# Healthcare WG Structure

Bringing together systems engineers and systems thinkers in the biomedical and healthcare industries to identify, develop, and tailor best practices for application to improve healthcare delivery.

Red is a priority open position

**AD – C. Landrum**

IOB – T. Strandberg

**HWG Chairs**
*Chris Unger / Bob Malins*

**IT/Communications**
*Cary Bryczek*

- Website, Sharepoint, e-mail list
- LinkedIn (and other social media)

**Technical Programs**
*Ammon Wright*

**Outreach/Conferences**
*Steve Badelt*

- Industry Ambassadors: Steve Badelt, Gary Robert Smith (Europe)
- India – V. Chari, China – X. Xie, Australia – E. Kienast

**HC MBSE Challenge**
*B. Malins/M. Lott/ A. Thukral*

- – *Hospital Department Models*
- – *MBSE and Regulatory*

**Medical Device SE Deployment**
*Anil Prasad*

**Clinical Engineering / Healthcare Deployment -** *Open*

Healthcare "System" Design
*Future*

*Tier 4: Policy Makers and Public Health*
*Home/Mobile/Digital Health Solutions*

Healthcare IT Applications
*Future*

**Applications of SE to Healthcare**
*C. Unger*

- SEBoK – N. Hutchinson, C. Unger
  - – *HC Best Practice/Example Library - Open*
- HC Agile Approaches – C. Unger, K. Weyrauch
- HC Solution Sharing Forum - D. Vickery
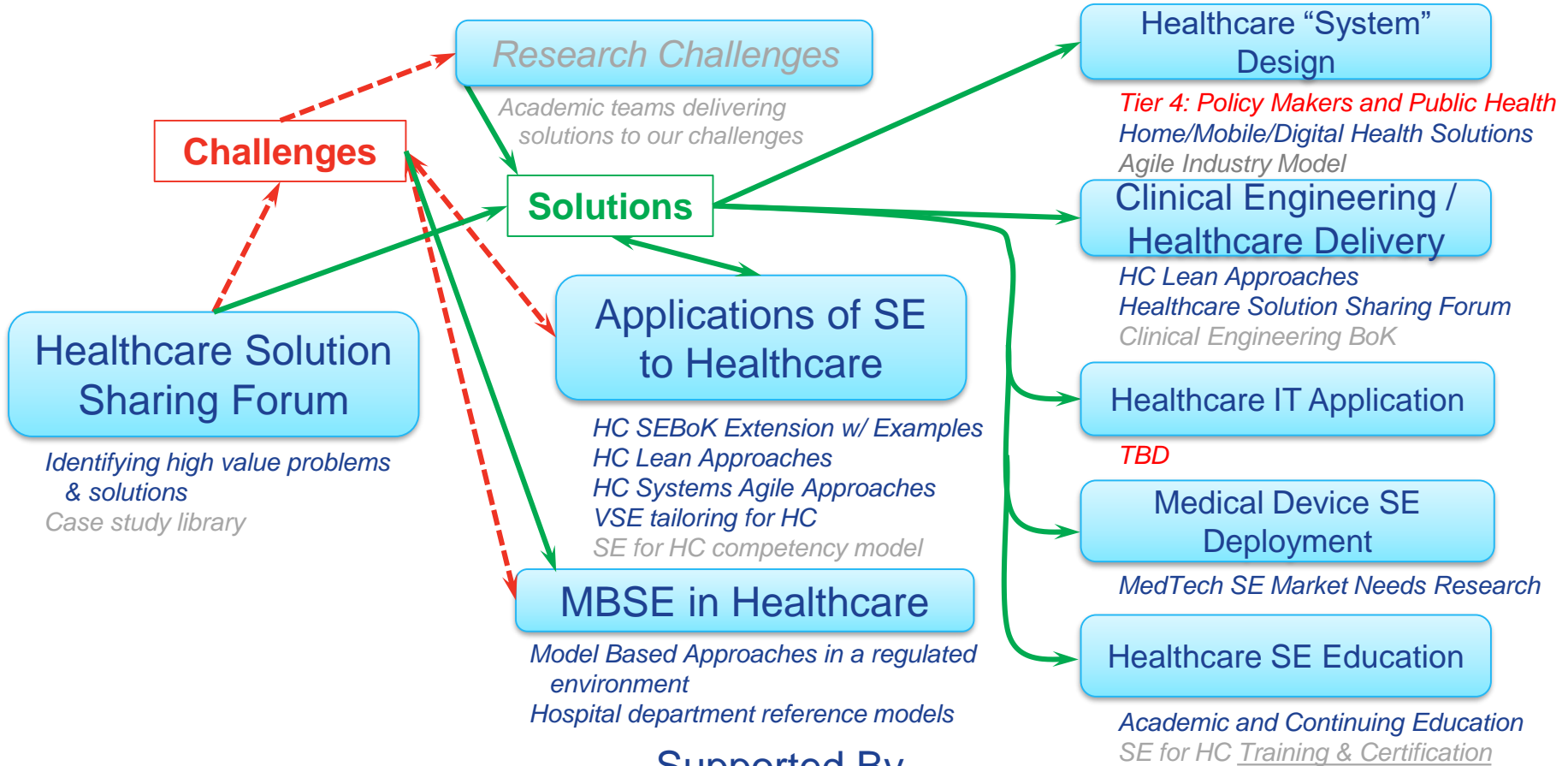- Healthcare for VSE – A. Robinson

