

Measuring Benefits Realisation Should be Integral to Any Healthcare System

Zafar Chaudry, M.D., Monique Koehler, John Roberts

This paper reviews benefits realisation in healthcare projects from an international perspective and makes recommendations on how healthcare delivery organisations should tackle benefits realisation.

Key Findings

- **Benefits are net positive changes in outcomes.** Any programme aims to deliver a number of outcomes (desired changes in state; being either intermediary or strategic outcomes), a number of which are identified as being the “benefits” to the organisation.
- **IT is an enabler for business benefits.** ICT provides technology capabilities, but is insufficient by itself to deliver business benefits. Technology enables changes to the way people work, with new processes and new ways, and this needs to be managed as a programme of business change.
- **Benefits are not automatic.** Benefits realisation is beyond project management, and requires active monitoring of the delivery of projects, the effectiveness of change and the achievement of outcomes.
- **Change management must be integrated.** Benefits cannot be delivered without business change. So there must be a strong linkage between change management and benefits realisation.
- **Benefits are long term.** Benefits will flow over a period of time as people learn to use the new technology and systems and integrate it into business processes. Benefits realisation is a long-term process extending beyond the life of component projects.
- **Benefits will change.** Benefits rarely occur as planned and the organisation has to establish a process for actively monitoring the benefits and actively managing the realisation of benefits, continuous process over the life of a programme.
- **Benefits realisation requires governance.** The benefits realisation process will inform the programme business case and programme plan, and this needs to be synchronised. Benefits processes must be linked with programme governance.
- **Executive leadership and support.** Healthcare projects, which are typically invasive and disruptive, require sustained commitment from top leadership supported by a governance process that can quickly resolve issues.

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- **Medical and hospital staff engagement.** Beyond the executive team, broad-based support from physicians, nurses, technicians and unit assistants is necessary. Input regarding every aspect of clinical care is vitally important.
- **Change management.** A systematic, comprehensive change management process is crucial to facilitate the transition and minimises chaos. IT prepares the system for the organisation. The change management process prepares the organisation for the new system.
- **Education and training.** Robust medical and hospital staff training is critical for success. Training optimises the potential for efficiency and safer patient care delivery. The quality and effectiveness of training directly correlates to the speed of system stabilisation and user confidence.
- The costs of undertaking projects are real and immediate, while the benefits frequently only occur after the programme is completed and implemented.
- The people responsible for actually delivering the benefits are often different from those responsible for directing and managing the projects themselves.
- Based on literature and case studies data, successful major healthcare projects focus on financial return on investment (ROI), patient safety and quality as their benefits metrics.
- Projects create deliverables but rarely deliver benefits directly; but by combining projects and their deliverables, capabilities are created that will enable the desired benefits to be achieved.
- Defining a benefits management process ensures that the capabilities created by programmes are used to deliver the anticipated business benefits.
- The greatest challenge in benefits realisation is undertaking a current state assessment and determining which metrics will be changed as a result of project implementation.
- Traditionally, focus has been on *cost*, *quality* and *time* of delivery, and has not been directly related to the *benefits* desired at a projects' onset, or those delivered (or *realised*).
- Healthcare projects are complex, developed over long timescales with a large number of stakeholders. This complexity often leads to the project not delivering what it planned to do from the early phases due to either a lack of or poor benefits management.
- Benefits management is a process for the optimisation or maximisation of benefits from change programmes. The process involves defining, agreeing, measuring and reporting on the expected benefits. The relationship between projects and benefit management is frequently quite complex.
- Only when the expected benefits are fully defined, understood and agreed at the start of the programme can the stakeholders and policy makers be confident that the investment is likely to be fully successful.
- Benefits realisation programmes are more structured, mature and sustained in US healthcare delivery organisations (HDOs) versus UK and European HDOs. Though no typical standardised benefits realisation framework was seen in the case studies data.

- UK and European HDOs do conduct the initial benefits realisation, and tend to develop bespoke frameworks to measure benefits, but struggle to sustain their benefits realisation initiatives.
- While many HDOs still leave benefits realisation to chance, almost all used at least one explicit method to realise a return on their major healthcare project investments (e.g., EMR); the most frequently cited method appears to be hospital executive consensus on expected outcomes.
- Comparison of reported benefit realisation rates and the number of explicit benefit realisation strategies used by HDOs revealed, for clinical benefits, that HDOs which used more of these strategies did not report significantly higher numbers of benefits than those that used fewer of the strategies.

