Synopsis

Accelerated delivery of Philips Cardiology Informatics Innovation puts the latest technology in the hands of healthcare providers faster, helping hospitals improve outcomes sooner.

The Cardiology Informatics team sparked a cultural shift across Philips Healthcare Informatics. The evolution began with a single process improvement aimed at reducing implementation cycle times of the Xper: Hemodynamic, physiological monitoring and reporting solution. The initiative resulted in increased customer satisfaction and most notably a 42% reduction in implementation process cycle times.

At the start, a remote team convened in September 2017, utilizing the Six Sigma DMAIC framework to translate "Voice of the Customer" into improvement requirements. Subsequently, the root cause became clear: excess variability and duration resulting from lack of standard work.

To drive improvements, the Cardiology Informatics Project Managers combined each other's best practices with industry standards to create a new way of working, inclusive of a robust control plan.

As the team approached the first improvement milestone in May 2018, the needle had already moved reducing the average time by 42%. The "Continuous Improvement" culture continues and in FY18 Q3 the average implementation time dropped an additional 13%; a 55% improvement to date. In addition, variation between projects was reduced allowing for significant tightening of the control limits.
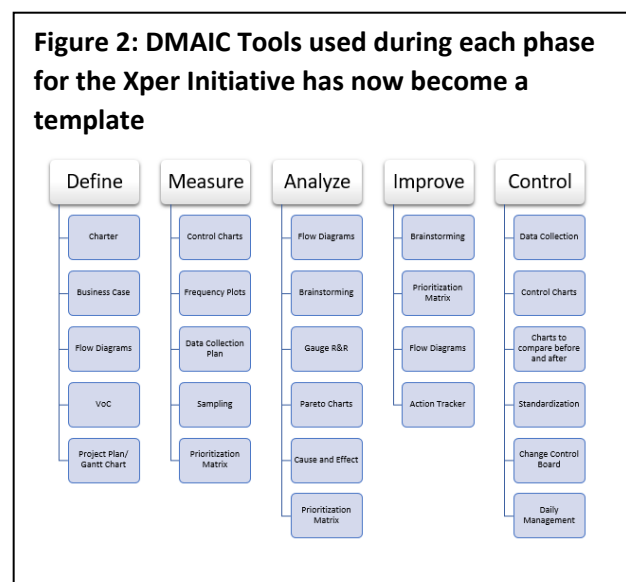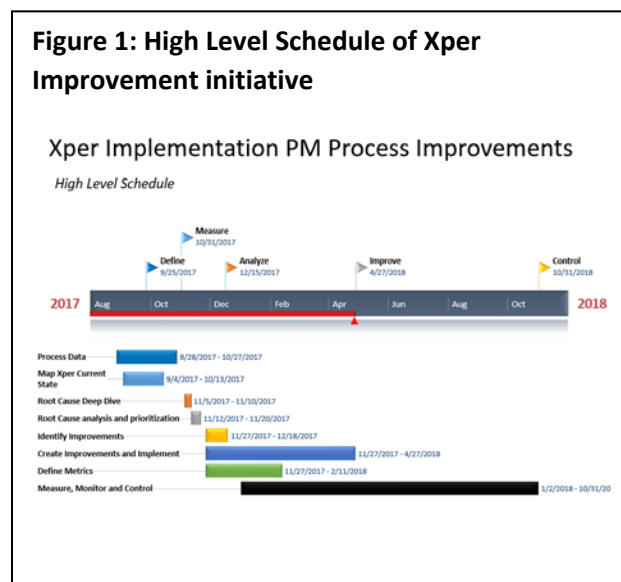
The cultural shift has led to the launch of three additional initiatives by Cardiology and an entire program established by the Radiology Informatics team. The organizational transformation has created a culture of data driven problem solving, driving strategic and sustainable improvement across Philips Healthcare Informatics.

Our Approach

For the Xper initiative, driven by Project Managers (Gemba) with a Lean Six Sigma Black Belt Facilitator, the remote team of Subject Matter Experts began by mapping the process together on conference calls. It was immediately clear that variability was being introduced to the process, as everyone had different ways of working. Each Project Manager had different milestones, templates, tools, sequence of steps and even the steps themselves. It was at this point, that the team truly turned the Norming and Storming corner and shifted into top gear Performing stage.

