomly assigned to the experimental and control groups, it becomes possible to draw conclusions on the basis of samples applicable for the population. The two groups experimental and control groups of such a design are given different treatments of the independent variable. This design of experiment is quite common in research studies concerning behavioural sciences. The merit of such a design is that it is simple and randomizes the differences among the sample items. But the limitation of it is that the individual differences among those conducting the treatments are not eliminated, i. This can be illustrated by taking an example. Suppose the researcher wants to compare two groups of students who have been randomly selected and randomly assigned. Two different treatments viz. The researcher hypothesises greater gains for the group receiving specialised training. To determine this, he tests each group before and after the training, and then compares the amount of gain for the two groups to accept or reject his hypothesis. This is an illustration of the two-groups randomized design, wherein individual differences among students are being randomized. But this does not control the differential effects of the extraneous independent variables in this case, the individual differences among those conducting the training programme. Random replication design in diagram form Random replications design: The limitation of the two-group randomized design is usually eliminated within the random replications design. In the illustration just cited above, the teacher differences on the dependent variable were ignored, i. But in a random replications design, the effect of such differences are minimised or reduced by providing a number of repetitions for each treatment. Random replication design serves two purposes viz. Diagrammatically we can illustrate the random replications design thus: The sample is taken randomly from the population available for study and is randomly assigned to, say, four experimental and four control groups. Similarly, sample is taken randomly from the population available to conduct experiments because of the eight groups eight such individuals be selected and the eight individuals so selected should be randomly assigned to the eight groups. Generally, equal number of items are put in each group so that the size of the group is not likely to affect the result of the study. Variables relating to both population characteristics are assumed to be randomly distributed among the two groups. Thus, this random replication design is, in fact, an extension of the two-group simple randomized design. The variable selected for grouping the subjects is one that is believed to be related to the measures to be obtained in respect of the dependent variable. The number of subjects in a given block would be equal to the number of treatments and one subject in each block would be randomly assigned to each treatment. In general, blocks are the levels at which we hold the extraneous factor fixed, so that its contribution to the total variability of data can be measured. The main feature of the R. Let us illustrate the R. Suppose four different forms of a standardised test in statistics were given to each of five students selected one from each of the five I. If each student separately randomized the order in which he or she took the four tests by using random numbers or some similar device , we refer to the design of this experiment as a R. The purpose of this randomization is to take care of such possible extraneous factors say as fatigue or perhaps the experience gained from repeatedly taking the test. The conditions under which agricultural investigations are carried out are different from those in other studies for nature plays an important role in agriculture. For instance, an experiment has to be made through which the effects of five different varieties of fertilizers on the yield of a certain crop, say wheat, it to be judged. In such a case the varying fertility of the soil in different blocks in which the experiment has to be performed must be taken into consideration; otherwise the results obtained may not be very dependable because the output happens to be the effect not only of fertilizers, but it may also be the effect of fertility of soil. Similarly, there may be impact of varying seeds on the yield. To overcome such difficulties, the L. The Latin-square design is one wherein each fertilizer, in our example, appears five times but is used only once in each row and in each column of the design. In other words, the treatments in a L. The two blocking factors may be represented through rows and columns one through rows and the other through columns. The following is a diagrammatic form of such a design in respect of, say, five types of fertilizers, viz. The above diagram clearly shows that in a L. The analysis of the L. The merit of this experimental design is that it enables differences in fertility gradients in the field to be eliminated in comparison to the effects of different varieties of fertilizers on the yield of the crop. But this design suffers from one limitation, and it is that although each row and each column represents equally all fertilizer varieties, there may be considerable difference in the row and column means both up and across the field. This, in other words, means that in L. This defect can, however, be removed by taking the means of rows and columns equal to the field mean by adjusting the results. Another limitation of this design is that it requires number of rows, columns and treatments to be equal. This reduces the utility of this design. If treatments are 10 or more, than each row and each column will be larger in size so that rows and columns may not be homogeneous. This may make the application of the principle of local control ineffective. Factorial designs are used in experiments where the effects of varying more than one factor are to be determined. They are specially important in several economic and social phenomena where usually a large number of factors affect a particular problem. Factorial designs can be of two types: We take them separately Simple factorial designs: In case of simple factorial designs, we consider the effects of varying two factors on the dependent variable, but when an experiment is done with more than two factors, we use complex factorial designs. We illustrate some simple factorial designs as under: In this design the extraneous variable to be controlled by homogeneity is called the control variable and the independent variable, which is manipulated, is called the experimental variable. Then there are two treatments of the experimental variable and two levels of the control variable. As such there are four cells into which the sample is divided.

