

1: Assistant Secretary of the Navy (Installations and Environment) - Wikipedia

This memo provides updated amplifying guidance regarding Department of the Navy (DON) implementation of authority delegated by the Department of Defense Chief Information Officer (DoD CIO) to the Military Departments for the approval of all data server and data center related obligations. This.

Page vii Preface As the Department of the Navy plans to meet the challenges of the 21st century, it must take into account budget trends since the end of the Cold War and the need for maintenance and modernization of the fleet. To adjust, significant restructuring of both fleet and shore activities has been undertaken and will continue. However, such restructuring must be done without adversely affecting the ability of naval forces to execute their missions. A serious challenge to the Department of the Navy is how to recapitalize and modernize for the future while maintaining fleet readiness within projected budgets. Reducing the costs associated with maintaining an extensive shore establishment has been viewed by the Department of Defense and the Department of the Navy as one means for achieving the necessary cost savings to finance the fleet of the future. Naval installations are major components of the shore establishment and are complex enterprises. Some are comparable to cities, with airports and harbors; others incorporate shipyards and aviation depots. Most have family housing, hospitals, and child care and commissary facilities. Typically, a base commander and his or her staff are responsible for managing more than different activities and often must provide such support to numerous tenant organizations. By contrast, large enterprises in the private sector rely on management techniques and business practices that are based largely on advances in information technology, systems and industrial engineering, operations research, organizational design, accounting, production scheduling and economics, management of human resources, Page viii Share Cite Suggested Citation: A Strategy for Managing the Infrastructure. The National Academies Press. Use of these techniques has dramatically reduced overall operating costs and enabled better use of resources in major functions. Their application to shore installation operations could provide the same benefit to the Department of the Navy. With this in mind, the Navy has in fact established the Smart Base project, a set of initiatives to apply state-of-the-market, commercially available technology, policy changes, and better business practices to shore installation operations in an effort to increase efficiency. This initiative along with others is providing a testbed for new ways of doing business. At the request of Admiral Jay L. Johnson, USN, Chief of Naval Operations CNO see Appendix A , the National Research Council NRC conducted a study designed to assist the Department of the Navy with its ongoing efforts to improve shore installation operations, readiness, and management through the focused application and integration of state-of-the-market technologies and business methods including outsourcing, privatization, and partnerships with state and local governments , with a goal of reduced cost of infrastructure. Navy efforts to reduce shore installation costs, exclusive of base realignment and closure BRAC. Furthermore, in its efforts to provide implementable recommendations, the committee identified and presents in the body of the report a number of specific actions that it believes are best assigned to particular individuals under the current Navy organization, e. In many cases, alternative approaches might be possible, particularly under a different organizational structure. The committee had no desire to comment on how the Navy is organized. Given the existing organizational structure, however, the committee felt compelled in many instances to provide at least one method by which specific problems could be solved and progress made in these complex areas. The body of the report presents and discusses additional, specific, detailed recom- Page ix Share Cite Suggested Citation: In making its recommendations, the committee was very conscious of the impact that potential changes in the infrastructure might have on the ability of the operating forces to carry out their missions. This would include the requirement for dealing with sudden emergencies that necessitate rapid response, such as Desert Storm. The committee first convened early in and met for approximately 8 months. During that time, it held the following meetings and visited the following bases: Managerial accounting and facility management in the commercial sector. Site visit to assess the regionalization efforts underway at Naval Base, San Diego. Briefings on management and change. Use of information technology in the U. Page x Share Cite Suggested Citation:

2: CORE IT Infrastructure

Historically, the Navy has taken significant risk in shore infrastructure investment by diverting funds in order to increase afloat readiness and strengthen future platforms and weapons systems capabilities.

