

The Role of Incentives In Security Screening: A Discussion

Facilitated by

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Inzight Consulting, LLC

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What incentives are in place for security vendors?

Open for discussion (and suggestions)

- **To meet spec?**
- **To exceed spec?**
- **To improve once certified?**
- **To increase performance, if it adds cost?**
- **To jump ahead of competitors? (Adding unique capabilities)**

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- **To jump ahead of competitors?** (Adding unique capabilities)
- **Other relevant and related issues?**
 - Are future goals clear?
 - Is there ability & willingness to measure, compare & report performance?
 - Is there enough feedback on areas of strength and weakness?
 - Role of political influence?

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- **Will improving incentives lead to better performance?**

Background, Objective and Disclaimer

Background

- **We investigated 3rd party involvement and DICOS**
 - By examining analogous issues in medical imaging and DICOM
- **We presented findings on medical imaging at ADSA07**
- **Issue of incentives came up at that time, and subsequently**
 - Better incentives → more third party involvement, better performance

Objective

- **Gain further insight into issue of incentives from this audience**
 - Description of how things are. Suggestions for improvement.

Disclaimer

- **Funded by DHS, but I do not speak for or represent them**
- **Questions, findings, based on what I heard. Not policy. Not fact.**

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3D Mammography / Tomosynthesis
Now Available

To supplement this technology, we have incorporated digital Computer-Aided Detection (CAD).

New Top of the Line Digital Fluoroscopy
combined plain film system installed

Patients choosing to have a 3D Mammography will be charged a nominal fee to help offset the costs of offering this new technology [until payors pay.]

"We are continually striving to keep abreast with the latest technology, and were already in negotiations when GE informed us that the FDA had approved the 'VEO.' Naturally, we jumped at the opportunity. To get the word out to area doctors, we hosted a series of open houses...

3D Mammography / Tomosynthesis Now Available

Radiology Associates of Ridgewood is pleased to offer our patients a breakthrough technology that revolutionizes how breast cancer is detected today – 3D Mammography, also known as breast tomosynthesis. 3D Mammography is the most exciting advancement in breast cancer detection in more than 30 years and Radiology Associates of Ridgewood is the first free-standing imaging center in northern New Jersey to provide this technology.

A 3D mammogram consists of multiple breast images taken in just seconds to produce a 3D image. The radiologist looks through the tissue one millimeter at a time seeing detail inside the breast in a way never before possible making breast abnormalities easier to see, even in dense tissue. It improves the radiologist's ability to detect potential breast cancers by helping to pinpoint the size, shape and location of abnormalities and also enables the radiologist to distinguish harmless structures from tumors, leading to fewer false positives, fewer call-backs and less anxiety for women.

The 3D mammogram is currently performed at the same time as the standard 2D digital

"Ultra Low Dose High Definition CT" At Radiology Associates Of Ridgewood



Radiology Associates of Ridgewood is pleased to announce the first commercial installation of the new GE "Vevo" Ultra Low Dose High Definition CT Scanner in the United States. This equipment, recently FDA approved, allows us to perform some CT scans with up to 90% less radiation to the patient. At the same time, it improves image clarity, significantly enhancing our ability to accurately diagnose disease and life-

Ads for New:

- Lower dose CT
- 3D mammog
 - +CAD
 - +higher fee

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Incentives

- Share: GE vs. competitors
- Market Growth (for all vendors)
 - Units (faster upgrades)
 - Price (higher)
- Underlying: there are incentives for hospitals to upgrade
 - They compete
 - Able to charge more