Recommendations

- **Successful benefits realisation involves: undertaking a current state assessment and determining which metrics will be changed as a result of the project; developing a framework to define, agree, measure and report on the expected benefits; stakeholder involvement, executive leadership and sponsorship; change management, continual training and good communication for the duration.**
- Based on literature and case studies data, benefits should be organised into three main categories: *strategic benefits*, *sub benefits (or high level benefits)* and *end benefits*.
- A benefits realisation process should embrace elements from other disciplines such as benchmarking, performance measurement, and operations management.
- Develop a process for benefits realisation that conceives benefits as real; gets more detail on the benefit so it is fully understood; maps the benefit's dependencies, taking changes required and earlier benefits into consideration so it becomes more realistic; and the benefit is transformed into money (not in all cases e.g. public sector). Define, agree, measure and report on the expected benefits.
- Develop a benefits realisation framework that is appropriate for those who operate it and those that use the information produced; is balanced in its assessment of all relevant aspects, including those that are hard to quantify; is robust enough to withstand change; integrated into business planning; cost effective by producing performance information that realises benefits in proportion to the investment required to collect it; and simple to implement.
- Based on literature and case studies data, the benefits realisation framework model to develop should be based on four main non-sequential phases as summarised below:
 - **Phase 1 – Benefits management strategy and benefits realisation case.** This first phase is concerned with identifying desired *strategic benefits* and *sub benefits*, developing a benefits management strategy in order to share and communicate these to a wider number of stakeholders.
 - **Phase 2 – Benefits profile and benefits mapping.** Group meetings and benefits mapping workshops with the appropriate group of stakeholders are critical for the success of this phase. Identification of *end benefits*, benefits mapping and profiling form the basis of an on-going benefits realisation plan.

- **Phase 3 – Benefits realisation plan.** Focus is on the execution of a benefits realisation plan as developed and formulated in the previous phases, consisting of measuring and tracking the benefits previously identified (and, potentially, incorporating emerging benefits), through data collection and measurement.
- **Phase 4 – Benefits evaluation and review.** This phase encloses evaluation/measurement of *benefits* as these have been characterised and/or emerged through the previous phases.
- Develop a benefits realisation plan that is used to define the benefits of the overall programme of work, and responsibilities for their realisation, measurement and reporting.
- Develop a technology and process improvement model that demands executive leadership and sponsorship; involves key stakeholders, captures people's hearts and minds to avoid alienation, depersonalisation, and staff turnover.

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Strategic Planning Assumption(s)

Before looking at the term benefits realisation, it is necessary to understand the two words that make the term, benefit and realisation. *Benefit* is a term that has many different definitions; it is typically defined as an outcome whose nature and value are considered advantageous by an organisation, which is owned by individuals or groups who want to obtain value. A benefit can also be described as an outcome of change which is perceived as positive by a stakeholder. *Realisation* is described as being aware of something that is achieved whilst benefit is described as an advantage or profit gained from something. Therefore *Benefits Realisation* is defined as becoming fully aware of the positive impact as a result of a change. Benefits realisation can be used to enable projects to deliver what they set out to do, through a process that involves eliciting, monitoring, managing, measuring, and realising benefits throughout the project lifecycle. These benefits or outcomes usually are identified at the start of a project and are usually found in the business case for the initiative.

Projects are generally driven by a need to realise specific benefits through structured change. Benefits management and realisation seeks to move forward from the traditional investment appraisal approach and focus on the active planning of how benefits will be realised and measured. A common characteristic of many unsuccessful programmes is the vagueness with which the expected benefits are defined. Without clearly defined benefits, it is difficult to maintain focus when subsequent problems occur. The costs of undertaking programmes are real and immediate, while the benefits frequently only occur after the programme is completed and implemented. Furthermore the people responsible for actually delivering the benefits are often

different from those responsible for directing and managing the programme itself. This is even more evident in the case of healthcare capital investment programmes due to the huge diversity of the stakeholders involved, the different levels of activity and decision making that such programmes go through prior to their completion. As a result it is only when the expected benefits are fully defined, understood and agreed at the start of the programme that the stakeholders and policy makers can be confident that the investment is likely to be fully successful. This understanding must be supported with mechanisms to measure the benefits and with procedures for monitoring, reporting and most importantly responding to their achievement or non-achievement.

