

Chapter 1 : National Power: Elements, Evaluation and Limitations

To understand the limitations of components, we start with concerns. The goal of a system is to meet requirements or, more generally, concerns. A concern is anything that is of interest to a stakeholder, whether an end user, project sponsor, or developer. For example, a concern can be a functional.

Internal Control Definition of Internal Control: Reliability of financial reporting, Effectiveness and efficiency of operations, and Compliance with applicable laws and regulations. Types of Internal Controls: Designed to detect errors or irregularities that may have occurred. Designed to correct errors or irregularities that have been detected. Designed to keep errors or irregularities from occurring in the first place. Limitations of Internal Controls: No matter how well internal controls are designed, they can only provide reasonable assurance that objectives have been achieved. Some limitations are inherent in all internal control systems. The effectiveness of controls will be limited by decisions made with human judgment under pressures to conduct business based on the information at hand. Even well designed internal controls can break down. Employees sometimes misunderstand instructions or simply make mistakes. Errors may also result from new technology and the complexity of computerized information systems. High level personnel may be able to override prescribed policies and procedures for personal gain or advantage. This should not be confused with management intervention, which represents management actions to depart from prescribed policies and procedures for legitimate purposes. Control systems can be circumvented by employee collusion. Individuals acting collectively can alter financial data or other management information in a manner that cannot be identified by control systems. Internal Control Objectives Internal Control objectives are desired goals or conditions for a specific event cycle which, if achieved, minimize the potential that waste, loss, unauthorized use or misappropriation will occur. They are conditions which we want the system of internal control to satisfy. For a control objective to be effective, compliance with it must be measurable and observable. The control objectives include authorization, completeness, accuracy, validity, physical safeguards and security, error handling and segregation of duties. Authorization - The objective is to ensure that all transactions are approved by responsible personnel in accordance with specific or general authority before the transaction is recorded. Completeness - The objective is to ensure that no valid transactions have been omitted from the accounting records. Accuracy - The objective is to ensure that all valid transactions are accurate, consistent with the originating transaction data and information is recorded in a timely manner. Error handling - The objective is to ensure that errors detected at any stage of processing receive prompt corrective action and are reported to the appropriate level of management. Segregation of Duties - The objective is to ensure that duties are assigned to individuals in a manner that ensures that no one individual can control both the recording function and the procedures relative to processing the transaction. A well designed process with appropriate internal controls should meet most, if not all of these control objectives. Factors that set the tone of the organization, influencing the control consciousness of its people. Changes in the Operating Environment e. Increased Competition New Personnel.

Chapter 2 : How to structure the Research Limitations section of your dissertation | LÃ¡rd Dissertation

A system of controls does not provide absolute assurance that the control objectives of an organization will be met. Instead, there are several inherent limitations in any system that reduce the level of assurance.

However, it is not necessary for you to discuss all of these limitations in your Research Limitations section. After all, you are not writing a word critical review of the limitations of your dissertation, just a word critique that is only one section long. Therefore, in this first announcing move, we would recommend that you identify only those limitations that had the greatest potential impact on: For example, we know that when adopting a quantitative research design, a failure to use a probability sampling technique significantly limits our ability to make broader generalisations from our results. However, the degree to which this reduces the quality of our findings is a matter of debate. Also, whilst the lack of a probability sampling technique when using a quantitative research design is a very obvious example of a research limitation, other limitations are far less clear. **THE REFLECTING MOVE** Explaining the nature of the limitations and justifying the choices you made Having identified the most important limitations to your dissertation in the announcing move, the reflecting move focuses on explaining the nature of these limitations and justifying the choices that you made during the research process. Acknowledging such limitations should not be viewed as a weakness, highlighting to the person marking your work the reasons why you should receive a lower grade. Instead, the reader is more likely to accept that you recognise the limitations of your own research if you write a high quality reflecting move. This is because explaining the limitations of your research and justifying the choices you made during the dissertation process demonstrates the command that you had over your research. We talk about explaining the nature of the limitations in your dissertation because such limitations are highly research specific. As mentioned, if you used a quantitative research design in your dissertation, the lack of probability sampling is an important, obvious limitation to your research. This is because it prevents you from making generalisations about the population you are studying. Facebook usage at a single university of 20, students from the data you have collected. Since an important component of quantitative research is such generalisation, this is a clear limitation. However, the lack of a probability sampling technique is not viewed as a limitation if you used a qualitative research design. In qualitative research designs, a non-probability sampling technique is typically selected over a probability sampling technique. And this is just part of the puzzle? Even if you used a quantitative research design, but failed to employ a probability sampling technique, there are still many perfectly justifiable reasons why you could have made such a choice. For example, it may have been impossible or near on impossible to get a list of the population you were studying. Since probability sampling is only possible when we have such a list, the lack of such a list or inability to attain such a list is a perfectly justifiable reason for not using a probability sampling technique; even if such a technique is the ideal. As such, the purpose of all the guides we have written on research limitations is to help you: In helping you to justifying the choices that you made, these articles explain not only when something is, in theory, an obvious limitation, but how, in practice, such a limitation was not necessarily so damaging to the quality of your dissertation. This should significantly strengthen the quality of your Research Limitations section.

