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Challenges & Catalysts Affecting EHR Adoption

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Introduction

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Introduction



Founded	1988
Key Competency	Healthcare IT Solutions & Services
Highlights: Health Information Systems (HIS)/Clinical Information Systems (CIS)	<ul style="list-style-type: none"> • Air Force Medical Service PM support HAF/AFMSA/AFMOA • AHLTA (MHS EHR) Development & Modernization • AHLTA Theater Development & Support • AHLTA Clinical Adoption for Navy and Air Force • Blood Donor System Integration & Development • Coding Compliance Editor • Third Party Outpatient Collection System • Defense Medical Human Resources System – Internet • Military Health System (MHS) Distance Learning Solution • MHS Information Assurance (IA) Lab • MHS Enterprise Identity Mgmt & Single Sign On Solution • MHS East Coast Development & Test Center • VA HIS/CIS IV&V Testing Service • VA MyRecoveryPlan Consulting Services • VA Improve Veterans Mental Health Development • HHS Health Resources and Services Administration Portal
Size	\$120M Year Revenue
Locations	Corporate Headquarters: Columbia, Maryland Corporate Offices: Arlington, Virginia San Antonio, Texas Solair Petersburg, Florida

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SEI - CMMI Maturity Level 3





Acme Process Group completed a CMMI® based appraisal on November 20, 2009 in accordance with the Software Engineering Institute's SCAMP™, V1.2: Medical Definition Document and determined that

Planned Systems International

Achieved Capability Level 3 as defined by the SEI CMMI® for Development, Version 1.2 Continuous Representation. This capability profile satisfied the rules of equivalent staging for

CMMI Maturity Level 3





Lead Appraiser
SEI Certified Lead Appraiser

PSI is an SEI-appraised CMMI Maturity Level 3 company

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Why Adopt EHR?



- Electronic Means To Capture Each Encounter/Notes Between Physician & Patient
- Records Diagnoses, Prescription Orders, Lab Orders, Chronic Diseases, Assessments, and Relevant Notes
- Interoperability – Encounter Information Capable Of Being Shared Across All Healthcare Environments Across The Globe
- A Whole Range Of Data In Comprehensive Or Summary Form To Include: Patient Demographics, Medical History, Medication & Allergies, Immunization Status, Laboratory Test Results, Radiology Images, & Billing Information
- Allows The Automation & Streamlining Of The Clinical Workflow Across Hospitals & Physician Offices

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Meaningful Use of EHR

Meaningful Use of EHR

- Electronic Health Record (EHR)
 - Meaningful Use – Core Set
 - Meaningful Use – Menu Set
- Global EHR Adoption Challenges & Catalysts (Discussion Examples)
 - United States
 - Europe
 - China

Meaningful Use – Core Set

- Use Computerized Physician Order Entry (CPOE)
- E-Prescribing
- Drug Decision Support - Drug-to-Drug & Drug Allergy Interaction Checks
- Electronic Receipt of Labs
- General Reporting
- Record Demographics
- Maintain An Up-to-date Problem List
- Maintain An Active Medication List
- Record & Chart Changes In Vital Signs
- Record Smoking Status
- Implement One Clinical Decision Support Rule

Meaningful Use – Core Set



- Report CQM/PQRI As Specified By The Secretary
- Electronically Exchange Key Clinical Information
- Provide Patients With An Electronic Copy Of Their Health Information
- Provide Patients With An Electronic Copy Of Their Discharge Instructions (Eligible Hospital/CAH Only)
- Provide Clinical Summaries To Patients For Each Office Visit
- Protect Electronic Health Information Created Or Maintained By Certified EHR

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Meaningful Use – Menu Set



- Implement Drug-Formulary Checks
- Incorporate Clinical Lab Test Results Into Certified EHR Technology As Structured Data
- Generate Lists Of Patients By Specific Conditions To Use For Quality Improvement, Reduction Of Disparities, Research Or Outreach
- Capability To Submit Data To Immunization Registries Or Immunization Information Systems
- Capability To Submit Syndromic Surveillance Data To Public Health Agencies

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Meaningful Use – Menu Set



- Provide Patients With Timely Electronic Access To Their Health Information (Including Lab Results, Problem Lists, Medication Lists, Medication Allergies) Within Four Business Days
- Use Certified EHR To Identify Patient-specific Education Resources & Provide Those Resources To The Patient
- Capability To Submit Data On Reportable (As Required By State Or Local Law) Lab Results To Public Health Agencies

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Meaningful Use – Menu Set



- Send Reminders To Patients Per Patient's Preference For Preventive Or Follow-up Care
- Record Advance Directives For Patients 65 Or Older
- The EP, Eligible Hospital Or CAH Who Receives A Patient From Another Healthcare Setting Should Perform Medication Reconciliation
- The EP, Eligible Hospital Or CAH Who Transitions Or Refers Their Patient To Another Healthcare Setting Should Provide Summary Of Care Record