The methodology used to create this report included:

- Gartner secondary research services (SRS);
- Literature search;
- Case study review;
- Direct conversations with healthcare CIOs (though they did not agree to be named for this report).

Analysis

Develop a benefits realisation plan that is used to define the benefits of the overall programme of work, and responsibilities for their realisation, measurement and reporting.

A robust benefits realisation plan is key to measuring a project's success. For each performance metric, identify the accountable manager who should be a contributor to and supporter of the business case. Identify the business owners who will be responsible for ensuring that the business benefits are delivered. For benefits realisation to be successful there must be established and maintained governance structures, processes and responsibilities to ensure that the benefits will be managed through the whole life cycle of investment. This governance must be developed practically and with regard to the size of the investment (both its spend and potential benefits), and the capability of the project's business sponsor and staff to effectively manage the benefits realisation process.

Based on literature and case studies data, benefits should be organised into three main categories: *strategic benefits, sub benefits (or high level benefits) and end benefits.*

It is often very difficult to convert a policy vision or a business strategy into detailed and measurable statements of expected benefits. It can be hard to realise and measure all benefits from an investment or change. Firstly, because some of the benefits may be secondary, ones that were not expected and have resulted indirectly from the changes that have been made. Secondly, some benefits which are called 'intangible' are very difficult to measure. This is when the expected benefits cannot be expressed in terms of their likely impact on the balance sheet or the profit and loss account. Those that can be so expressed, that is, those which have a tangible financial outcome are usually referred to as hard or tangible. Intangible or soft benefits are those that are less easy to express and to measure in terms of cash or objective numbers. Hard benefits are easy to measure and express, e.g. financial; they can be defined as representing the

output, quality, cost and time of work related processes. They are characterised by being objective, relatively easy to measure and easy to convert to money values. By contrast, soft benefits are subjective, often difficult to measure, almost always difficult to convert to monetary values and frequently behaviourally oriented. *Strategic benefits* serve the purpose of the (high-level) characterisation of the programme, providing an overall direction of success throughout the life cycle. *Sub benefits* (or *high level benefits*) characterise specific targets linked to *strategic benefits*, and should drive design and the preliminary evaluation of (design) alternatives. *End benefits* are measures that characterise in detail (e.g. hard, soft, tangible, intangible, quantitative, qualitative) the targeting and achieving of sub benefits.

Develop a process for benefits realisation that conceives benefits as real; gets more detail on the benefit so it is fully understood; maps the benefit's dependencies, taking changes required and earlier benefits into consideration so it becomes more realistic; and the benefit is transformed into money (not in all cases e.g. public sector). Define, agree, measure and report on the expected benefits.

There are various ways to measure benefits. The expected outcomes of a project depends on the type of measurement sought, i.e. patient surveys may be a good way to understand and measure the success of an 'improved patient experience' benefit; and other benefits would be better measured through key performance indicators. In all cases, a current baseline needs to be set before the project and change has been implemented so benefits have something to be measured against. The greatest challenge in benefits realisation is undertaking a current state assessment and determining which metrics will be changed as a result of project implementation. Without establishing baseline metrics, there is no way that a post implementation review will be able to confirm that proposed benefits were delivered.

HDOs should develop a benefits realisation plan (BRP) around major healthcare investment projects that is used to define the benefits of the overall programme of work, and responsibilities for their realisation, measurement and reporting. The BRP is then used to ensure those involved in the implementation (and a wider audience as required) have:

- A common understanding of the expected outcomes of the project;
- Identified the key objectives (and secondary/intermediate outcomes), who will be accountable for these benefits and how they will be measured;
- Record the initiatives that will be required to ensure the delivery of the expected outcomes, who will be accountable for their implementation and their completion timeframe;
- Captured the detail of the overall project outcomes that can be referenced and broken into more detail in the individual project work streams; and
- Identified key assumptions and risks around the delivery of the expected outcomes, the strategies that will be implemented to mitigate them, and who will be accountable to implement those strategies.

The BRP also includes information about the proposed types of benefits applicable for the key outcomes and where possible will also include detailed metrics, targets, baselines and timelines for the benefits to be measured.