Chapter 3 : Limitations of Internal Control

*What is the difference between Kernel principal component analysis (KPCA) and Principal component analysis(PCA)?
What are the limitations of a correlation analysis? Digital Signal Processing: Are there any resources for Principal Component Analysis on images in frequency domain?*

History[edit] The term marketing mix was developed by Neil Borden who first started using the phrase in 1926. According to McCarthy the marketers essentially have these four variables which they can use while crafting a marketing strategy and writing a marketing plan. In the long term, all four of the mix variables can be changed, but in the short term it is difficult to modify the product or the distribution channel. Another set of marketing mix variables were developed by Albert Frey Frey, A. The "offering" consists of the product, service, packaging, brand , and price. The "process" or "method" variables included advertising, promotion, sales promotion, personal selling, publicity , distribution channels, marketing research , strategy formation, and new product development. They added "People" to the list of existing variables, in order to recognize the importance of the human element in all aspects of marketing. They added "process" to reflect the fact that services, unlike physical products, are experienced as a process at the time that they are purchased. Desktop modeling tools such as Micro TSP have made this kind of statistical analysis part of the mainstream now. Most advertising agencies and strategy consulting firms offer MMM services to their clients. Mathematically, this is done by establishing a simultaneous relation of various marketing activities with the sales, in the form of a linear or a non-linear equation, through the statistical technique of regression. MMM defines the effectiveness of each of the marketing elements in terms of its contribution to sales-volume, effectiveness volume generated by each unit of effort , efficiency sales volume generated divided by cost and ROI. These learnings are then adopted to adjust marketing tactics and strategies, optimize the marketing plan and also to forecast sales while simulating various scenarios. The creation of variables for Marketing Mix Modeling is a complicated affair and is as much an art as it is a science. The balance between automated modeling tools crunching large data sets versus the artisan econometrician is an ongoing debate in MMM, with different agencies and consultants taking a position at certain points in this spectrum. Further validations are carried out, either by using a validation data, or by the consistency of the business results. The output can be used to analyze the impact of the marketing elements on various dimensions. The contribution of each element as a percentage of the total plotted year on year is a good indicator of how the effectiveness of various elements changes over the years. The yearly change in contribution is also measured by a due-to analysis which shows what percentage of the change in total sales is attributable to each of the elements. For activities like television advertising and trade promotions, more sophisticated analysis like effectiveness can be carried out. This analysis tells the marketing manager the incremental gain in sales that can be obtained by increasing the respective marketing element by one unit. If detailed spend information per activity is available then it is possible to calculate the Return on Investment of the marketing activity. Not only is this useful for reporting the historical effectiveness of the activity, it also helps in optimizing the marketing budget by identifying the most and least efficient marketing activities. They can optimize the budget by allocating spends to those activities which give the highest return on investment. Some MMM approaches like to include multiple products or brands fighting against each other in an industry or category model - where cross-price relationships and advertising share of voice is considered as important for wargaming. Components[edit] Marketing-mix models decompose total sales into two components: This is the natural demand for the product driven by economic factors like pricing, long-term trends, seasonality , and also qualitative factors like brand awareness and brand loyalty. Incremental sales are the component of sales driven by marketing and promotional activities. This component can be further decomposed into sales due to each marketing component like Television advertising or Radio advertising , Print Advertising magazines, newspapers etc. Marketing-Mix analyses are typically carried out using Linear Regression Modeling. Nonlinear and lagged effects are included using techniques like Advertising Adstock transformations. Typical output of such analyses include a decomposition of total annual sales into contributions from each marketing component, a.