This section needs additional citations for verification. Please help improve this article by adding citations to reliable sources. Unsourced material may be challenged and removed. November Origins[edit] The modern day U. Scouts and Raiders[edit] Recognizing the need for a beach reconnaissance force, a select group of Army and Navy personnel assembled at Amphibious Training Base Little Creek , Virginia on August 15, to begin Amphibious Scouts and Raiders joint training. The Scouts and Raiders mission was to identify and reconnoiter the objective beach, maintain a position on the designated beach prior to a landing, and guide the assault waves to the landing beach. Later operations were at Gasmata , Arawe , Cape Gloucester , and the east and south coasts of New Britain , all without any loss of personnel. Conflicts arose over operational matters, and all non-Navy personnel were reassigned. The unit, renamed 7th Amphibious Scouts , received a new mission, to go ashore with the assault boats, buoy channels, erect markers for the incoming craft, handle casualties, take offshore soundings, clear beach obstacles and maintain voice communications linking the troops ashore, incoming boats and nearby ships. The 7th Amphibious Scouts conducted operations in the Pacific for the duration of the conflict, participating in more than 40 landings. They formed the core of what was envisioned as a "guerrilla amphibious organization of Americans and Chinese operating from coastal waters, lakes and rivers employing small steamboats and sampans. They conducted a survey of the upper Yangtze River in the spring of and, disguised as coolies , conducted a detailed three-month survey of the Chinese coast from Shanghai to Kitchioh Wan, near Hong Kong. They were on Omaha beach with Ens. On November 10, , the first combat demolition unit successfully cut cable and net barriers across the Wadi Sebou River during Operation Torch in North Africa. Rangers who captured the Port Lyautey airdrome. In early May , a two-phase "Naval Demolition Project" was directed by the Chief of Naval Operations "to meet a present and urgent requirement". Those Seabees were immediately sent to participate in the invasion of Sicily. Training commenced with a gruelling week designed to filter out under-performing candidates. On 6 June , in the face of great adversity, the NCDUs at Omaha Beach managed to blow eight complete gaps and two partial gaps in the German defenses. They cleared yards metres of beach in two hours, another yards metres by the afternoon. Casualties at Utah Beach were significantly lighter with six killed and eleven wounded. During Operation Overlord, not a single demolitioner was lost to improper handling of explosives. NCDUs also operated in the Pacific theater. OSS specialized in special operations, dropping operatives behind enemy lines to engage in organized guerrilla warfare as well as to gather information on such things as enemy resources and troop movements. Lambertsen , [19] [20] the use of Swimmer Delivery Vehicles a type of submersible , and combat swimming and limpet mine attacks. They became part of UDT in July Marine Corps on Guam U. Navy On 23 November , the U. Marines suffered heavy losses at the Battle of Tarawa , as the second wave of landing crafts ran aground on coral reefs because of unexpectedly shallow tide. As a result, Admiral Kelly Turner ordered the formation of nine underwater demolition teams to do advance landing reconnaissance and demolition of beach obstructions. Seabees made up the vast majority of the men in teams and 13 and were referred to as Seabee Teams. However, at Kwajalein Fort Pierce protocol was changed. Luehrs and Seabee Chief Bill Acheson wore swim trunks under their fatigues anticipating they would not be able to get what the Admiral wanted by staying in the boat. They stripped down, spent 45 minutes in the water in broad daylight. When they got out were taken directly to Admiral Turners flagship to report, still in their trunks. Admiral Turner concluded that daylight reconnaissance by individual swimmers was the way to get accurate information on coral and underwater obstacles for upcoming landings. This is what he reported to Admiral Nimitz. Those seabees also created the image of UDTs as the "naked warriors". Eventually, 34 UDT teams were established. Their combat uniform of the day was: These "Naked Warriors" saw action across the Pacific in every major amphibious landing including: The rapid demobilization at the conclusion of the war reduced the number of active duty UDTs to two on each coast with a complement of seven officers and 45 enlisted

