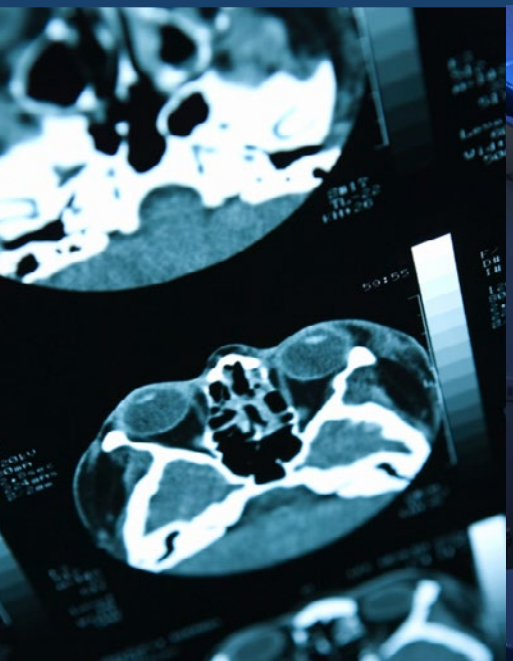
FROST & SULLIVAN

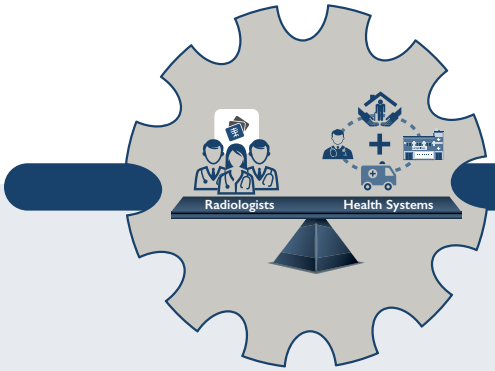
Enable Your Imaging Service Line to Run Like Clockwork

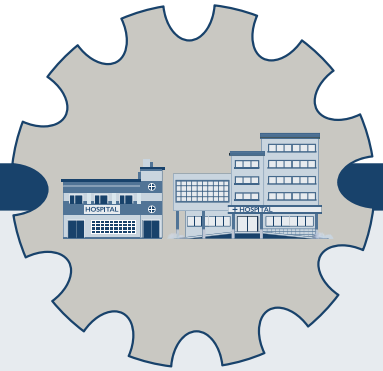


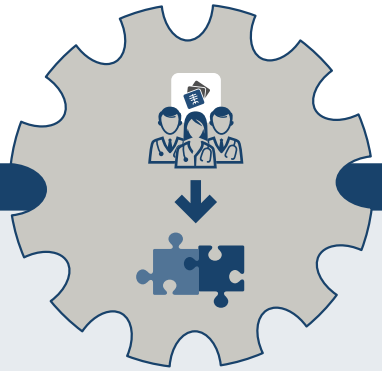

"IMAGING SERVICE LINES HAVE BECOME ESSENTIAL FOR REGIONAL IDNS"

- The consolidating regional IDNs (integrated delivery networks) are striving to deliver continuous, transparent, and reliable quality of care across their service lines.
- As states are being covered by fewer and larger competing IDNs, health systems want to leverage their scale and distributed clinical resources to ensure easier access, higher quality, and better value of care.
- Radiology is critical to the success of the IDN, as 12% of all patient referrals start with imaging, and given the vast majority of physicians and patients utilize imaging resources along the care pathway.
- In order to deliver predictable service levels and higher value in radiology, there are numerous operational, technical, and clinical constraints that must be orchestrated.
- IDNs must work in concert with their employed or partner Radiologists to enhance productivity and efficiency.
- An imaging service line requires seamless integration of professional and technical imaging resources, as part of the IDN's operating plan, in order to ensure alignment and success.
- The future of radiology within IDNs lies in imaging service lines that share common operating objectives with the organization, rather than the current siloed hospital imaging departments.

Below are nine aspects to contemplate, each acting like a gear in a clock, which together will allow your imaging service line to run like clockwork.







ALIGNMENT IS CRITICAL TO SUCCESSFUL INTEGRATION

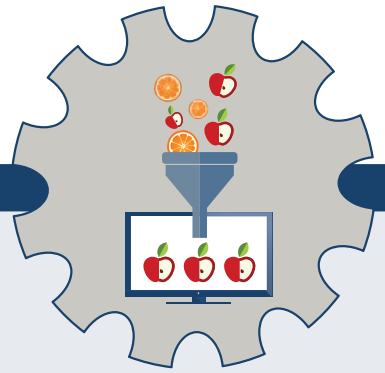
- Health systems need to generate economies of scale and cost efficiencies, while stepping up quality standards and service levels.
- Radiologists desire tools that enhance their productivity, want to work more efficiently, and strive for clinical excellence.
- At both ends of the value chain, health systems and Radiologists want the ability to measure quality, value and performance.
- To that aim, both want the means to solve today's problems and to have the right data to be prepared for tomorrow's.
- Ultimately, both organizations realize that maximizing their alignment results in better care for their patients.