Elements measured in MMM[edit] Base and incremental volume[edit] The very break-up of sales volume into base volume that would be generated in absence of any marketing activity and incremental volume generated by marketing activities in the short run across time gain gives wonderful insights. The base grows or declines across longer periods of time while the activities generating the incremental volume in the short run also impact the base volume in the long run. The variation in the base volume is a good indicator of the strength of the brand and the loyalty it commands from its users. Media and advertising[edit] Market mix modeling can determine the sales impact generated by individual media such as television, magazine, and online display ads. In some cases it can be used to determine the impact of individual advertising campaigns or even ad executions upon sales. For example, for TV advertising activity, it is possible to examine how each ad execution has performed in the market in terms of its impact on sales volume. MMM can also provide information on TV correlations at different media weight levels, as measured by Gross Rating Points GRP in relation to sales volume response within a time frame, be it a week or a month. Information can also be gained on the minimum level of GRPs threshold limit in a week that need to be aired in order to make an impact, and conversely, the level of GRPs at which the impact on volume maximizes saturation limit and that the further activity does not have any payback. The role of new product based TV activity and the equity based TV activity in growing the brand can also be compared. GRPs are divided by the average frequency to get the percentage of people actually watching the advertisement. This is a better measure for modeling TV. Trade promotions[edit] Trade promotion is a key activity in every marketing plan. It is aimed at increasing sales in the short term by employing promotion schemes which effectively increases the customer awareness of the business and its products. The response of consumers to trade promotions is not straight forward and is the subject of much debate. Non-linear models exist to simulate the response. Using MMM we can understand the impact of trade promotion at generating incremental volumes. It is possible to obtain an estimate of the volume generated per promotion event in each of the different retail outlets by region. This way we can identify the most and least effective trade channels. We can use this information to optimize the trade plan by choosing the most effective trade channels and targeting the most effective promotion activity. Pricing[edit] Price increases of the brand impact the sales negatively. This effect can be captured through modeling the price in MMM. The model provides the price elasticity of the brand which tells us the percentage change in the sales for each percentage change in price. Using this, the marketing manager can evaluate the impact of a price change decision. Distribution[edit] For the element of distribution, we can know how the volume will move by changing distribution efforts or, in other words, by each percentage shift in the width or the depth of distribution. This can be identified specifically for each channel and even for each kind of outlet for off-take sales. In view of these insights, the distribution efforts can be prioritized for each channel or store-type to get the maximum out of the same. Launches[edit] When a new product is launched, the associated publicity and promotions typically results in higher volume generation than expected. This extra volume cannot be completely captured in the model using the existing variables. Often special variables to capture this incremental effect of launches are used. The combined contribution of these variables and that of the marketing effort associated with the launch will give the total launch contribution. Different launches can be compared by calculating their effectiveness and ROI. Competition[edit] The impact of competition on the brand sales is captured by creating the competition variables accordingly. The variables are created from the marketing activities of the competition like television advertising, trade promotions, product launches etc. The results from the model can be used to identify the biggest threat to own brand sales from competition. The cross-price elasticity and the cross-promotional elasticity can be used to devise appropriate response to competition tactics. A successful competitive campaign can be analyzed to learn valuable lesson for the own brand. Studies in MMM[edit] Typical MMM studies provide the following insights Contribution by marketing activity Effectiveness of marketing activity Optimal distribution of spends Learnings on how to execute each activity better e. Adoption of MMM by the industry[edit] Over the past 20 years many large companies, particularly consumer packaged goods firms, have adopted MMM. This has also been made possible due to the availability of specialist firms that are now providing MMM services. Availability of Time-series data is crucial to robust modeling of marketing-mix effects and with the systematic management

of customer data through CRM systems in other industries like Telecommunications, Financial Services, Automotive and Hospitality industries helped its spread to these industries. Application of marketing-mix modeling to these industries is still in a nascent stage and a lot of standardization needs to be brought about especially in these areas: Interpretation of promotional activities across industries for e. CPG promotions are usually absolute price discounts, whereas Automotive promotions can be cashbacks or loan incentives, and Financial Services promotions are usually interest rate discounts. Hospitality industry marketing has a very heavy seasonal pattern and most marketing-mix models will tend to confound marketing effectiveness with seasonality, thus overestimating or underestimating marketing ROI. Automotive Manufacturers spend a substantial amount of their marketing budgets on dealer advertising, which may not be accurately measurable if not modeled at the right level of aggregation. If modeled at the national level or even the market or DMA level, these effects may be lost in aggregation bias. On the other hand, going all the way down to dealer-level may overestimate marketing effectiveness as it would ignore consumer switching between dealers in the same area. The proliferation of marketing-mix modeling was also accelerated due to the focus from Sarbanes-Oxley Section that required internal controls for financial reporting on significant expenses and outlays. Marketing-mix modeling presented a rigorous and consistent approach to evaluate marketing-mix investments as the CPG industry had already demonstrated. A study by American Marketing Association pointed out that top management was more likely to stress the importance of marketing accountability than middle management, suggesting a top-down push towards greater accountability. Limitations[edit] While marketing mix models provide much useful information, there are two key areas in which these models have limitations that should be taken into account by all of those that use these models for decisionmaking purposes. These limitations, discussed more fully below, include: In relation to the bias against equity building activities, marketing budgets optimized using marketing-mix models may tend too much towards efficiency because marketing-mix models measure only the short-term effects of marketing. Longer term effects of marketing are reflected in its brand equity. The impact of marketing spend on [brand equity] is usually not captured by marketing-mix models. One reason is that the longer duration that marketing takes to impact brand perception extends beyond the simultaneous or, at best, weeks-ahead impact of marketing on sales that these models measure. The other reason is that temporary fluctuation in sales due to economic and social conditions do not necessarily mean that marketing has been ineffective in building brand equity. On the contrary, it is very possible that in the short term sales and market-share could deteriorate, but brand equity could actually be higher. This higher equity should in the long run help the brand recover sales and market-share. Different marketing measures impact short-term and long-term brand sales differently and adjusting the marketing portfolio to maximize either the short-term or the long-term alone will be sub-optimal. Determining marketing ROI on the basis of marketing-mix models alone can lead to misleading results. This is because marketing-mix attempts to optimize marketing-mix to increase incremental contribution, but marketing-mix also drives brand-equity, which is not part of the incremental part measured by marketing-mix model- it is part of the baseline. But academic studies have shown that promotional activities are in fact detrimental to long-term marketing ROI Ataman et al. Finally, the modeling process itself should not be more costly than the resulting gain in profitability; i. However, as the use of these models has been expanded into comparisons across a wider range of media types, extreme caution should be used. Thus, comparisons of the effectiveness of running a TV commercial versus the effectiveness of running a magazine ad would be biased in favor of TV, with its greater precision of measurement. Further, most approaches to marketing-mix models try to include all marketing activities in aggregate at the national or regional level, but to the extent that various tactics are targeted to different demographic consumer groups, their impact may be lost.