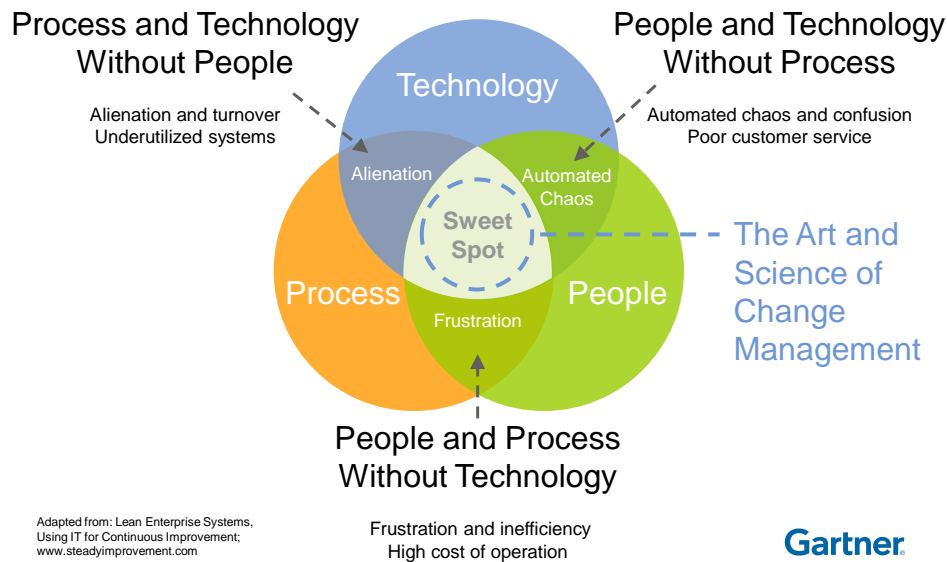
A successful process for benefits realisation is to:

- Conceive benefit as real;
- Get more detail on the benefit so it is fully understood;
- The benefit's dependencies are mapped, taking changes required and earlier benefits into consideration so it becomes more realistic;
- The changes are made making the benefit actual;
- Benefit is transformed into money (not in all cases e.g. public sector).
- Benefit management is a process for the optimisation or maximisation of benefits from change programmes. The process involves defining, agreeing, measuring and reporting on the expected benefits.

Develop a benefits realisation framework that is appropriate for those who operate it and those that use the information produced; is balanced in its assessment of all relevant aspects, including those that are hard to quantify; is robust enough to withstand change; integrated into business planning; cost effective by producing performance information that realises benefits in proportion to the investment required to collect it; and simple to implement.

Technology projects on their own can never deliver business benefits without changes to business processes and the way people work. A technology and process improvement solution that does not capture people's hearts and minds leads to alienation, depersonalisation, and staff turnover — all significant threats to sustained improvement. A technology and people solution that does not include process improvement simply automates chaos and inefficiency; this is the "garbage-in/garbage-out" (GIGO) principle. A people and process improvement solution that does not include technology may indeed work just fine — new technology is not always essential. This three-way interdependence of people, process, and technology requires coordination, or orchestration. Coordination implies centrally planned and controlled behaviour, whereas orchestration suggests a leader providing guidance and setting the pace, while encouraging individual creativity and inspiration (see figure below).

Process-based Transformation Needs More Than Technology



Healthcare projects are complex and developed over long timescales with a large number of stakeholders. This complexity often leads to the project not delivering what it planned to do from the early phases. This disparity can be due to either a lack of or poor benefits management. Benefits realisation is especially important within a HDO as the process along with the formal appraisal, evaluation and management schemes helps to ensure a clear sign posting of who is responsible for the delivery of those benefits. The process also helps to find out if the intended benefits have been achieved and continued after the project finished. A benefits realisation framework is primarily developed to enable the definition, tracking and delivery of benefits identified on any given project. The aim of a benefits realisation process is to increase the predictability of realising maximum benefits for all stakeholders of HDO programmes and projects.