HEALTH SYSTEMS ARE ONLY GETTING LARGER

- Regional IDNs are consolidating to provide continuous access across their geographical area of coverage and population catchment.
- Without economies of scale and skill, it is not possible to translate this larger scale into a competitive advantage.
- The larger scale of IDNs allows for direct employer contracting and leverage with payer negotiations for shared risk, bundling and ACOs (accountable care organizations).
- This mandates orchestrating a single operating model and optimizing clinical workflow.
- Growing networks must also have the flexibility and interoperability in place to incorporate the next facility without disruption.

REFERRING PHYSICIANS' EXPECTATIONS ARE MOUNTING

- Referring physicians are looking for value from their imaging orders beyond merely static study interpretation reports.
- They expect their radiology partners to deliver clinical insights and patient management support from their imaging services.
- Physicians want reduced variability in the radiology service and reports, preferring a consistent "look and feel" across the IDN.
- They need the highest degree of consistency in their access to sub-specialized expertise from their radiology resources.
- Physicians expect radiology to help them become more data driven by acting as the "doctor's doctor" through actionable guidance.



IMAGING PAYMENTS ARE CHANGING

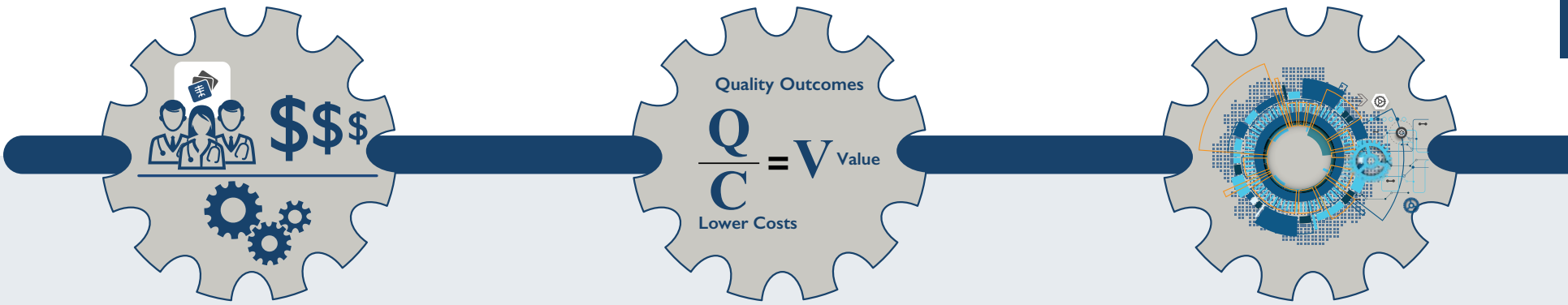
- Regardless of the future of the Affordable Care Act, fee-for-volume will, at least partially, give way to "fee-for-something-else."
- Quality and outcomes will be essential to these new models, starting with incentive and penalty modifications to conventional volume-based models.
- While providers must continue to succeed in today's fee-for-service world, piloting or implementing bundled payment initiatives or other value-based approaches has already started.
- Risk-based contracting is rising as large employers and payers look for creative ways to keep healthcare costs under control.
- Scale, data and the ability to operate predictably against a well-defined plan are the keys to success in imaging operations.

A STANDARDIZED IT INFRASTRUCTURE IS OFTEN PREREQUISITE

- As part of integrating an imaging service line, IT departments want to harmonize and consolidate disparate imaging solutions into a manageable, centrally hosted infrastructure.
- IDN leadership needs reliable data indicators for enterprise-wide imaging, albeit while not disrupting or undermining the value of locally practiced radiology.
- As the vast majority of radiology volume can be interpreted away from the location of the patient, imaging service lines are the natural place to achieve the value of clinical scale.
- As imaging services touch all patients and all physicians, they are a key contributor to the positive or negative impact on the enterprise.
- Referral volume or leakage, in-patient length of stay, and "left without being seen" in the emergency department are some of the clinical endpoints that will increasingly be used in measuring imaging's outcomes.

VISIBILITY OPENS THE WAY TO COMPARATIVE INSIGHTS

- Images are giving way to the imaging data — that is, data that can be mined to measure and demonstrate quality, value and performance.
- To improve quality, value or performance, health systems must measure it in a directly comparable way.
- Normalizing data consists of translating and mapping local systems to an enterprise standard that contains the attributes needed to run an IDN wide imaging service line.
- To control cost and quality, variability of care must be tracked, identified and then managed, so that the data are not a "hard-to-correlate" collection from hospital-based radiology departments.
- New payment models require a different level of data than a conventional RIS (radiology information system) can provide.