Chapter 4 : Internal Control

Some components are limited to a single instance in the entire network, or to a single instance of components that depend on calendrierdelascience.com deploying Websense software, consider the following restrictions.

Limitations of Office Web Components when used server-side Content provided by Microsoft Summary The Microsoft Office Web Components provide Web developers with spreadsheet, charting, and pivot table capabilities to make Web pages more dynamic. The components were developed as client-side ActiveX controls that can be used inside of Microsoft Internet Explorer. While the components can be used in this way, limitations can hinder the stability and performance of server code, and may make the components problematic in a large-scale server-side solution. More Information Microsoft does not recommend that you use the Office Web Components in a server-side solution. Several known limitations prevent the components from functioning properly in a highly reentrant, multi-threaded, non-interactive environment. Among the problems that you may experience are the following: Slow execution or poor performance: The Office Web Components were designed for the multiple single-threaded apartment STA environment of Internet Explorer, and not the multi-threaded apartment MTA environment of most server-side applications. The protection for thread concurrency for the Office Web Components was not designed for the high volume, multi-threaded calls that are typical of a Web service, and can therefore impact performance. For example, the Office Web Components protect a number of shared memory blocks with the same critical section, so that threads that do not modify a memory section may still be blocked if another thread modifies the memory section. Moreover, many of the functions for processing were imported from other Office sources that were designed in a single-threaded model, and these sections of code cannot run concurrently. The Office Web Components uses a static build of the Microsoft Office shared library to handle memory management. The memory allocation functions of the Microsoft Office shared library are designed for the client side, and do not expect the loads and concurrent requests that are typical in a server-side solution. This may limit the amount of memory that the components have available to them, regardless of the amount of memory that is free on the computer. Automation errors at random times: The Office Web Components use a few state variables that are not fully protected, and if the variables change while a function is running, they can cause the function to fail unexpectedly. Functions that require asynchronous processing such as requesting data from a data source, or calculating cell values in a spreadsheet are more likely to generate such errors if multiple threads are automating concurrently. In some situations, the Office Web Components may encounter race conditions that lead to indefinite wait states or global exceptions, which can orphan a thread and cause a loss of resources. These situations typically occur when the components are "stressed"; for example, this may occur when a high number of clients make concurrent requests to the server, and each request creates, automates, or destroys its own component instance. Pooling instances can minimize the risk of deadlock. If creating separate Office Web Components in separate Single Threaded Apartments STA inside a single process, and the threads run concurrently, you may encounter performance penalties or thread contention issues which can result in high CPU usage or state corruption. It is recommended that you keep all instances in the same STA, or if you need parallel execution, you create separate processes to host each STA thread needed. The problems with the Office Web Components that are listed above are design limitations that are consistent with their intended use as client-side ActiveX controls. No workaround or fix is available for these Office Web Components limitations. Although you can run the Office Web Components server-side and this will work for a small Web site, these issues may prevent you from scaling the solution up to handle a large Web site that has heavy traffic. If you plan a new solution, carefully consider your scale requirements and decide whether Office Web Components is suited to meet the demand. If you need a more scalable solution, there are many third-party products that can perform similar operations and are designed specifically for server-side operations. These third-party products may be better suited to your requirements. If you currently use the Office Web Components in your server-side Web solution, consider upgrading to the most recent version of Office Web Components. Some memory error issues and automation error issues have been addressed in more recent

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versions of Office Web Components. However, the design of the Office Web Components as ActiveX controls will not make them fully reliable for large scale Web projects if the components are run server-side.

Chapter 5 : Limitations of the Windows Forms Timer Component's Interval Property | Microsoft Docs

The Major Components, Strengths, and Limitations of Urie Bronfenbrenner's Ecological Systems Model Words Jan 31st, 3 Pages Bronfenbrenner argued that to understand human development, the environment in which the person belongs must be understood (Bronfenbrenner, U).

Eyepiece The eyepiece , or ocular lens, is a cylinder containing two or more lenses; its function is to bring the image into focus for the eye. The eyepiece is inserted into the top end of the body tube. Eyepieces are interchangeable and many different eyepieces can be inserted with different degrees of magnification. In some high performance microscopes, the optical configuration of the objective lens and eyepiece are matched to give the best possible optical performance. This occurs most commonly with apochromatic objectives.

Objective turret revolver or revolving nose piece [edit] Objective turret, revolver, or revolving nose piece is the part that holds the set of objective lenses. It allows the user to switch between objective lenses.

Objective optics At the lower end of a typical compound optical microscope, there are one or more objective lenses that collect light from the sample. The objective is usually in a cylinder housing containing a glass single or multi-element compound lens. Typically there will be around three objective lenses screwed into a circular nose piece which may be rotated to select the required objective lens. These arrangements are designed to be parfocal , which means that when one changes from one lens to another on a microscope, the sample stays in focus. Microscope objectives are characterized by two parameters, namely, magnification and numerical aperture. Objective lenses with higher magnifications normally have a higher numerical aperture and a shorter depth of field in the resulting image. Some high performance objective lenses may require matched eyepieces to deliver the best optical performance.