men each. Beginning with a detachment of 11 personnel from UDT 3, UDT participation expanded to three teams with a combined strength of men. Continuing to use water as cover and concealment as well as an insertion method, the Korean Era UDTs targeted bridges, tunnels, fishing nets and other maritime and coastal targets. They also developed a close working relationship with the Republic of Korea Underwater Demolitions Unit predecessor to the Navy Special Warfare Flotilla, which continues today. This was frowned upon by higher-ranking officials because they believed it was a non-traditional use of Naval forces. Due to the nature of the war the UDTs maintained a low operational profile. Some of the missions include transporting spies into North Korea and the destruction of North Korean fishing nets used to supply the North Korean Army. The UDTs specialized in a somewhat new mission: Night coastal demolition raids against railroad tunnels and bridges. UDT 1 and 3 provided personnel who went in ahead of the landing craft, scouting mud flats, marking low points in the channel, clearing fouled propellers, and searching for mines. Four UDT personnel acted as wave-guides for the Marine landing. In October, UDTs supported mine-clearing operations in Wonsan Harbor where frogmen would locate and mark mines for minesweepers. On 12 October, two U. UDTs rescued 25 sailors. The next day, William Giannotti conducted the first U. Vietnam War President John F. Kennedy, aware of the situation in Southeast Asia, recognized the need for unconventional warfare and special operations as a measure against guerrilla warfare. His announcement was actually only a formal acknowledgement of a process that had been under way since Korea. In March, Admiral Arleigh Burke, the Chief of Naval Operations, recommended the establishment of guerrilla and counter-guerrilla units. These units would be able to operate from sea, air or land. The first two teams were formed in January [30] and stationed on both US coasts: Formed entirely with personnel from UDTs, the SEALs mission was to conduct counter guerrilla warfare and clandestine operations in maritime and riverine environments. After SBI training class, they would enter a platoon and conduct platoon training. These consisted of deploying from submarines and carrying out beach reconnaissance in prelude to a proposed US amphibious invasion of the island. As the war continued, the SEALs found themselves positioned in the Rung Sat Special Zone where they were to disrupt the enemy supply and troop movements and in the Mekong Delta to fulfill riverine operations, fighting on the inland waterways. Combat with the Viet Cong was direct. Unlike the conventional warfare methods of firing artillery into a coordinate location, the SEALs operated close to their targets. In the late s, the SEALs were successful in a new style of warfare, effective in anti-guerrilla and guerrilla actions. SEALs brought a personal war to the enemy in a previously safe area. The Viet Cong referred to them as "the men with green faces," due to the camouflage face paint the SEALs wore during combat missions. South Vietnam fell to North Vietnamese communist forces in April. By the end of the war, 48 SEALs had been killed in Vietnam, but estimates of their kill count are as high as 2, Neither mission was well briefed or sufficiently supported with timely intelligence and the SEALs ran into trouble from the very beginning. The team inserted with full combat gear in bad weather with low visibility conditions and high winds. Four SEALs drowned and were never recovered. SEALs split into two teams and proceeded to their objectives. The SEALs were pinned down in the mansion overnight and were relieved and extracted by a group of Marines the following morning. The team sent to the radio station also ran into communication problems. As soon as the SEALs reached the radio facility they found themselves unable to raise their command post. After beating back several waves of Grenadian and Cuban troops supported by BTR armoured personnel carriers, the SEALs decided that their position at the radio tower was untenable. They destroyed the station and fought their way to the water where they hid from patrolling enemy forces. After the enemy had given up their search the SEALs, some wounded, swam into the open sea where they were extracted several hours later after being spotted by a reconnaissance aircraft. A secret plan was put in place and dubbed Operation Prime Chance. The only loss of life occurred during the take down of the Iran Ajr. They set up naval special operations groups in Kuwait, working with the Kuwaiti Navy in exile. Using these new diving, swimming, and combat skills, these commandos took part in combat operations such as the liberation of the capital city. Task Force White was tasked with three principal objectives: Coughlin, EN-3 Timothy K. Eppley, ET-1 Randy L. Several SEALs were concerned about the nature of the mission assigned to them being that airfield seizure was usually the domain of the Army Rangers. Persian Gulf War[edit] Main article: They infiltrated the capital city of Kuwait within hours of the

invasion and gathered intelligence and developed plans to rescue US embassy staff should they become hostages. On 23 February , a seven-man SEAL team launched a mission to trick the Iraqi military into thinking an amphibious assault on Kuwait by coalition forces was imminent by setting off explosives and placing marking buoys meters off the Kuwaiti coast. The mission was a success and Iraqi forces were diverted east away from the true coalition offensive. They suffered only one casualty, who was injured by an IED. Wasdin would be awarded a Purple Heart after continuing to fight despite being wounded three times during the battle. It was a so-called hunter-killer force whose primary objective was of capturing or killing senior leadership and HVT within both al-Qaeda and the Taliban. In January , following the Battle of Tora Bora , another series of caves was discovered in Zhawar Kili , just south of Tora Bora ; airstrikes hit the sites before SOF teams were inserted into the area.

3: IT Infrastructure

Tag Results. Tag Results for: IT Infrastructure. CHIPS Articles. SAN DIEGO (NNS) -- The Navy's Tactical Networks Program Office (PMW) developed an inventive.