Chapter 3 : The 9 principles of Process Design (Recommended)

The Fundamental Principles of Analytical Design. by Edward Tufte. I do not paint things; I paint only the differences between things. - Henri Matisse, Henri Matisse Dessins: thÃ¨mes et variations (Paris,),

Data dictionary Hereby the data flow diagrams DFDs are directed graphs. The arcs represent data , and the nodes circles or bubbles represent processes that transform the data. A process can be further decomposed to a more detailed DFD which shows the subprocesses and data flows within it. The subprocesses can in turn be decomposed further with another set of DFDs until their functions can be easily understood. Functional primitives are processes which do not need to be decomposed further. Functional primitives are described by a process specification or mini-spec. The process specification can consist of pseudo-code, flowcharts , or structured English. The DFDs model the structure of the system as a network of interconnected processes composed of functional primitives. The data dictionary is a set of entries definitions of data flows, data elements, files, and databases. The data dictionary entries are partitioned in a top-down manner. They can be referenced in other data dictionary entries and in data flow diagrams. This type of diagram according to Kossiakoff usually "pictures the system at the center, with no details of its interior structure, surrounded by all its interacting systems, environment and activities. The objective of a system context diagram is to focus attention on external factors and events that should be considered in developing a complete set of system requirements and constraints". System context diagrams can be helpful in understanding the context in which the system will be part of software engineering. Data dictionary[edit] Entity relationship diagram , essential for the design of database tables, extracts, and metadata. Most database management systems keep the data dictionary hidden from users to prevent them from accidentally destroying its contents. Data dictionaries do not contain any actual data from the database, only bookkeeping information for managing it. Without a data dictionary, however, a database management system cannot access data from the database. There is no universal standard as to the level of detail in such a document, but it is primarily a distillation of metadata about database structure , not the data itself. A data dictionary document also may include further information describing how data elements are encoded. One of the advantages of well-designed data dictionary documentation is that it helps to establish consistency throughout a complex database, or across a large collection of federated databases. It differs from the system flowchart as it shows the flow of data through processes instead of computer hardware. The DFD is designed to show how a system is divided into smaller portions and to highlight the flow of data between those parts. This context-level data flow diagram is then "exploded" to show more detail of the system being modeled. With a data flow diagram, users are able to visualize how the system will operate, what the system will accomplish, and how the system will be implemented. Data flow diagrams can be used to provide the end user with a physical idea of where the data they input ultimately has an effect upon the structure of the whole system from order to dispatch to recook. How any system is developed can be determined through a data flow diagram. Structure chart[edit] A configuration system structure chart. Each module is represented by a box which contains the name of the modules. The tree structure visualizes the relationships between the modules. As a design tool, they aid the programmer in dividing and conquering a large software problem, that is, recursively breaking a problem down into parts that are small enough to be understood by a human brain. The process is called top-down design , or functional decomposition. Programmers use a structure chart to build a program in a manner similar to how an architect uses a blueprint to build a house. In the design stage, the chart is drawn and used as a way for the client and the various software designers to communicate. During the actual building of the program implementation , the chart is continually referred to as the master-plan. Cohesion which is "concerned with the grouping of functionally related processes into a particular module", [10] and Coupling relates to "the flow of information or parameters passed between modules. Optimal coupling reduces the interfaces of modules and the resulting complexity of the software". Page-Jones has proposed his own approach which consists of three main objects: The structure chart aims to show "the module hierarchy or calling sequence relationship of modules. There is a module specification for each module shown on the structure chart. The module specifications can be composed of pseudo-code or a program design language. The data dictionary is like that of structured analysis. At this stage in the software development lifecycle , after analysis and design have been performed, it is possible to automatically generate data type declarations", [23] and procedure or subroutine templates. SQL was first introduced as a commercial database system in and has since been the favorite query language for database management systems running on minicomputers and mainframes. Increasingly, however, SQL is being supported by PC database systems because it supports distributed databases see definition of distributed database. This enables several users on a computer network to access the same database simultaneously. Although there are different dialects of SQL, it is nevertheless the closest thing to a standard query language that currently exists.

Chapter 4 : On Fundamental Principles of Analytical Design | Sticky Notes of Thoughts

On Fundamental Principles of Analytical Design. If you don't own any books by Edward Tufte, it's worth going to your local library and spend an afternoon admiring them (and learn about visualization and design in the process).