Oil immersion objective[edit] Main article: Oil immersion Some microscopes make use of oil-immersion objectives or water-immersion objectives for greater resolution at high magnification. These are used with index-matching material such as immersion oil or water and a matched cover slip between the objective lens and the sample. The refractive index of the index-matching material is higher than air allowing the objective lens to have a larger numerical aperture greater than 1 so that the light is transmitted from the specimen to the outer face of the objective lens with minimal refraction. Numerical apertures as high as 1.

Focus knobs[edit] Adjustment knobs move the stage up and down with separate adjustment for coarse and fine focusing. The same controls enable the microscope to adjust to specimens of different thickness. In older designs of microscopes, the focus adjustment wheels move the microscope tube up or down relative to the stand and had a fixed stage.

Frame[edit] The whole of the optical assembly is traditionally attached to a rigid arm, which in turn is attached to a robust U-shaped foot to provide the necessary rigidity. The arm angle may be adjustable to allow the viewing angle to be adjusted. The frame provides a mounting point for various microscope controls. Normally this will include controls for focusing, typically a large knurled wheel to adjust coarse focus, together with a smaller knurled wheel to control fine focus.

Stage[edit] The stage is a platform below the objective which supports the specimen being viewed. In the center of the stage is a hole through which light passes to illuminate the specimen. If a microscope did not originally have a mechanical stage it may be possible to add one. All stages move up and down for focus. With a mechanical stage slides move on two horizontal axes for positioning the specimen to examine specimen details. Focusing starts at lower magnification in order to center the specimen by the user on the stage. Moving to a higher magnification requires the stage to be moved higher vertically for re-focus at the higher magnification and may also require slight horizontal specimen position adjustment. Horizontal specimen position adjustments are the reason for having a mechanical stage.

Light source[edit] Many sources of light can be used. At its simplest, daylight is directed via a mirror. Most microscopes, however, have their own adjustable and controllable light source – often a halogen lamp , although illumination using LEDs and lasers are becoming a more common provision.

Condenser[edit] The condenser is a lens designed to focus light from the illumination source onto the sample. For illumination techniques like dark field , phase contrast and differential interference contrast microscopy additional optical components must be precisely aligned in the light path.

Magnification[edit] The actual power or magnification of a compound optical microscope is

the product of the powers of the ocular eyepiece and the objective lens. Magnification and micrographs[edit]
When using a camera to capture a micrograph the effective magnification of the image must take into account the size of the image. This is independent of whether it is on a print from a film negative or displayed digitally on a computer screen. In the case of photographic film cameras the calculation is simple; the final magnification is the product of: In the case of digital cameras the size of the pixels in the CMOS or CCD detector and the size of the pixels on the screen have to be known. The enlargement factor from the detector to the pixels on screen can then be calculated. As with a film camera the final magnification is the product of:

Chapter 6 : Marketing mix modeling - Wikipedia

While the components can be used in this way, limitations can hinder the stability and performance of server code, and may make the components problematic in a large-scale server-side solution. More Information.

Raw materials can be further sub-divided into three categories: It is impossible to develop power in modern times without industrialisation and it is very difficult, if not impossible, for a nation to get industrialized without adequate possession of key raw materials. Raw materials influence national power, national policies and international trade of the nation. The United States has been nearly self-sufficient in respect of key minerals and this fact has largely contributed to its industrial and military strength. The interdependence among nations stands largely constituted by the necessities of trade relations in respect of minerals and raw materials for their industrial needs. A nation cannot hope to be a big military, industrial and economic power without the possession of adequate quantities of raw- materials. The importance of oil as the key source of energy is a well known fact of present day international relations. Oil diplomacy in world politics of our times solely depends upon the fact that the OPEC countries monopolies world crude production and have vast oil reserves. Oil has tremendous importance, both for industrial production and military strength and mobility. The importance of uranium as a source of atomic power is well known. Adequate means of energy security contribute to the national power of a nation. As such, raw materials constitute an important element of national power. However, merely the existence of raw materials cannot be automatically a source of power. The ability to exploit and utilize the raw- materials is a factor almost as important as the existence of raw-materials. This ability is directly linked with the level of scientific, technological and industrial advancement. Food indeed is an important element of national power. The existence of large stocks of food grains and surplus food production can be a source of vital strength of a nation. A nation deficient in food production can rarely become a major power. Food shortage leads to power shortage. Acute food problem is a big source of weakness for all the developing countries. It is keeping them dependent upon developed states who have surplus food productions. The Green Revolution of s enabled India not only to sustain its economy but also to preserve and develop its national power. The military preparedness of a nation is dependent upon adequate supplies of food. Food production is dependent upon agricultural technology and industrial capacity. Man-power is vitally important for food production. Production of food can be stepped up by human efforts and the application of advanced agricultural technology. The ability to utilize sea food resources can help a nation to overcome its food problem. This ability is dependent upon science and technology. As such food is again an element of national power. However its role as a factor of National Power has to be evaluated along with other factors, population, climate, and level of scientific and technological development of a nation. Another basic element which affects national power is population. In this age of science, machines have come to perform a large number of functions which were previously being performed by men. Yet machines have failed to completely replace men. Even today men behind the machines continue to be more important than the machines. Manpower alone can exploit the natural resources and utilize these for the satisfaction of national needs. Geographical hindrances can be overcome by men. Scientific and industrial development cannot be accomplished without men. Men are needed to fight. The mechanization of warfare has not seriously limited the importance of man as the soldier. Manpower alone can register a military victory. Hence, population is a source of power. The major powers of our times are states with fairly large populations. Large concentration of man-power in Asia, particularly China and India, has been an important factor of the power structure in international politics. Human Power resulting from the presence of a large class of skilled workforce has been a source for the emerging power of India in the world. Thus, it can be observed that: Population is an important element of military power. Man power is needed for fully exploiting the resources of the state. Industrial production depends upon man-power as well as machines. Population factor determines both national needs as well as policies designed to serve these needs. Population is an important human element of National Power. However, it is not merely the large number of people that determines the power of a nation. Britain, with a very small population, was in a position to rule many countries, even heavily populated