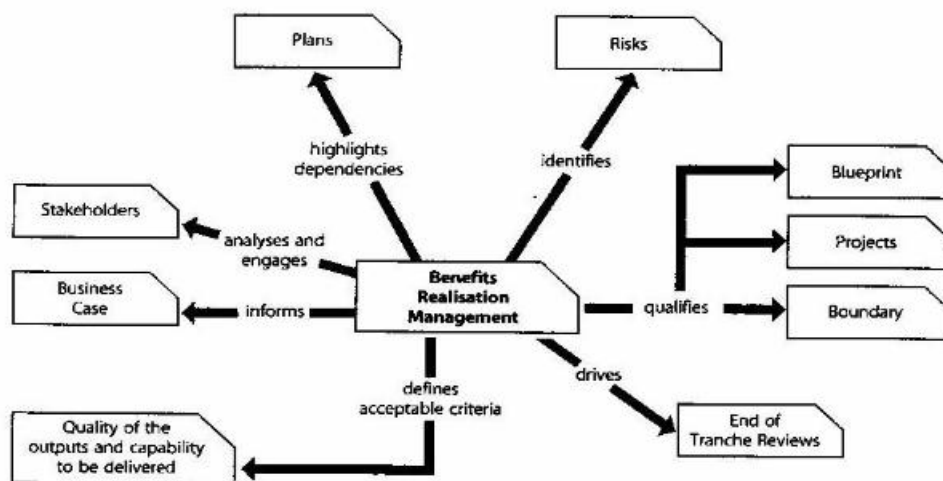
The benefits realisation framework must be driven by the organisation's strategic planning and portfolio management processes. To be effective, it needs to become a standard management practice throughout the business change lifecycle - especially during programme and project definition. The first step is to establish a framework that defines how benefits should be identified, structured, planned and realised. The framework should classify types of benefits of value to your business, and reference the organisation's current strategic goals and objectives (e.g., service/process; quality/productivity/improvements; cost avoidance/reduction; staff morale/motivation; revenue generation/customer retention). The potential benefits identified must not simply exist as a list. It is important to identify dependencies to understand where the achievement of one benefit is dependent on the realisation of another. Once they have been identified, analysed and structured, the next task is to create a realisation plan. This should also enable the organisation to identify the management actions required to support and execute that plan.

Key considerations and data collection that is needed in order to develop a framework include:

- Identify and record the desired benefits;
- Identify patients and stakeholders who will be affected by each benefit;
- Identify the outcomes and enablers required for each benefit realisation;
- Determine how the realisation of the benefit will be measured, this will include providing a baseline measure;
- Allocate responsibility for delivery of these benefits;
- Prioritise the benefits so that the most important has the most focus;
- Provide a target date for the benefit to be realised;
- Determine how progress will be monitored;
- Benefits (expected outcomes of a project) need to be governed and agreed upon.

Based on literature and case studies data, the benefits realisation framework model to consider is based on four main non-sequential phases as summarised below:

- **Phase 1 – Benefits management strategy and benefits realisation case.** This first phase is concerned with identifying desired *strategic benefits* and *sub benefits*, developing a benefits management strategy in order to share and communicate these to a wider number of stakeholders.
- **Phase 2 – Benefits profile and benefits mapping.** Group meetings and benefits mapping workshops with the appropriate group of stakeholders are critical for the success of this phase. Identification of *end benefits*, benefits mapping and profiling form the basis of an on-going benefits realisation plan.
- **Phase 3 – Benefits realisation plan.** Focus is on the execution of a benefits realisation plan as developed and formulated in the previous phases, consisting of measuring and tracking the benefits previously identified (and, potentially, incorporating emerging benefits), through data collection and measurement.
- **Phase 4 – Benefits evaluation and review.** This phase encloses evaluation/measurement of *benefits* as these have been characterised and/or emerged through the previous phases.



A full benefits realisation management process (see above figure) should embrace elements from other discipline such as benchmarking, performance measurement, and operations management. The impact of change should be monitored throughout programmes and projects development, and mechanisms should be in place ready to deal with any negative impact implications. It is important to understand that over the course of a benefits management lifecycle, organisations and government policy drivers especially within a healthcare setting are highly likely to change and this will impact upon agreed benefits. It is essential to have a robust process in place that will accommodate and react to change. The key for successful implementation of benefits realisation is its integration within the organisation’s strategy and culture, and taking into account external factors. Programmes and projects should be benefit driven if they are to be considered as successful.

Develop a technology and process improvement model that demands executive leadership and sponsorship; involves key stakeholders, captures people’s hearts and minds to avoid alienation, depersonalisation, and staff turnover.