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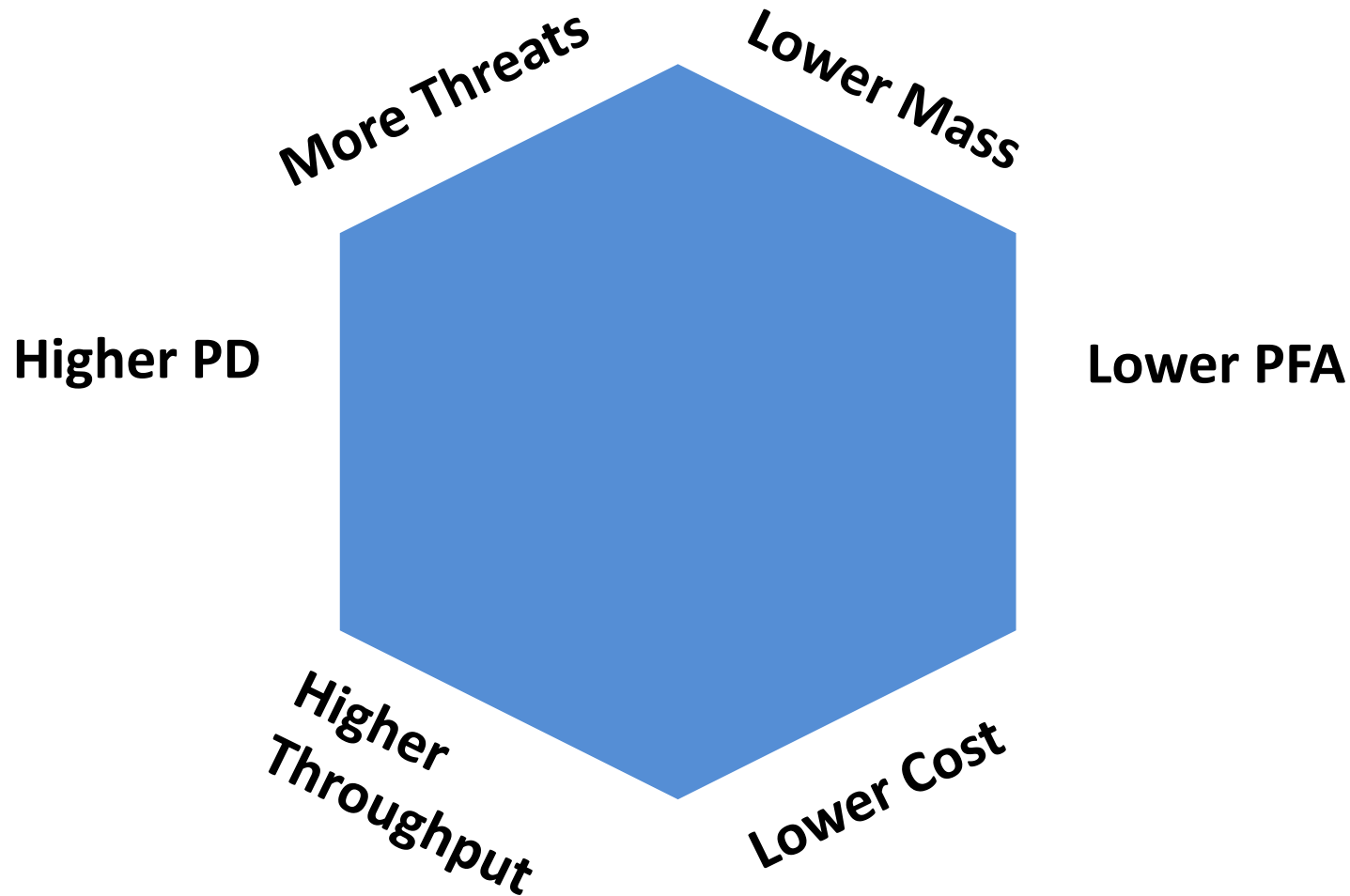
Options to Increase Incentives: To Be Discussed

Plausible? Desirable? Barriers to change?

- **Pay more for better performance (after defining goals)**
 - Higher price or market share. (Consider using “non-minimum shalls” ?)
- **Increase focus on TCO (total cost of ownership)**
- **Create market for upgrades**
 - That improve performance or decrease TCO
 - Monitor PFA in the field. Reward improvement in PFA, at constant PD.
- **Reduce requirement for multiple-source**
 - Increase the incentive for vendors to go beyond competitors’ capabilities
- **Make contingent offers to buy**
- **Other?**

Is there sufficient clarity about goals?

There are trade-offs. Can't have it all



In a competitive market, different vendors might pursue different market strategies. Products with different trade-offs might find different niches and different customers. This could encourage vendors to pursue serendipitous advances in different areas. However, if specs will be narrowly constrained, any R&D or third party effort that is not aimed at the narrow spec may be wasted effort, from the vendors' perspective. This increases the importance of early specs.

Is there ability and willingness to measure performance?