ECONOMIES OF SCALE AND SKILL IS ABOUT RESOURCE OPTIMIZATION

- Optimizing radiology resources leads to the key benefit of sub-specialty coverage that is maximized for the imaging service line.
- Generating economies of scale post-consolidation is about being able to do more without adding resources and without "feeling it."
- Ensuring the right studies are delivered to the right radiologist enables sub-specialty reading or other goals related to SLAs (service-level agreements).
- Enabling shared teleradiology coverage to smooth out daily fluctuations can facilitate predictable staffing models.
- This, in turn, allows maintenance of SLAs and opens up the internal capacity to provide 24x7 final reports.

BALANCING QUALITY AND COST LEADS TO VALUE OUTCOMES

- Delivering the highest value for IDNs depends on reaching the scale to have the right expertise for the right condition available consistently across their enterprise.
- This poses the challenge of ensuring the integrated workflow solutions allow for the accurate distribution of workload.
- Doing this across the enterprise imaging service line, while care is being delivered locally, adds an additional layer of complexity.
- Providing sub-speciality or 24x7 final reads requires the need for "lateral consumption" to get the right study to the right interpreter and for the right reasons.
- Accordingly, given it will directly benefit from an optimized imaging workflow, the health system must work to remove technical and political barriers.

INFORMATICS AND IT SCALABILITY ARE MAJOR ENABLERS FOR ANALYTICS

- Incorporating natural language processing (NLP) provides the ability to convert unstructured data in imaging reports into actionable insights.
- These insights can be leveraged to support data-driven decisions in helping to measure and improve quality, value and performance.
- Aligning with IT on how success will be measured for the imaging service line is a crucial best practice to adopt in healthcare analytics.
- This will ensure the data being collected and monitored are staged and normalized accordingly from the outset.
- Enterprise VNAs (vendor-neutral archives) and viewers improve management and viewing of image data, but they fall short of solving the workflow challenge at the imaging service line level.

BEST PRACTICES FROM THE FRONT LINE OF THE IMAGING SERVICE LINE ERA

In sum, below are some questions to raise and lessons learned from the front-line of the Imaging Service Line era:

- Make sure that your operating plan can answer the question "to deliver what, measured how, controlled by whom?"
  - How does the operating plan contribute to enabling sub-speciality and final reads?
  - How will you measure quality, value and performance in imaging?
- As the Imaging Service Line grows, ensure continued alignment between the health systems and Radiology through clear expectations and service levels.
  - What does a "win-win" arrangement look like for the Health System, radiology providers and the patient population they collective serve?
  - What measures are you taking to limit the many quality and efficiency losses that occur even before a Radiologist has the images on the PACS workstation?
- Fragmented radiology departments deny an IDN the ability to optimize their scale and increase value delivery to patient stake holders.
  - How are you going to operate differently and more effectively with the new scale?
  - Is the Imaging Service Line empowered by the underlying operating plan and workflow orchestration capability required to drive it forward?
- An effective and efficient Imaging Service Line helps facilitate the smooth operations and optimal distribution of care across an IDN while providing greater alignment between Radiologists and the IDNs they serve.
  - How will you ensure IDN-wide service level goals are met globally while still practicing radiology locally?

Like the individual gears forming the single engine of a clock, a successful imaging service line is about having a single workflow orchestration that can enable the Operating Plan (the "why") to drive the Technology Stack (the "what") while maintaining alignment between Radiologists and the health systems.

FROST & SULLIVAN

Auckland
Bahrain
Bangkok
Beijing
Bengaluru
Buenos Aires
Cape Town
Chennai
Dammam
Delhi
Detroit
Dubai
Frankfurt
Herzliya
Houston
Irvine
Iskander Malaysia/Johor Bahru
Istanbul
Jakarta
Kolkata
Kotte Colombo
Kuala Lumpur
London
Manhattan
Miami
Milan
Moscow
Mountain View
Mumbai
Oxford
Paris
Pune
Rockville Centre
San Antonio
São Paulo
Seoul
Shanghai
Shenzhen
Singapore
Sydney
Taipei
Tokyo
Toronto
Valbonne
Warsaw

SILICON VALLEY
331 E. Evelyn Ave., Suite 100
Mountain View, CA 94041
Tel 650.475.4500
Fax 650.475.1570

SAN ANTONIO
7550 West Interstate 10, Suite 400
San Antonio, TX 78229
Tel 210.348.1000
Fax 210.348.1003

LONDON
4 Grosvenor Gardens
London SW1W 0DH
Tel +44 (0)20 7343 8383
Fax +44 (0)20 7730 3343

Frost & Sullivan, the Growth Partnership Company, works in collaboration with clients to leverage visionary innovation that addresses the global challenges and related growth opportunities that will make or break today's market participants. For more than 50 years, we have been developing growth strategies for the Global 1000, emerging businesses, the public sector and the investment community. Is your organization prepared for the next profound wave of industry convergence, disruptive technologies, increasing competitive intensity, Mega Trends, breakthrough best practices, changing customer dynamics and emerging economies?

For information regarding permission, write:
Frost & Sullivan
331 E. Evelyn Ave., Suite 100
Mountain View, CA 94041