**Education**
*Nicole Hutchinson*

**Academic/Research Challenges**
*Open*

INCOSE
International Council on Systems Engineering

# Healthcare WG Engine

## *Sensing* → *Solving* → *Deploying*

*Research Challenges*

*Academic teams delivering solutions to our challenges*

**Challenges**

**Solutions**

## Healthcare "System" Design

*Tier 4: Policy Makers and Public Health*
*Home/Mobile/Digital Health Solutions*
*Agile Industry Model*

## Clinical Engineering / Healthcare Delivery

*HC Lean Approaches*
*Healthcare Solution Sharing Forum*
*Clinical Engineering BoK*

## Healthcare Solution Sharing Forum

*Identifying high value problems & solutions*
*Case study library*

## Applications of SE to Healthcare

*HC SEBoK Extension w/ Examples*
*HC Lean Approaches*
*HC Systems Agile Approaches*
*VSE tailoring for HC*
*SE for HC competency model*

## Healthcare IT Application

*TBD*

## Medical Device SE Deployment

*MedTech SE Market Needs Research*

## MBSE in Healthcare

*Model Based Approaches in a regulated environment*
*Hospital department reference models*

## Healthcare SE Education

*Academic and Continuing Education*
*SE for HC Training & Certification*

## Supported By

## Technical Programs

*Webinars, publications*
*Publication bibliography*

## IT/Communications

*IT/communication enablers*

## Outreach & Conferences

*Brand awareness, engagement*
*Academic specific outreach*

**INCOSE**
International Council on Systems Engineering
Biomedical Healthcare Working Group

# Key 2016 HWG Deliverables

Complete
On Track
At Risk

- SE Modeling in Healthcare (MBSE)
  - Infusion pump reference model and user manual
  - define the stakeholder value proposition for using an infusion pump MBSE model to address compliance
  - AAMI/INCOSE joint Acute Care (OR/ICU) MBSE workshop

- First SEBoK Healthcare domain article
  - Draft of the 6 sub-domain overviews (Healthcare Delivery, MedTech, HCIT, Systems Biology, Public Health, Lean, *Pharma-stretch*)

- First medium scale Solution Sharing Forum Prototype

- Healthcare Systems Agile
  - 2nd Healthcare Agile SE conference
  - Stretch: start collaboration with ASEWG to produce a draft industry model
  - Jointly branded Agile SE course with AAMI

- First Healthcare VSE Implementation Guide draft (stretch)

- First Healthcare SE Education summit (replanned to spring 2017).

- Market Research – Value of INCOSE to the MedTech Industry

# Appendix

# Project Funnel

## HWG Project Funnel

Grey is unstaffed

– Model Based Systems Engineering – Bob/Michelle
– Solution Sharing Forum – Chris/David
– HC Systems Agile Approaches – Chris/Mike/Kelly
– HC SEBoK Extension – Chris/Nicole (7 articles, ~3-5 case studies)
– Healthcare Education – Nicole
– MedTech SE value market Research – Jason/Anil/Chris
– "Healthcare Lean" – Bo (no approved 'charter')
– VSE checklist extension for HC - Angela
– Theory and Examples (case study library)
– Agile Industry model with ASEWG – Bill Schindel/Richard Martin/Mike Rosen
– Healthcare customization of UK Z guide pack
– Clinical Engineering BoK
– MedTech Engineering BoK
– Healthcare IT/EHR
– Bob's paper as an INCOSE product (Risk mgt)
– Requirements guide for healthcare – Richard Matt
– Biological Systems / Genomics
– Public Health
– HC competency model, Training materials, and Certification
– Trifolds for healthcare (building on Infrastructure WG examples)
– Healthcare Glossary

## Top 6 Stakeholders
(from HWG Marketing analysis)

– MedTech
– Healthcare Deployment
– Healthcare IT
– Policy Makers
– Public Health
– Academics/Education



PATIENT

CARE TEAM
Frontline care providers
(health care professionals, family members, and others)

ORGANIZATION
Infrastructure/resources
(hospitals, clinics, nursing, homes, etc.)

ENVIRONMENT
Regulatory, market, and policy framework
(public and private regulators, insurers, health care purchasers, research funders, et al.)