- **Measure, monitor, compare and report performance between systems and over time?**
- **In a statistically meaningful way?**
- **Is there enough feedback on areas of strength and weakness?**
- **Role of political influence?**

Will Increasing Incentives...

- **Lead to more third party involvement?**
- **Lead to better performance, over time?**

Backup Slides Follow

The Incentive is in the Specification (in the RFP)

We have heard some say this

- **Gov't may have less flexibility than other purchasers**
 - May need to set spec and have QPL (qualified provider list)
- **There was a plan to increase specs over time**
 - Gradually, persistently, predictably
- **Did not work as planned?**
- **How can this issue be dealt with effectively?**
 - Can higher specs be “non-minimum shalls”?
 - Other suggestions?

Ability to Measure: Some Background Statistics

Data shown assumes notional measured PD of 80% and PFA of 20%. (Stats will differ w/ other data)

Statistics for PFA (binomial distribution; medical Dx**)				
<u># of Negative</u>	<u>Measured</u>		<u>Lower Bound</u>	<u>Upper Bound</u>
<u>Samples Tested</u>	<u>PFA</u>	<u>+/- for 95% CI*</u>	<u>of CI*</u>	<u>of CI*</u>
200	20%	6%	15%	26%
500	20%	4%	17%	24%
1,000	20%	3%	18%	23%
5,000	20%	1%	19%	21%
10,000	20%	1%	19%	21%

Statistics for PD (binomial distribution; medical Dx**)				
<u># of Positive</u>	<u>Measured</u>		<u>Lower Bound</u>	<u>Upper Bound</u>
<u>Samples Tested</u>	<u>PD</u>	<u>+/- for 95% CI*</u>	<u>of CI*</u>	<u>of CI*</u>
200	80%	6%	74%	85%
500	80%	4%	76%	83%
1,000	80%	3%	77%	82%
5,000	80%	1%	79%	81%
10,000	80%	1%	79%	81%

*The CI (confidence interval) is slightly asymmetric for this test.

Therefore, the +/- shown is approximate.

The upper and lower 95% confidence bounds shown are accurate and reflect the asymmetry.

Acknowledgement: Laura Aume at Battelle provided the Excel engine that powers this table. All errors are ours.

**Statistic are relevant to medical Dx; DHS should consult relevant experts regarding how certification stats might differ

Ability to Measure: Some Background Statistics

Number needed to test to reliably* detect a true delta of various sizes

Number Needed to Test to Reliably* Detect a Delta of:						
Number of known (+) or known (-) samples that must be tested to Detect* a True Difference:						
		<u>1%</u>	<u>2%</u>	<u>3%</u>	<u>5%</u>	<u>10%</u>
<u>PD</u>	<u>PFA</u>					
~60%	~40%	38,000	9,700	4,300	1,600	405
~70%	~30%	34,000	8,600	3,900	1,500	375
~80%	~20%	26,000	6,600	3,000	1,200	315
~90%	~10%	15,000	4,000	1,900	730	215
For simplicity we assume that only true positives are tested to test PD.						
Only true negatives are tested to test PFA.						
Acknowledgement: Laura Aume of Battelle provided this information. Any errors are ours.						
*Power: 80% chance to detect a true difference with a 5% chance of falsely finding a difference that does not exist.						

Additional Options to Increase Incentives: To Discuss

Plausible? Desirable? Barriers to change?

- **Make contingent offers to buy**
 - If, and only if, certain performance goals are met
 - Or pre-specify changed terms, if, and only if, goals are met
- **Other contingent funding (outside of procurement)**
 - Grand Challenges
 - BAA with contingent funding for success

Things We Heard: To Be Discussed

Accurate? Implications? Suggestions? Barriers to change?

- **Certification (cert) is Pass/Fail**
 - Little or no incentive to exceed minimum specs (PD, PFA)
- **Procurement decisions focus on price**
 - Not on performance (PD and PFA) or TCO (total cost of ownership)
- **Little or no incentive to improve, once certified**
 - Little or no market for upgrades. And, re-certification is a barrier
- **Little or no incentive to jump ahead of competitors**
 - There is a requirement for multiple sources for any capability
 - A new capability available from only one vendor is unlikely to be spec'd

What incentives are in place for security vendors?

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- **To exceed spec?**
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