A **diversity of stakeholder views** will certainly positively contribute to a comprehensiveness of benefits. Indeed, it is important to have the involvement of all relevant stakeholders from the outset and throughout a programme to ensure its success; having a group of multi-stakeholders that range from the *top level* (e.g. director) to the operational (such as managers) gives a broad overview of the programme. In order to assure diversity of views, different stakeholders should be involved in benefits elicitation. Further work needs to be done on identification of measures that characterise in detail (hard, soft, tangible, intangible, quantitative, qualitative) the targeting and realising of sub benefits; this detailed level of benefit is referred to as an *end benefits* within the model. Additional work on the identification of benefits’ attributes need to be done (e.g. hard, soft, tangible, intangible, quantitative, qualitative), specifically regarding how these should be detailed under an *end benefits* level approach. Other criteria/attributes should be considered, as follows: timeframe (e.g. long, medium, short term), context interaction (e.g. external/macro environment, structural/building, internal/interior).

Change management is an increasingly popular discipline as organisations and individuals attempt to cope with ever more complexity in achieving their work objectives and life goals. Fundamentally, accomplishing organisational change is dependent on a group of people adapting the way that they work. The overall performance measurement of a HDO should be related to benefits realisation optimisation, looking for an equilibrium between resource utilisation (*cost* and *time*) and *services provided* (*access* and *quality*). The built environment should be seen, not only as *context*, but also as a *resource* that enables and potentially impacts on healthcare operations efficiency, influencing care and service efficacy. Traditionally, focus has been on *cost*, *quality* and *time* of delivery, and has not been directly related to the *benefits* desired at a projects' onset, or those delivered (or *realised*). Not identifying or defining benefits during development/conception makes managing and monitoring them more challenging, which may lead to poor performance and ultimately to the breakdown of an organisation, programme or project. Through the active managing, monitoring and realising of benefits within the HDO, the equilibrium between *resource utilisation* and *services provided* will become better balanced.

In summary, successful benefits realisation involves: undertaking a current state assessment and determining which metrics will be changed as a result of the project; developing a framework to define, agree, measure and report on the expected benefits; stakeholder involvement, executive leadership and sponsorship; change management, continual training and good communication for the duration.

As part of our on-going research and advisory services, we will be pleased to elaborate on your inquiry, and to provide further assistance as you progress with your work.

Case Studies (Organisations That Have Done EMR Well)

Based on literature and case studies data, common benefit realisation methods include (in decreasing order):

- Hospital executives reached agreement on expected benefits;
- Benefit metrics were established and regularly reported;
- Expected amounts of benefit were estimated;
- Realised benefits were reported to the Board of Directors;
- Technical/operational requirements for benefit realisation were identified;
- A single list of expected benefits was communicated throughout the HDO;
- An individual or team was assigned to drive benefit realisation activities;
- Individual responsibility and accountability was assigned for each area of benefit.

Clinical quality benefit targets (internal and external quality metrics that were targeted for improvement) were a key focus area for HDOs in major healthcare investment projects (e.g. EMR implementations). These clinical benefit targets were separated into core measure targets and safety measure targets. With regard to the core measures, targeted improvements in quality measures were for venous thromboembolism, stroke, congestive heart failure, pneumonia, acute myocardial, surgical patients and pregnancy metrics. With regard to general safety measures, targeted improvements were to reduce adverse drug effects, patient safety indicators, sentinel events and nosocomial infections. Other operational and administrative benefits were also seen.

The following international EMR implementation case studies (EPIC, Meditech, Cerner) were reviewed to understand the benefits delivered in financial ROI, and patient quality and safety improvements; as well as to understand key themes that delivered success in these major HDO projects.

Sentara Health (Virginia, USA):

- \$237m investment over 10 years.
- Benefits of \$35m per year. 2010 actual was \$48m.
- Savings across reduced length of stay/reduced adverse drugs effects, increase outpatient procedures, increase unit efficiency/retention of nurses, reduce transcription expense, reduce med records supply costs, reduce medical records positions, reduced optima (health plan) costs, improve charge capture, reduced 63 administrative positions.