countries like India. Israel with a small population has been demonstrating a larger amount of power than Arab countries. Disproportionately large populations with a high growth rate have been hindrances in the way of China and India. It has adversely affected the economic growth rate and has posed a perpetual food problem for India. Poverty of India has been largely due to its over-population. Moreover, it is not merely the quantity of population that influences national power. The quality of population is a more valuable factor in the context of National Power. Dedicated, disciplined, hardworking, healthy, educated and skilled manpower alone can be a source of power. A nation inhabited by unhealthy, unemployed, lazy, unskilled, illiterate and ignorant people is bound to be a weak and inactive power. Further, the large size of population is a big source of strain as it leads to a rapid dilapidation of national resources. As such the evaluation of population as a factor of national power must involve an evaluation in both quantitative and qualitative aspects.

Economic Development and Industrial Capacity: Economic power is a vitally important part of national power of a nation because it is the means for military power and the basis for welfare, prosperity and development of its people. A nation with developed, healthy and growing economy alone can be a great power in world politics. Effective economic organisation and planning are essential qualities of a powerful nation. Poverty is always a source of limitation of power. It is this factor which has been largely forcing most of the developing countries of the Third World to live with neo-colonialism. The increased importance of economic instruments of foreign policy is a recognized fact of present day international relations. Only nations with developed economies can use the economic instruments—aid, loan, rewards, trade, grants and denial of rewards or punishment, for securing their desired goals in international relations. By using economic means a nation tries to exercise its national power in a productive and useful way. The level of economic well-being determines the power of a nation. The economic factor is intimately linked up with industrial capacity of a nation. In this age of science, industrialisation and technology developed industrial capacity alone can be a source of enduring and effective economic development. Only industrially advanced nations can become great powers. Today, the United States, the United Kingdom, France, Japan and Germany are powerful nations because of their huge industrial capacities. They have the ability to process raw materials, and thereby are in a position to control international economy. India is now emerging as an industrial power. Industrial capacity of a nation is thus an important factor of national power. Industrial backwardness, despite the possession of raw materials, can be a source of weakness for any nation. The USA, Russia and India have almost equal coal and iron resources, but some weakness industrial capacity in India has been responsible for her comparatively less powerful position. Since her independence, India has been trying conceitedly to develop her industrial capacity and technology for increasing her power and role in international relations. The modern warfare has made industrial capacity a significant factor of military power of a nation. The agricultural production of a country can be increased only through industrialized farming. Increased industrial capacity increases the agricultural capacity and the power of a nation. Thus, economic development and industrial capacity are important elements of national power. However, like other elements these two are also closely related to other elements, particularly, raw materials, technology, skilled human power, scientific talent and research, economic resources and the like. Their role as elements of power has to be analyzed in relation with other factors and not independently. Technology is the application of knowledge of science for promoting human welfare. It is the ability to use scientific inventions for the promotion of human welfare. Progress in engineering and industrial production is directly related to the nature and level of technology. It has been the advanced technological ability that has largely contributed to the prosperity and power of the developed countries. In fact the level of technological advancement determines the power-status of a nation. A nation backed by highly developed and advanced technology alone can be recognized as a developed nation. The USA and other developed countries are technologically advanced nations and this fact has been a major source of their power. Now nuclear technology has emerged as an important source of power and influence in international relations. Initially, monopoly over atomic secret was sought to be used by the USA for maintaining her power superiority in relation with the erstwhile USSR. The success in acquiring the nuclear technology in early s, however, made it possible for the erstwhile USSR to successfully compete with the US power in international relations. The overkill capacity achieved by the nuclear powers, resulting from the huge stockpiling of nuclear weapons of mass destruction, has been a source

of limitation for other nations.

Chapter 7 : BBC - GCSE Bitesize: Standard components

The scope and limitation of the various PCA parameters are discussed with respect to the ability to differentiate between samples of different groups, including different coffee varieties (Arabica or Robusta coffee) or different processing parameters and with respect to the information content of the PCA analysis on a molecular level.