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Global EHR Adoption Challenges



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Data Collection Challenges

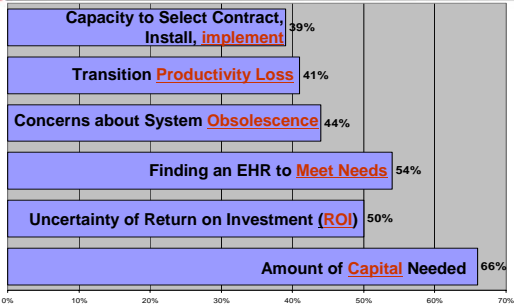


Exponential Amounts of Data



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Challenging Barriers Of EHR Adoption



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China EHR Adoption Challenges



- Skilled Medical Labor Shortages
- Low Pay For Skilled Medical Personnel
- Must Serve An Average Of 200 Patients Per Physician Per Day
- Inefficient Regulations For Drugs
- Low Medical Benefits Payments & Coverages
- Low Consumer Confidence With 2nd Tier Hospitals
- Demand For Large Amount of Rural Hospital & Clinics
- Increasing Burden Of Chronic Diseases

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Global EHR Adoption Catalysts



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US EHR Adoption Catalysts



- Patient Protection & Affordable Care Act (March 23, 2010)
- Health Care & Education Reconciliation Act of 2010 (March 30, 2010)
- Consumerism & Empowerment
- Provide Incentive Payments For The “Meaningful Use” of certified EHR
- Regulations Supporting the Improvement of The Quality, Safety & Efficiency Of Patient Care
- Increasing Citizen Expectations
- Increased Worldwide Competition
- Increasing Cost of Chronic Diseases
- Aging Population

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US EHR Adoption Catalysts



American Recovery and Reinvestment Act (ARRA) & the HITECH Act (Feb 2009)

TITLE XIII—HEALTH INFORMATION TECHNOLOGY

SEC. 1301. SHORT TITLE; TABLE OF CONTENTS OF TITLE XIII.—(a) SHORT TITLE.—This title and title IV of division B may be cited as the “Health Information Technology for Economic and Clinical Health Act” or the “HITECH Act.”

TITLE IV—MEDICARE AND MEDICAID HEALTH INFORMATION TECHNOLOGY; MISCELLANEOUS MEDICARE PROVISIONS



OFFICE OF THE SECRETARY
OFFICE OF THE NATIONAL COORDINATOR FOR HEALTH INFORMATION TECHNOLOGY
(INCLUDING TRANSFER OF FUNDS)
For an additional amount for “Office of the National Coordinator for Health Information Technology,” \$2,000,000,000, to carry out title XIII of this Act, to remain available until expended: Pro-

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European EHR Adoption Catalysts



- European Nations Spend About US\$4,000 Per Person Less Than USA On Healthcare Annually, & Often With Better Outcomes
- In Denmark, EHRs save money and improve outcomes
 - Centralized Computer Database Where 98% Of Primary Care Physicians, All Hospital Physicians & All Pharmacists Have Timely Access
 - Basic Records Since 1977, Detailed History Available For All “Patient Contact” Since 2000
 - With Computerized Record-keeping Danish Physicians Save An Average Of 50 Minutes A Day Of Administrative Work
- In Germany, Easing The Chronic Disease Burden, Strengthening Peer review
 - Implemented “Disease-management Programs” Since 2002 Covering Over 3 Million Chronic Patients
 - Coronary Heart Disease & Diabetes Patients Enrolled For 15 Months - Patients Requiring Hospitalization Dropped From 4.3% to 2.9% - 25% Of The Patients Stopped Smoking
 - Has Largest Database On Hospital Performance In The world & Allow Physicians To Compare Their Performance Against Their Colleagues

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Technology Catalysts



- Integration of Stove Pipe Systems
- Nationwide Health Information Network (NHIN)
- Service Oriented Architecture (SOA)
- Web Services
- Wireless Networks – 4G Offerings
- Cloud Computing
- Software as a Service (SaaS)
- SuperGrid Computer Analytics

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NHIN Core Capabilities



- Ability To Find And Retrieve Healthcare Information Within And Between Health Information Exchanges And Other Organizations
- Ability To Deliver A Summarized Patient Record To Support Patient Care And To Support The Patient's Health
- Ability To Support Consumer Preferences Regarding The Exchange Of His Or Her Information, Including The Ability To Choose Not To Participate In The NHIN
- Support Secure Information Exchange
- Support Of A Common Trust Agreement That Establishes The Obligations And Assurances To Which All NHIN Participants Agree
- Ability To Match Patients To Their Data Without A National Patient Identifier
- Support Of Harmonized Standards, Which Have Been Developed By Voluntary Consensus Standards Bodies For Exchange Of Health Information Among All Such Entities And Networks