Page 71 Share Cite Suggested Citation: The National Academies Press. Page 72 Share Cite Suggested Citation: That the two pictures differ in some significant aspects is a reflection of the oceanographic complexity of the problem. The large magnitudes of the regional shifts, much larger than the global mean, lead to the inference that shifts in the wind fields driving the ocean circulation are a major element and would have to be part of any predictive system. Sea-level variations caused by shifts in wind, rain, evaporation, and land-ice volume can cause far greater local changes in sea-level variations than the global mean rise that is projected from thermal expansion of the ocean and land-surface meltwater runoff. Based on recent peer-reviewed scientific literature, the Department of the Navy should expect roughly 0. Projections of local sea-level rise could be much larger and should be taken into account for naval planning purposes. Assessing Exposure to Sea-Level Rise Exposure to damage from future sea-level rise for naval installations will vary from locality to locality. No nation with coastal exposure will be spared the impacts of future sea-level rise; indeed, the viability of some island nations will be at risk if upper ranges of projected sea level materialize over the next few decades. In the aggregate, the effects of sea-level rise and more intense storms on infrastructure and facilities that constitute our built environment will be among the most unequivocal impacts of global climate change. Each coastal naval installation needs to be examined individually. Thus predictions of greater-than-average sea-level rise along the coast of the Carolinas, coupled with potentially strengthened tropical and subtropical disturbances, would render bases there much more vulnerable than in areas where mean sea level has been falling, such as Diego Garcia. But even the latter would be subject to shifts in tropical cyclone intensity and fluctuations. Generalizations are difficult to make beyond the need to regard each facility as requiring specific scrutiny and assessment of risk. Increased exposure for coastal regions due to both sea-level rise and inten-

Page 73 Share Cite Suggested Citation: Neither regional nor global sea level is of primary interest in determining naval coastal installation vulnerability. Rather, it is the increased vulnerability associated with extreme events storm surges and their dependence on changes in regional sea level, tidal amplitudes, and the nature of extraordinary meteorological forces that are of greatest importance. In performing vulnerability analysis, naval facility managers should recognize that each and every naval facility has a unique configuration and requires ongoing oversight of the changing risks as the climate system shifts. For example, local storm surge impact in climate-induced extreme storm events is likely to represent a bigger vulnerability risk than will sea-level rise alone. All were constructed before climate change was recognized as a factor in their design and construction. Marine Corps, and U. Coast Guard buildings, roads and highways, constructed facilities such as piers, docks, and runways, and their supporting utilities. See also Thomas R. Melillo, and Thomas C. For example, the U. Army Corps of Engineers USACE has issued guidance for the incorporation of the direct and indirect physical effects of projected future sea-level change in managing, planning, designing, constructing, and maintaining USACE projects and the system of projects. See Department of the Army, Circular No. The USGS methodology estimates the risk of weather-related coastal impacts using a set of factors such as the tidal range, wave height, coastal geomorphology, and the historical rate of relative sea-level rise. Risks are assigned as one of four CVI levels low, moderate, high, and very high based on histogram plots and visual inspection of the cumulative collected data. Atlantic Coast, CVI values from 8. High-risk values lie between

Page 74 Share Cite Suggested Citation: The committee suggests that additional risk factors beyond current indicators of sea-level rise, tidal range, and coastal geomorphology be included in future analyses, including factors such as regional extreme weather history and potential impacts on critical infrastructure—such as communications, transportation, and utilities. In addition, groundwater drawdown and replenishment, saltwater intrusion, and recharge of the aquifer to prevent subsidence are critical factors to take into account in coastal vulnerability analyses. The committee believes that these analyses must explicitly address the potential impact that the combined issues of sea-level rise and more