The likelihood of achievement is affected by limitations inherent in all systems of internal control. Additionally, controls can be circumvented by two or more people colluding, and because management can override the system of internal control Internal control has been viewed by some observers as ensuring that an entity will not fail—that is, the entity will always achieve its operations, reporting, and compliance objectives. In this sense, internal control sometimes is looked upon as a cure-all for all real and potential business ills. This view is misguided. Internal control is not a panacea In considering limitations of internal control, two distinct concepts must be recognized. The second acknowledges that no system of internal control will always do what it is designed to do. The best that can be expected in any system of internal control is that reasonable assurance be obtained, which is the focus of this chapter. The best that can be expected in any of system of internal control is that reasonable assurance be obtained, which is the focus of this chapter. Reasonable assurance does not imply that systems of internal control will frequently fail. Many factors, individually and collectively, serve to strengthen the concept of reasonable assurance. Controls that support multiple objectives or that effect multiple principles within or across components reduce the risk that an entity may not achieve its objectives. However, because of the inherent limitations discussed here, there is no guarantee that, for example, an uncontrollable event, mistake, or improper incident could never occur. In other words, even an effective system of internal control may experience failures. Reasonable assurance is not absolute assurance Preconditions of Internal Control The Framework specifies several areas that are part of the management process but not part of internal control. There is a dependency established on these areas, among others, to also be effective. A system of internal control cannot encompass all activities undertaken by the entity, and weaknesses in these areas may impede the organization from having effective internal control. Judgment The effectiveness of internal control is limited by the realities of human frailty in the making of business decisions. Such decisions must be made with human judgment in the time available, based on information at hand, subject to management biases, and under the pressures of the conduct of business. Some decisions based on human judgment may later, with the clarity of hindsight, be found to produce less than desirable results, and may need to be changed. External Events Internal control, even effective internal control, operates at different levels for different objectives. Management Override Even an entity with an effective system of internal control may have a manager who is willing and able to override internal control. A manager of a division or operating unit, or a member of senior management, might override the control for many reasons such as to: Increase reported revenue to cover an unanticipated decrease in market share Enhance reported earnings to meet unrealistic budgets Boost the market value of the entity prior to a public offering or sale Meet sales or earnings projections to bolster bonus payouts tied to performance Appear to cover violations of debt covenant agreements Hide lack of compliance with legal requirements Override practices include deliberately making misrepresentations to bankers, lawyers, accountants, and vendors, and intentionally issuing false documents such as purchase orders and sales invoices. Management intervention is necessary to deal with non-recurring and non-standard transactions or events that otherwise might be handled inappropriately. Provision for management intervention is necessary because no process can be designed to anticipate every risk and every condition. Actions to override usually are not documented or disclosed, and have the intent to cover up the actions. Collusion Collusion can result in internal control deficiencies. Individuals acting collectively to perpetrate and conceal an action from detection often can alter financial or other management information so that it cannot be detected or prevented by the system of internal control.

Chapter 8 : Optical microscope - Wikipedia

Contributions of biarticular myogenic components to the limitation of the range of motion after immobilization of rat knee joint Momoko Nagai 1, Tomoki Aoyama 2.

The goal of a system is to meet requirements or, more generally, concerns. A concern is anything that is of interest to a stakeholder, whether an end user, project sponsor, or developer. For example, a concern can be a functional requirement, a nonfunctional requirement, or a design constraint on the system. It can be more than a requirement of the system. It can even be a low-level concern such as caching or buffering. Breaking down a problem into smaller parts is called separation of concerns in computer science. Ideally, we want to be able to cleanly separate the different concerns into modules of some kind and explore and develop each in isolation, one at a time. Thereafter, you compose these software modules to yield the complete system. Thus, the concept of separation of concerns and the concept of modularity are two sides of a coin—you separate concerns into modules, and each module solves or implements some distinct set of concerns. Successful separation of concerns must start early. You begin software development by attempting to understand the stakeholder concerns. You explore and collect the requirements for the system according to stakeholder concerns. Although some concerns can be realized by distinct and separate components, in general, you find many concerns for which components are not adequate. These are known as crosscutting concerns—concerns that impact multiple components. There are different kinds of crosscutting concerns: Some crosscutting concerns deal with functional requirements as well. You frequently find that the realization of functional requirements which can be specified as use-cases cut across multiple components. Thus, even use-cases are crosscutting concerns. Aspect orientation is established precisely to overcome the limitation of object orientation. Conventional modularity such as classes and services suffer from their inability to keep crosscutting concerns separate. It does not matter whether or not you are implementing your system using object-oriented programming languages: As we write this book, we find that having to list all the conventional modules components, classes, services, etc. So, for brevity, we simply use the term components as a representative of conventional modularity. So, when we say a "crosscutting concern can cut across classes," it applies to components as well. The first is what we call peers. These are concerns that are distinct from each other. No one peer is more important than another. If you consider the familiar ATM example, cash withdrawal, fund transfer, and cash deposit are all peers. These concerns do not need each other to exist. In fact, you can build separate systems for each one. However, when you start to implement peers in the same system, you find significant overlap between them. This is illustrated in Figure Figure depicts concerns in different shades on the left-hand side. The right-hand side shows the components with multiple shades. Each shade represents the codes that implement the respective concerns. The limitation of components to keep peers separate is evident in Figure It results in two effects, which in aspect-speak are known as tangling and scattering. Tangling You find that each component contains the implementation i. For example, in Figure , you see that the Room component is involved in the realization of three different concerns. The component, instead of single-mindedly fulfilling a particular concern, participates in many. This hinders understandability and makes the learning curve steeper for developers. Do not confuse tangling with reuse. Reuse implies that the same code or behaviors are useable under different contexts. Definitely, some parts of the Room component will be reusable without changes. However, in many cases, as highlighted in Figure , each concern demands additional and distinct behaviors on the Room component not needed to realize other concerns. There is no reuse among them, and they result in tangling. Scattering You also find codes that realize a particular concern are spread across multiple components. For example, in Figure , you see that the realization of Check In Customer imposes additional behaviors on four components. So, if ever the requirements about that concern change, or if the design of that concern changes, you must update many components. More importantly, scattering means that it is not easy to understand the internals of a system. For instance, it is not easy to uncover requirements by reading the source code of each component or a set of components. If the requirement for a particular concern changes, different classes need to be updated as well. Poor