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SOA & Web Services



- Service-Oriented Architecture
 - A Flexible Set Of Design Principles Used During The Phases Of Systems Development And Integration
 - Loosely-integrated Suite Of Services That Can Be Used Within Multiple Business Domains
 - Separates Functions Into Distinct Units, Or Services, Which Developers Make Accessible Over A Network In Order To Allow Users To Combine And Reuse Them In The Production Of Applications
- Web Services
 - Make Functional Building-blocks Accessible Over Standard Internet Protocols Independent Of Platforms And Programming Languages
 - Represent Either New Applications Or Just Wrappers Around Existing Legacy Systems To Make Them Network-enabled

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Wireless Network – 4G Offerings



- 128 Mbit/S Downlink And 56 Mbit/S Uplink Over 20 Mhz Wide Channels Of Data Transmission
- Access To Internet Anywhere On The Globe
- Improves Patient Care In Rural Areas Throughout The Globe
- Tele-health Expanding Physician Capabilities & Reducing Physician Shortfall
- Better Health Delivery Models Even Within Existing Healthcare Settings
- Enables Fast, Reliable And Timely Access Of Patient Health Information Across The Globe Breaking All Geographic Boundaries
- Extremely Cost-effective For Smaller Hospitals And Physician Practices
- Saves Financial Resources From Pouring Into Building New Wired Networks, Pulling Of Fiber To Rural Area
- Green Technology

Cloud Computing



- Virtual Servers Available Over The Internet
- Improves Patient Care Information Sharing
- Early Detection Of Disease Outbreak For The Overall Populations
- New Health Documentation Model That Will Make Delivery Of Care More Efficient And Effective
- Enables Fast, Reliable And Timely Access Of Patient Health Information Across The Globe Eliminating Geographic Boundaries
- Saves Financial Resources From Pouring Into Investing In Computing Hardware/Software, Network Administration And IT Support Staff
- Only Pay For The Software And Systems Resources Based On What Physicians Actually Consume
- Energy Saving Green IT Solutions

Software as a Service (SaaS)



- Delivers Certified EHR Software As A Service Over The Internet
- Eliminates The Need To Install And Run The Application On The Customer's Own Computer
- Delivers Savings On IT Support Services Costs
- Key Characteristics Include:
 - Anywhere Anytime Access To The Latest Versions Of Certified EHR Enhance Physicians' Quality Of Life
 - All Data Collected, Software, And Hardware Assets Are Professionally Managed From Secure & Redundant Central Locations Rather Than Dispersed At Each Customer's Own Site - Ensuring Health Information Security
 - Typically A Single Instance, Multi-tenant Architecture, Which Obviates The Need For Downloadable Patches And Upgrades To Customer's Sites

SuperGrid Computer Analytics



- Integrate "High Productivity Super Computer" Technology With "Trusted Grid Computing" Technology
- Leverage Super Computers To "Crunch" Large Amount Of Clinical Data & Measure Healthcare Quality Outcomes
- Provide Timely Health Threats To The Centers for Disease Control (CDC) Preventing Disease Outbreaks
- Provide Ability To Assess & Predict Medical Costs, High-volume Diagnosis, Chronic Problems, Fraud, Waste & Abuse Of Services Or Claims
- Ability To Determine How Effective Prescribed Drugs Are In Treating Patients' Illness, Determine New Drug Interaction Situations, & Discover Opportunities To Improve The Efficacy Of The Drugs
- Ability To Mine Data For Information That Supports Or Disproves Cure Theories & Make Healthcare Delivery Improvement Suggestions


Case Study

Technologies Used In Latest EHR Solutions



- Cloud Computing and Software as a Service (SaaS)
- SOA And Web 2.0
- Open Source When It Makes Sense
- Schemaless And Relational Database
- Easy To Plug In New Modules Or Smart Parts (Concept) Reusable Code
- Ability To Price By Transactions
- ASP Model Using Farm Of Blades Servers
- Easy To Integrate With Other Platforms, Applications And Legacy Systems
- Unicode For Multinational Capability
- HIPAA Compliant
- CCR (Continuity Of Care Record) And CCD (Continuity Of Care Document) Compliant
- CCHIT & ARRA Meaningful Use Certification

Complete EHR Solutions




- Physician Portal/CHART
- PHR (Personal Health Record) and Patient Portal
- Practice Management Solution
- Certified Clearinghouse