Children's Hospital (Boston, USA):

- Reduced medical waste by 30% or \$1.6M per year.
- Back-end speech recognition savings/cost avoidance: 2009: \$269K, 2010: \$277K.
- Switch to secure plain paper prescription printing: reduced cost by \$40K per year.
- Eliminate cost of paper chart folders and supplies: \$40K per year.
- Medication errors that result in patient harm (including any intervention) have steadily declined since CPOE implementation, but the decline accelerated significantly with the addition of bar coding in late 2008.
- Serious medical errors reduced by 50%.
- Decreased medication and fluid errors by 25% through bar coding.
- Verbal medication orders reduced and sustained at 1.2%, down from 3.1 % in 2007.

Children's Medical Centre (Dallas, USA):

- Reduced staff (by 47) and administrative expenses by \$12.5M annually.
- Decreased pharmacy waste by \$1.2M annually.
- Automated charge capture by \$1.5M annually.
- Received "meaningful use" incentives of \$1M annually for 5 years.
- Decreased days in accounts payable by 10% after one year.
- Decreased delinquent medical records by 75%.
- Increased verification of insurance coverage by 96%.
- Improved record access speed from 10 minutes to 15 seconds.
- Ability for patient family access to record; approximately 3,500+ families.

- Increased providers access; approximately 940 registered portal providers.
- Provided direct entry of data; decreasing transcription by 54%.
- Provided direct entry with front-end voice to approximately 88 providers.
- Decreased length of stay in Emergency Department by 30%.
- Reduced delivery time of patient documentation to primary care physician by 60%.

Citizens Memorial Healthcare (Missouri, USA):

- 95% of patients presenting for care in the CMH system already now have a record in the system.
- Computerised provider order entry, pharmacy, nursing and barcoding all have contributed to a 70% reduction in medication errors.

Deaconess Health System (Indiana, USA):

- 60% decrease \$1.2M savings in transcription.
- Improvement in heart failure clinical process scores from 71% to 86% since 2008.
- Discontinuation of post-op antibiotic measure in SCIP improved from 86% to 97%.

Kaiser Permanente (California, USA):

- 95% decrease in dictation costs documented by one Kaiser region ; saved more than \$120,000 in year 1.
- Savings due to a dramatic decrease in print expenses. One region saved \$1.4 million in printing costs on annual outpatient forms alone.
- 54% reduction of archival storage space translated into a \$200,000 savings in just one year.
- Reduced the rate of medication errors by 57% in one hospital site using barcode scanning.
- Trimmed by 12% outpatient lab utilisation two years after the implementation illustrating the reduction in duplicate tests.
- Provided patients with test results within two days instead of a week or longer.
- Doctor proficiency increased anywhere from 11 – 39% and the more proficient doctors also reported less time spent documenting charts.

Mayo Clinic Health System (Minnesota, USA):

- \$7 million annual savings from computer-based microbial monitoring.
- \$40 million from automation of basic EMR functions.
- \$1.5 million annually from documentation for IHI reporting of invasive line placements.

- 8.5 day reduction in institutional days' revenue outstanding from automated chart checking and reminder if needed to complete anesthesia documentation.
- \$1.8 million savings the first year due to backend speech recognition.
- 45-minute patient wait for a medication reduced to 3 minutes after CPOE implementation.
- A combination of order sets and decision support raised the level of VTE prophylaxis compliance within 48 hours of medical admission from 90% to 98.4%.

North Shore University Health System (Illinois, USA):

- Turnaround-time for test results has been reduced from 2-3 days to one.
- Radiology images are available throughout the 75 care locations and remotely for physicians from their home or travel location.
- Nearly 40 percent of appointments in North Shore's Medical Group practices are made on a same-day basis. Patients are willing to go to another physician because all of their information is available to all physicians through the EMR.
- Coding denial rate is 2% reducing AR rates to 35.
- Dictation costs are significantly reduced, and in most cases, eliminated at up to \$1,000 a month per physician.
- Following the implementation of CPOE and bar coding at the bedside for medications, reports of medication errors have dropped by 80 percent.
- Over 100,000 patients use North Shore patient portal that allows them to schedule appointments, check for test results, e-mail questions or concerns to their physicians and access parts of their own medical records (33% usage per month).
- MRSA infections were reduced by 70%.

Seoul National University Bundang Hospital (South Korea):

- First stage 7 HIMSS hospital outside of North America.
- \$116K increased annual income.
- A health information exchange system allows patient medical information sharing with 36 nearby clinics using different systems.
- Medical error reduction rate is about 2%.