History of aerodynamics Modern aerodynamics only dates back to the seventeenth century, but aerodynamic forces have been harnessed by humans for thousands of years in sailboats and windmills, [2] and images and stories of flight appear throughout recorded history, [3] such as the Ancient Greek legend of Icarus and Daedalus. The Euler equations were extended to incorporate the effects of viscosity in the first half of the s, resulting in the Navierâ€"Stokes equations. Wind tunnels were key in the development and validation of the laws of aerodynamics. In , Sir George Cayley became the first person to identify the four aerodynamic forces of flight weight , lift , drag , and thrust , as well as the relationships between them, [10] [11] and in doing so outlined the path toward achieving heavier-than-air flight for the next century. In , Francis Herbert Wenham constructed the first wind tunnel , allowing precise measurements of aerodynamic forces. Building on these developments as well as research carried out in their own wind tunnel, the Wright brothers flew the first powered airplane on December 17, During the time of the first flights, Frederick W. Lanchester , [16] Martin Kutta , and Nikolai Zhukovsky independently created theories that connected circulation of a fluid flow to lift. Kutta and Zhukovsky went on to develop a two-dimensional wing theory. Expanding upon the work of Lanchester, Ludwig Prandtl is credited with developing the mathematics [17] behind thin-airfoil and lifting-line theories as well as work with boundary layers. As aircraft speed increased, designers began to encounter challenges associated with air compressibility at speeds near or greater than the speed of sound. The differences in air flows under such conditions leds to problems in aircraft control, increased drag due to shock waves , and the threat of structural failure due to aeroelastic flutter. The ratio of the flow speed to the speed of sound was named the Mach number after Ernst Mach who was one of the first to investigate the properties of supersonic flow. William John Macquorn Rankine and Pierre Henri Hugoniot independently developed the theory for flow properties before and after a shock wave , while Jakob Ackeret led the initial work of calculating the lift and drag of supersonic airfoils. This rapid increase in drag led aerodynamicists and aviators to disagree on whether supersonic flight was achievable until the sound barrier was broken for the first time in using the Bell X-1 aircraft. The Cold War prompted the design of an ever-evolving line of high performance aircraft. Computational fluid dynamics began as an effort to solve for flow properties around complex objects and has rapidly grown to the point where entire aircraft can be designed using computer software, with wind-tunnel tests followed by flight tests to confirm the computer predictions. Understanding of supersonic and hypersonic aerodynamics has matured since the s, and the goals of aerodynamicists have shifted from the behavior of fluid flow the engineering of a vehicle such that it interacts pedictably with the fluid flow. Designing aircraft for supersonic and hypersonic conditions, as well as the desire to improve the aerodynamic efficiency of current aircraft and propulsion systems, continues to motivate new research in aerodynamics, while work continues to be done on important problems in basic aerodynamic theory related to flow turbulence and the existence and uniqueness of analytical solutions to the Navier-Stokes equations. Fundamental concepts[edit] Forces of flight on an airfoil Understanding the motion of air around an object often called a flow field enables the calculation of forces and moments acting on the object. In many aerodynamics problems, the forces of interest are the fundamental forces of flight: Of these, lift and drag are aerodynamic forces, i. Calculation of these quantities is often founded upon the assumption that the flow field behaves as a continuum. Continuum flow fields are characterized by properties such as flow velocity , pressure , density , and temperature , which may be functions of position and time. These properties may be directly or indirectly measured in aerodynamics experiments or calculated starting with the equations for conservation of mass, momentum , and energy in air flows. Density, flow velocity, and an additional property, viscosity , are used to classify flow fields. Flow classification[edit] Flow velocity is used to classify flows according to speed regime. Subsonic flows are flow fields in which the air speed field is always below the local speed of sound. Transonic flows include both regions of subsonic flow and regions in which the local flow speed is greater than the local speed of sound. Supersonic flows are defined to be flows in which the flow speed is greater than the speed of sound everywhere. A fourth classification, hypersonic flow, refers to flows where the flow speed is much greater than the speed of sound. Aerodynamicists disagree on the precise definition of hypersonic flow. Compressible flow accounts for varying density within the flow. Subsonic flows are often idealized as incompressible, i. Transonic and supersonic flows are compressible, and calculations that neglect the changes of density in these flow fields will yield inaccurate results. Viscosity is associated with the frictional forces in a flow. In some flow fields, viscous effects are very small, and approximate solutions may safely neglect viscous effects. These approximations are called inviscid flows. Flows for which viscosity is not neglected are called viscous flows. Finally, aerodynamic problems may also be classified by the flow environment. External aerodynamics is the study of flow around solid objects of various shapes e. Continuum assumption[edit] Unlike liquids and solids, gases are composed of discrete molecules which occupy only a small fraction of the volume filled by the gas. On a molecular level, flow fields are made up of the collisions of many individual of gas molecules between themselves and with solid surfaces. However, in most aerodynamics applications, the discrete molecular nature of gases is ignored, and the flow field is assumed to behave as a continuum. This assumption allows fluid properties such as density and flow velocity to be defined everywhere within the flow. The validity of the continuum assumption is dependent on the density of the gas and the application in question. For the continuum assumption to be valid, the mean free path length must be much smaller than the length scale of the application in question. For example, many aerodynamics applications deal with aircraft flying in atmospheric conditions, where the mean free path length is on the order of micrometers and where the body is orders