understandability leads to poor maintainability, and it is not easy to make enhancements, especially for large systems. Extensions are components that you define on top of a base. They represent additional service or features. For example, the Hotel Management System has a waiting list for room reservations. If there are no rooms, the system puts the customer on a waiting list. Thus, the provision of a waiting list is an extension of Reserve Room. Keeping extensions separate is a technique to make a complex problem understandable. You do not want to be entangled by too many issues, so you keep them separate as extensions. Although it is natural to describe the base and extension separately, there is a problem when it comes to implementing the extension, as exemplified in Figure. Figure shows the Reserve Room component, which serves as the base. To incorporate the Waiting List extension, a corresponding component is added shown in a darker shade. But in addition, you need to add some code fragments in the Reserve Room component at a particular location, which we call an extension point. The purpose of this code fragment is to connect or invoke the Waiting List component. The problem is this: It is there for the purpose of hooking the new component onto the existing component. This code fragment is affectionately known as glue code. In aspect-speak, such a change is known as intrusive. No matter how good your design is, you still need glue code, and if you need to extend the system at another location, you must add the glue code there too. For example, if you need to support different payment methods for the Hotel Reservation System, you need additional glue code to open up an extension point in the system. Adding all this glue code and making all these changes to existing code definitely makes the original classes harder to comprehend. But a greater problem exists: Although this is a significant advantage, there is a limit to how far you can go. If a system is poorly designed, designating extension points is definitely not easy. In addition, after adding several enhancements, you have a better picture of the whole system and you might want to separate concerns differently. In this case, you might dispense some effort to refine the base.

The Difference Between Concerns and Requirements

You might be wondering what the difference between a concern and a requirement is. They are not the same. Developing a system involves specifying requirements, which are then refined into design and subsequently to implementation. So, requirements are only part of the software development life cycle. A concern represents something of importance to some stakeholder, and it encompasses everything: So, requirements are simply for specifying concerns. In general, for each concern, you will have many requirement statements to clarify what the concern is. For example, the Reserve Room functionality is a concern. There will be many requirement statements because the system deals with the Reservation of kinds of Rooms, different Reservation schemes, and so on. In addition to specifying the concern, you must design and implement it. When we talk about separating concerns, we mean separating at requirements time and keeping the separation during design and implementation.

Chapter 9 : Limitation of component system

The first component of the Ichimoku cloud is the Tenkan-Sen, which is represented by a red line on the chart. It is a moving average that is calculated by taking the average of the high and the low for the last nine periods.

What are the limits for a large MSI package? There are a couple of limits that you may hit when authoring a large, complex MSI package. Total number of files If your Windows Installer package contains more than files, you must change the schema of the database to increase the limit of the following columns: Note that transforms and patches cannot be created between two packages with different column types. Total number of components The maximum number of rows for the Component table is This limit was discovered by Danish Waheed and posted on the WiX users mailing list. There will be a ICE47 validation warning if your package is above this limit. Depth of Feature tree There is a maximum limit of 16 for the depth of the feature tree. If you exceed this limit you get a runtime error message " The Component table exceeds the acceptable tree depth of 16 levels. In a test with a feature tree 20 levels deep msiexec. This limit has been reported by Danish Waheed on the WiX users mailing list. Windows Installer packages are limited to a maximum of 80 Media table entries when installed using Windows Installer prior to version 2. The restriction of 80 Media table entries was removed with Windows Installer version 2. The following limits apply to this file format. These limits have been documented on the Windows Installer Team Blog. Because the size of a registry key is limited on Windows 9X, the following approximate limits apply: Registry values are limited to on Windows 98 and Windows Me, and limited to on Windows This effectively limits the number of components per feature to The limit varies depending upon any additional space needed to accommodate optional parent features, which should be placed in the same value. The total size of a registry key and all its values is limited to 64 KB on Windows 95 only. This can limit the maximum total number of features and components in a product. Windows Installer version 1. This can limit the maximum number of features on Windows 95, Windows 98, and Windows Me. This limitation no longer exists with Windows Installer version 2.