Tucson Medical Center (Arizona, USA):

- Lab - \$192K supply savings, \$79K salary savings.
- Radiology - \$25K supply savings, \$51K salary savings.
- Respiratory - \$84K supply savings, and \$278K salary savings.
- Transcription - approximately \$500K savings per year.

- Film cost - decreased with PACS from \$489K per year to \$86.
- Improved patient safety by decreasing the incidence of critically abnormal blood-thinner levels by 30%.

UC San Diego Health System (California, USA):

- 70% reduction in the previous health information management budget for inpatient transcript.
- Medication cycle time was reduced from an average of 75 minutes to a new average of 8 minutes.
- 10% increase in revenue through enhanced documentation capture was seen. This allowed for more accurate coding and abstracting.

University of Wisconsin Hospital and Clinics (Wisconsin, USA):

- Reduction of outside transcription service by more than 60% realised in the first 18 months.
- Significant reduction (more than 85%) in volume/cost of paper forms.

Key Themes For Success (EMR projects):

- Introduce the EMR implementation as a corporate-wide strategy.
- Patient needs and safety are at the core of every project. Set realistic goals and manage expectations.
- Never underestimate the ongoing cost for resources and people to keep EMR going 24/7.
- Implementing EHR takes courage, resilience and support by leadership.
- It is no easier moving from one electronic system to another than it is starting from scratch – in fact, it may be harder.
- Recruit talented IT leadership. Engage board, executive, and medical staff leadership teams, as well as users throughout the project lifecycle. Clinicians and top management must lead this type of transformation.
- Identify key performance indicators during planning phases, as well as project risks.
- Communicate expansively to get everyone on board. Talk, talk, talk to everyone involved and use every means available. Listen, listen, listen to everyone involved. Give feedback on results. Communicate the improvement in the quality of care in successful EMR implementations.
- Identify a core group of nurse, physician, and leadership champions. Physician leadership is important. Physician champions are the representatives of the physicians. They bridge the technical and clinical perspectives and provide important communication between the physicians, the implementation team and other users. It is

imperative that clinicians play a significant role in the planning, design and implementation of an EHR system.

- Recognise that change is hard. Be prepared for providers to go through some stages like denial, anger, bargaining, depression and acceptance. Have support lined up and be ready to adapt but still keep moving forward toward the goal of the project.
- Use of an EMR to document care during a patient encounter is awkward at first. Build in training and practice early on to help users gain skills and confidence. Encourage them to share the screen with patients and document real time. Do it before bad habits form (like writing on a scrap of paper and entering documentation later).
- Understand the processes you are trying to automate – don't replicate from paper (e.g., printing simply to provide paper notifications of a new order).
- Develop a multidisciplinary task group to study peer-to-peer best practices. Undertake site visits for insight.
- Create transparent tools for the provider community to monitor the progress towards electronic record enhancement so they understand the broader enterprise initiatives.
- "Big bang" inpatient implementation for provider order entry and online clinical documentation (physicians and nursing/patient cares services) provided a more seamless experience for the patient.

Recommended Reading

Some documents may not be available as part of your current Gartner subscription.

"How to Assess Your Readiness for Complex Program and Project Management" G00141545

"Toolkit Sample Template: An Effective Business Case" G00149744

"Toolkit Sample Template: Project User Satisfaction Survey" G00150833

"Cost Optimization through Improving Business Processes" G00170562

"Benefits Realization in Packaged Application Projects" G00157733

"Survey Analysis: Improved Business Engagement Leads to More Business Benefits" G00232409

"Application Benefits Realization Framework: Metrics and Roles to Improve Business Processes" G00211009

"ITScore for Program and Portfolio Management" G00233050

Acronym Key and Glossary Terms

EMR	Electronic medical record
HDO	Healthcare delivery organisation
ROI	Return on investment

Evidence

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- ⁹ Tzortzopoulos, P., Codinhoto, R., Kagioglou, M & Koskela, L. (2008). Design for operational efficiency – linking building and service design in healthcare environments. Health and Care Infrastructure Research and Innovation Centre International Conference.
- ¹⁰ Yates, K., Sapountzis, S., Lou, E. & Kagioglou, M. (2009). BeReal: Tools and methods for implementing benefits realisation and management, 5th Nordic Conference on Construction Economics and Organisation.