of magnitude larger. In these cases, the length scale of the aircraft ranges from a few meters to a few tens of meters, which is much larger than the mean free path length. For such applications, the continuum assumption is reasonable. The continuum assumption is less valid for extremely low-density flows, such as those encountered by vehicles at very high altitudes e. In those cases, statistical mechanics is a more accurate method of solving the problem than is continuum aerodynamics. The Knudsen number can be used to guide the choice between statistical mechanics and the continuous formulation of aerodynamics. Conservation laws[edit] The assumption of a fluid continuum allows problems in aerodynamics to be solved using fluid dynamics conservation laws. Three conservation principles are used: In fluid dynamics, the mathematical formulation of this principle is known as the mass continuity equation , which requires that mass is neither created nor destroyed within a flow of interest. Momentum within a flow is only changed by the work performed on the system by external forces, which may include both surface forces , such as viscous frictional forces, and body forces , such as weight. The momentum conservation principle may be expressed as either a vector equation or separated into a set of three scalar equations x,y,z components. In its most complete form, the momentum conservation equations are known as the Navier-Stokes equations. The Navier-Stokes equations have no known analytical solution and are solved in modern aerodynamics using computational techniques. Because of the computational cost of solving these complex equations, simplified expressions of momentum conservation may be appropriate for specific applications. The Euler equations are a set of momentum conservation equations which neglect viscous forces and may be used in cases where the effect of viscous forces is expected to be small. The energy conservation equation states that energy is neither created nor destroyed within a flow, and that any addition or subtraction of energy to a volume in the flow is caused by the fluid flow, by heat transfer , or by work into and out of the region of interest. The ideal gas law or another such equation of state is often used in conjunction with these equations to form a determined system that allows the solution for the unknown variables. Branches of aerodynamics[edit] Aerodynamic problems are classified by the flow environment or properties of the flow, including flow speed , compressibility , and viscosity. External aerodynamics is the study of flow around solid objects of various shapes. Evaluating the lift and drag on an airplane or the shock waves that form in front of the nose of a rocket are examples of external aerodynamics. Internal aerodynamics is the study of flow through passages in solid objects. For instance, internal aerodynamics encompasses the study of the airflow through a jet engine or through an air conditioning pipe. Aerodynamic problems can also be classified according to whether the flow speed is below, near or above the speed of sound. A problem is called subsonic if all the speeds in the problem are less than the speed of sound, transonic if speeds both below and above the speed of sound are present normally when the characteristic speed is approximately the speed of sound , supersonic when the characteristic flow speed is greater than the speed of sound, and hypersonic when the flow speed is much greater than the speed of sound. Aerodynamicists disagree over the precise definition of hypersonic flow; a rough definition considers flows with Mach numbers above 5 to be hypersonic. Some problems may encounter only very small viscous effects, in which case viscosity can be considered to be negligible. The approximations to these problems are called inviscid flows. Flows for which viscosity cannot be neglected are called viscous flows. Although all real fluids are compressible, a flow is often approximated as incompressible if the effect of the density changes cause only small changes to the calculated results. This is more likely to be true when the flow speeds are significantly lower than the speed of sound. Effects of compressibility are more significant at speeds close to or above the speed of sound. The Mach number is used to evaluate whether the incompressibility can be assumed, otherwise the effects of compressibility must be included. Subsonic flow[edit] Subsonic or low-speed aerodynamics describes fluid motion in flows which are much lower than the speed of sound everywhere in the flow. There are several branches of subsonic flow but one special case arises when the flow is inviscid , incompressible and irrotational. This case is called potential flow and allows the differential equations that describe the flow to be a simplified version of the equations of fluid dynamics , thus making available to the aerodynamicist a range of quick and easy solutions. Compressibility is a description of the amount of change of density in the flow. When the effects of compressibility on the solution are small, the assumption that density is constant may be made. The problem is then an incompressible low-speed aerodynamics problem. When the density is allowed to vary, the flow is called compressible. In air, compressibility effects are usually ignored when the Mach number in the flow does not exceed 0. Compressible flow According to the theory of aerodynamics, a flow is considered to be compressible if the density changes along a streamline. This means that â€” unlike incompressible flow â€” changes in density are considered. In general, this is the case where the Mach number in part or all of the flow exceeds 0. Transonic, supersonic, and hypersonic flows are all compressible flows. Transonic The term Transonic refers to a range of flow velocities just below and above the local speed of sound generally taken as Mach 0. It is defined as the range of speeds between the critical Mach number , when some parts of the airflow over an aircraft become supersonic , and a higher speed, typically near Mach 1. Between these speeds, some of the airflow is supersonic, while some of the airflow is not supersonic. Supersonic Supersonic aerodynamic problems are those involving flow speeds greater than the speed of sound. Calculating the lift on the Concorde during cruise can be an example of a supersonic aerodynamic problem. Supersonic flow behaves very differently from subsonic flow. Fluids react to differences in pressure; pressure changes are how a fluid is "told" to respond to its environment. Therefore, since sound is in fact an infinitesimal pressure difference propagating through a fluid, the speed of sound in that fluid can be considered the fastest speed that "information" can travel in the flow.