intense storm surges could have on critical military missions. Some specific impacts that can be anticipated include effects on piers, utilities, and freshwater. Piers will be affected by the sea level relative to the height of the pier as the force exerted by the ship and waves on the pier may grow to be outside the original structural design criteria. Utilities such as electrical substations, sewage treatment facilities, and communications nodes, as well as other important and critical infrastructures on the base, may be destroyed or seriously degraded by flooding caused by sea-level rise. Fifty-six of these installations or 43 percent of the total were Navy installations. This number represents more than 50 percent of the Navy installations that reported. Navy installations that are at risk due to this one facet of climate change. The committee reviewed a preliminary report of the coastal infrastructure vulnerability assessment that fed into the QDR. Page 75 Share Cite Suggested Citation: Utilities can be hardened against this type of condition, but at a cost. Saltwater intrusion into aquifers caused by rising sea level where bases draw their freshwater will impact the availability and cost of freshwater. In addition to facilities management challenges, there are other considerations related to climate change impacts on Navy and Marine Corps installations. The impact will be felt mostly in the area of logistics. Although bases have contingency plans for many kinds of events, the plan for evacuation due to flooding may require revision as well as more frequent assessment than is required now. Communities surrounding naval installations may also be stressed and require contingency plans, including the need to address potential impacts to coastal wetlands and ecosystems and on local public health. Marine Corps began conducting an analysis of 23 For example, rapid sea-level rise and intense storm surges can cause segmentation of barrier islands and disintegration of wetlands, each having societal consequences. A comprehensive review of how sea-level rise can affect coastal environments is provided in the U. As noted in a National Research Council report on public health impact of disasters, the aftermath of Hurricane Katrina consisted of short-, medium-, and long-term responses specific to saving lives, controlling health hazards, and reconstruction efforts, respectively, across federal, state, and local agencies. In terms of reducing vulnerability for drinking water, vector diseases in flooded areas, and indoor air quality, and so on, it was noted that a risk assessment needs to be performed specific to the region that considers enhanced monitoring, precautions to reduce risk, and effective communication strategies. Page 76 Share Cite Suggested Citation: This effort should also be coordinated with vulnerability assessments for other military installation across the DOD. The Office of the Chief of Naval Operations, N46 Shore Readiness , informed the committee that the Navy is reviewing the Military Construction Program to evaluate the impact of climate change on the facilities in the program. Life-cycle costing and impacts of climate change, energy reduction, and reduction of greenhouse gases can all be considered in investment decisions by the services. This approach is also recommended for non-DOD naval forces in their capital investment decisions. Considering the current measurements for sea-level rise, it is not anticipated that the Navy will need to make a major resource investment in the near term, with the exception of those naval installations currently identified as being at very high risk. However, on the longer time horizon the next 10 to 20 years , investments will have to be made for adaptation and mitigation of climate impacts at many naval coastal installations, and those investments may have implications for decisions being made today. This would include new enduring bases in places like the Arctic, the increased ability to logistically support sea basing of efforts much like the recent efforts in Haiti during earthquake recovery, and, finally, new requirements for contingency bases in response to world situations that may take the Navy to new places like Iraq and Afghanistan. Even though all these types of basing are within the current capability of the U. Navy, the impact of climate change should be routinely evaluated for all future naval base decisions. A National Research Council report explores engineering considerations for dealing with sea-level rise and recommends a multiple-scenario 27 Elmer W. Marine Corps, and Capt Anthony V. Descriptive information on these projects SI , , and is available at <http://> Accessed April 17, The POM submission is a 5-year outlook on budget requirements. Page 77 Share Cite Suggested Citation: While this report is dated from the observed sea-level rise data that it presents, its recommended approaches to deal with sea-level changes remain valid and should be considered by naval facilities management. Navy, Coast Guard, and Marine Corps coastal installations around the globe will become increasingly susceptible to projected climate change. Several assessments now under way on naval installation vulnerabilities appear to be focused primarily on static sea-level rise and

coastal inundation only. According to these current assessments, some adaptive actions are indicated owing to already identified vulnerabilities at specific naval installations. The preliminary review of climate-change-related base vulnerabilities across the DODâ€”currently under way as directed by the Quadrennial Defense Review 31 â€”does not include some important factors that affect coastal installation vulnerabilities, although it provides a baseline assessment across all branches of the armed services and serves as a starting point for more in-depth analysis and action. Coast Guard and Marine Corps counterpartsâ€”and in conjunction with the other armed services and the Office of the Secretary of Defenseâ€”to ensure that a coordinated analysis is undertaken to address naval-installation vulnerability to rising sea levels, higher storm surges, and other consequences of climate change. In performing this vulnerability analysis, naval facility managers should recognize that each and every naval facility has a unique configuration and requires ongoing oversight of the changing risks as the climate system shifts. For example, local storm surge impact in climate-induced extreme storm events is likely to represent a bigger vulnerability than sea-level rise alone. Other risks for naval installations as a result of projected climate change require further analysis and planning at this time, but no immediate direct additional substantial investment beyond current budget plans. Responding to Changes in Sea Level: Recent observations of sea-level rise have exceeded projections made only a decade earlier, and the increasing realization of the potential of changes in ice dynamics leads to the further realization that there perhaps continues to be underestimation of the sea-level rise that would be associated with likely future climate change. The risk of harm to military and civilian coastal facilities from sea-level rise is not linear with the rate of rise. There will be thresholds at which existing natural and built coastal barriers are exceeded. An important dimension of this risk is that of storm surge, especially if warmer future conditions give rise to an increased intensity of storms. For risk management purposes, U. The Navy and other branches of U. Page 63 Share Cite Suggested Citation:

4: U.S. Department of Navy Ford Island Master Development

According to Navy officials, these regional commands will support Navy efforts to eliminate redundant management structures, reduce infrastructure costs, and foster regional service delivery of installation.

5: Caterpillar Shoes: Men's Steel Toe Infrastructure Athletic Shoes

Official website of the Naval Sea Systems Command (NAVSEA), the largest of the U.S. Navy's five system commands. With a force of 74, civilian, military and contract support personnel, NAVSEA engineers, builds, buys and maintains the Navy's ships and submarines and their combat systems.

6: United States Navy SEALs - Wikipedia

Naval Infrastructure Economic Policy Card in Civilization VI Enabled with Naval Tradition Obsolete with Suffrage Effect +% Harbor district adjacency bonus. Back to the list of Policy Cards Strategy Another Economic Policy which depends on Adjacency bonuses, Naval Infrastructure is not that.

7: Navy Infrastructure Analysts Improve Readiness, Response to Hurricanes

For the U.S. Navy's plan to centralize its Pearl Harbor Naval Base operations, Fluor provided infrastructure improvements at Ford Island in historic Pearl Harbor, Hawaii. These upgrades preserve the island's unique legacy, while also modernizing base facilities to improve efficiency. Client's.

8: Naval Infrastructure (Civ6) | Civilization Wiki | FANDOM powered by Wikia

"Axium is pleased to announce the acquisition of the Brooklyn Navy Yard cogeneration facility. BNY is an essential

infrastructure asset that supplies competitive electricity and steam to the.

9: Navy Embarks on a Warehousing and Storage GSIP

DAHLGREN, Va. (NNS) -- Navy analysts and engineers set a record by providing infrastructure analysis support to assist U.S. Northern Command (NORTHCOM) operations in response to two hurricanes and.

Acknowledge, Beware and Recognize Police telephone for use of public sign Helping one-parent families to work The Dynamic Bacterial Genome (Advances in Molecular and Cellular Microbiology) 12 science physics book sem 4 Romes first civil war Laboratory manual for food canners and processors Probable plan of the tabernacle Hotel gems of France Panic or aggression, triggered by stimuli that evoke a memory and or sudden revival of trauma or of the MALDI-TOF Mass Spectrometry for Trisomy Detection D.J. Huang, M.R. Nelson and W. Holzgreve Build your own af valve amplifiers ebook Government by the People, Texas Brief Edition (7th Edition (Government by the People) The fund raising resource manual A diary without dates Custom cards against humanity Fluid mechanics 7th edition filetype Human rights situational analysis report A simple crystal receiver 88 Dealing with bias in treatment effects estimated from non-experimental data Breaking at Midpoint Cowboys have always been my heroes Washington Irving Chambers papers Learning to make music : the first night and beyond Motorola mh230r manual espaÃ±ol Instructions for board game. Gurps powers First Place Food Exchange Pocket Guide Tumors and tumor-like lesions of the lung V. 4. Karen Finley et. al. v. NEA and John Frohn Mayer-Politics and the media A proposition or message sent the 31 of Decemb. 1641 to His Majestie, by the House of Commons for a guard Art of Courtly Love (Duckworth classical, medieval, and renaissance editions) The Millionaire Bosss Baby Biological Properties of Peptidoglycan Amish and Mennonite cooking Php oreilly Network security essentials 6th edition william stallings Collection of treaties, engagements, and sanads relating to India and neighbouring countries. Language and history in early England MOSFET Modeling and BSIM3 Users Guide