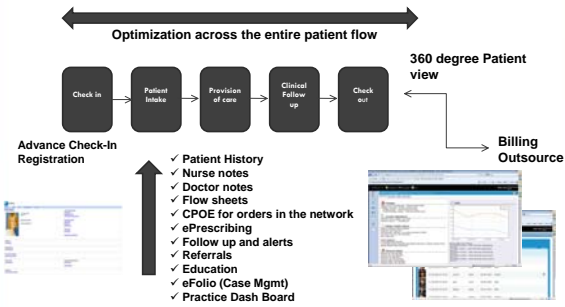
Total Integration

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Optimize Physician Work Flow & Increase Information Access & Quality of Healthcare



Optimization across the entire patient flow



360 degree Patient view


- ✓ Patient History
- ✓ Nurse notes
- ✓ Doctor notes
- ✓ Flow sheets
- ✓ CPOE for orders in the network
- ✓ ePrescribing
- ✓ Follow up and alerts
- ✓ Referrals
- ✓ Education
- ✓ eFolio (Case Mgmt)
- ✓ Practice Dash Board

Billing Outsource

Advance Check-In Registration

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Providing A Platform That Allows Many Technologies To Converge Around Patient Care




CONSUMER TECH INFRASTRUCTURE

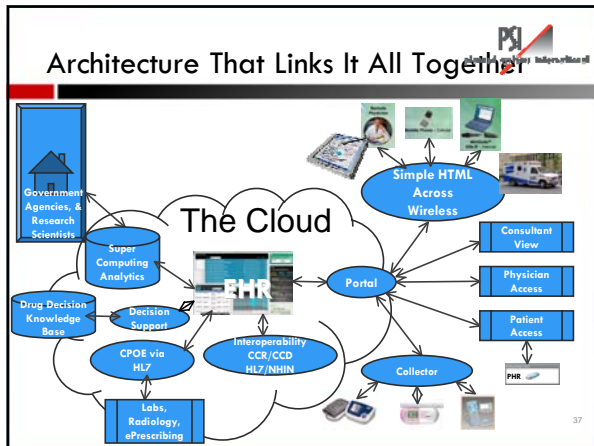
- Internet
- Smart Houses
- Personal Communications Devices – PDAs, Cell Phones, etc.
- Broadband – Cable, DSL, Satellite
- Digital Cameras, Video
- Wireless – 4G, 802.11, Bluetooth, RFID, etc.
- Voice Recognition
- Digital Devices

eHEALTH APPLICATIONS

- Electronic Health Records (EHRs)
- Personal Health Records (PHRs)
- Remote Patient Monitoring
- Fitness/Wellness/Prevention
- Self Care Support
- Physician/Patient Secure Messaging
- Home Telehealth/Telecare
- Decision Support Systems
- E-disease Management
- E-clinical Trials
- Predictive Modeling
- Computerized Physician Order Entry (CPOE)
- Quality Evaluation Web Sites
- Patient Reminder Systems



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Values & Benefits

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- ### Values & Benefits
- Improve Information Sharing Agility and Scalability
 - Reduce Healthcare Costs
 - Computing Device & Location Independence
 - Reliable & Secure
 - Reduce Overall IT Investment Costs
 - Shared IT Infrastructure, Storage Management
 - Timely Supports Public Health
 - Performs Medical Risk Assessment
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Values & Benefits



- Improves Patient Safety
- Remote Patient Monitoring
- Chronic Disease Prevention
- Physician/Patient Secure Messaging Promoting Effective Health Concerns & Communications
- Tele-Health Expanding Physician Capabilities & reducing Skilled Labor Shortfall
- Patient Reminder Systems
- Reliable Measure Of Quality Care/Outcome

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Values & Benefits



- Seamless Practice Management – Covering Scheduling, Insurance Verification & Validation, Co-pay Collection, Charting, e-Billing, & Receivables Tracking
- Patient Is Empowered With Control Of Their Own Health Information
- Interfaces with All Existing Hospital Systems
- Safe & Secure Protection Of All Clinical Data
- Data Mining Support Healthcare Continuous Improvements

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Conclusion

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Conclusion



We Need To Leverage Technology Catalysts In Wireless Networks, Cloud Computing, SuperGrid Analytics, and SaaS Model To Reduce Challenges & Foster EHR Adoption By Providing:

- The Physicians With Low Cost, Easy To Use, Tailor-able Standards-Based EHR For Documenting Encounters, See More Patients & Get Paid Sooner, While Helping Them Earn ARRA Adoption Incentives
- The Patients' Abilities to Access/Update/Distribute Their Health Information Anytime Anywhere Based On Their Needs
- The Researchers' Ability To Mine Relevant Clinical Data Contributing To Public Health & In Continuous Improvement of Healthcare Delivery

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Q & A