Chapter 5 : Aerodynamics - Wikipedia

Created Date: 9/9/ PM.

Here are some standardization design benefits: It facilitates the operation: This will positively impact productivity as well as safety. As the team has fewer issues and makes fewer mistakes, increased productivity is a consequence. Higher quality products and services: An example of a fairly simple business rule could be: Avoid including these rules in your process design. This will make it easier to read and understand your process! So, how do you do it? Use a Business Rule task in your process model, and document its rules in structured English, or describe them using another model called DMN Decision Model and Notation. Maintaining documented and up to date rules can be very difficult. In addition, business rules are very volatile and change constantly and for that reason they should be periodically reviewed. Remember to check if there is a national standard that may be different from the international standard and which one is best to use. An example of compliance affecting many organizations is Sarbanes Oxley, which regulates publicly traded companies in the United States. Well â€¦ the most discussed form in the CBOK for validation is process simulation , but I believe the best way to validate a process is by submitting a prototype for the evaluation of those people who perform in the execution of the process. And why validate the process with a prototype? People in general are not very familiar with process notations, and this problem becomes even more serious when we present detailed diagrams, such as those produced in the process design phase. When in fact it is not. When we run a process with a prototype these people have a greater capacity to understand it. But â€¦ how do you create a prototype in an agile and low-cost way? Include only the essential fields. Make a simple set of responsibilities in the lanes. Create a manual task representing the situation. If possible, always have sessions with two professionals: The result of these meetings is incredible! And the simulation that I quoted at the beginning of this principle? Delivering little, makes it slow and is incompatible with the needs of the market. What do you think about this? Leave your opinion in our comments. Complexity will not bring any benefit to the design of your process. A complex process or operation results in unnecessary expenses, errors, low productivity and delays. Actually a good design job is one that after hours and hours of work results in something simple, containing only the essence necessary to make the process capable of achieving the expected performance. The ability to simplify means to eliminate the unnecessary so that the necessary can manifest itself. Click To Tweet Conclusion A good business process design has a direct impact on the profitability and success of a company. The better the processes, the better the results. If the process requires many improvements, release them incrementally over several cycles. Does this sound familiar? Do you believe in process simulation?

Chapter 6 : Data Deluge: Tufte Principles of Analytical Design

Edward Tufte describes 6 fundamental principles for analytical design (that he claims are merely mirrors of 6 principles of analytical thinking).

Chapter 7 : Structured analysis - Wikipedia

The basic principles of experimental design are (i) Randomization, (ii) Replication and (iii) Local Control.. Randomization. Randomization is the corner stone underlying the use of statistical methods in experimental designs.

Chapter 8 : Reading Response: Tufte, The Fundamental Principles of Analytical Design. | ensaeneyedea

FUNdaMENTAL Principles Imagine the feeling you get when you participate in an activity in which you RULE! When you

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MAS-TER the FUNdaMENTALs of design, you get the same.

Chapter 9 : Basic Principles of Experimental Design - Basic Statistics and Data Analysis

The nine principles of Process Design December 11, Wallace Oliveira BPM Business process design is a BPM step that occurs after the analysis and discovery steps.