Baseline data confirmed the variability hypothesis as demonstrated by a high upper control limit, three standard deviations from the mean. Additionally, there were a further 13 failure points that exceeded that upper limit. At this stage the team took a step back, investigated further, and held a cause and effect session to further understand the root cause of the variation. At the end of the session, all evidence pointed to a lack of standard work.

The Project Managers quickly leveraged each other's best practices, industry standards from the Project Management Institute (PMI) and internal Philips methodologies to create a standard set of templates, workflows, milestones and measurements for success. Phased rollouts occurred between January and April 2018 and much of this new way of working can be seen today. Figure 1 below shows the high level schedule for the initiative and figure 2 is the outline of tools used at each phase of the improvement.

Figure 1: High Level Schedule of Xper Improvement initiative

Figure 2: DMAIC Tools used during each phase for the Xper Initiative has now become a template

Short Term Strategy (1-2 years)

Building on our early wins, we have expanded our continuous improvement initiatives across the Healthcare Informatics business units. Nurturing a culture of continuous improvement will evolve the development of the business itself and affect the company strategy as a whole. Our Healthcare Informatics (HI) Continuous Service Improvement long-term strategy can be seen in Figure 5 below and was built keeping several key attributes that are critical to transformation in mind as seen in figure 3. As we advance our maturity, we must remain flexible with our strategy to incorporate lessons learned, newly defined best practices, changing customers' needs, expanded employee talents, new technologies and more into our go forward planning....

Over the next 1-2 years we will:

- **Embark on strategic initiatives in each key business and functional area (Figure 4 shows the program launched in June)**
- **Create standards and tools for continuous improvement and coach employees as they develop quality skill sets**
- **Create a library of continuous improvement projects and a lessons learned repository**
- **Pair Global Operations as facilitators with Subject Matter Experts in Gemba to drive further improvement**

- **Mature monitoring systems and governance structures to proactively identify improvement opportunities**
- **Establish Key Performance Indicators traced to Strategic and leadership goals**
- **Embed continuous improvement into employee development plans and Rewards and Recognition programs**
- **Ensure strong foundations and adoption with yearly tactical plans (Figure 5 below)**
- **Establish a Business Transformation Steering Committee**
- **Improve forecasting and capacity planning from a global perspective**

Figure 3: Transformation for us encompasses all attributes

Figure 4: Healthcare Informatics (HI) CSI Program launched in June 2018

Customer Operations: HI Continuous Service Improvement (CSI) Program
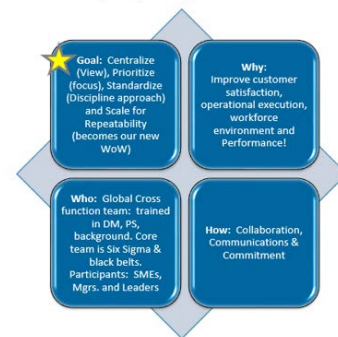
*The **Global Ops CSI Team** and global stakeholders work to ensure desired outcomes achieved. Pride, DMAIC and Daily Management tools leveraged to instill rigor, discipline, coaching, centralization and change management.*

We are mainstreaming a DM way of life into all our improvement projects

# Long Term Strategy (3-5 years)

Over the next 3-5 years we will:

- **Use the roadmap and evolve**
- **Embark on strategic initiatives in each key business and functional area in Healthcare Informatics**
- **Evolve pillars in our House of Quality (Figure 5) to meet business, customer, technology and cultural needs**
- **Build upon strong foundations by taking steps to move into the Optimizing Maturity levels of CMMI Methodology**
- **Continue to evolve metrics, tracking and daily management as needed**
- **Broaden our "steps" by increasing the tactical elements (pillars in figure 5)**
- **Mature knowledge basis and training across organizations and generate more flexibility in our workforce**

Figure 5: Healthcare Informatics (HI) Continous Service Improvement- long term strategy

HI Culture of Continuous Service Improvement- Long Term Strategy

❑We want to develop a culture of *continuous* improvement and cost saving customised to HI
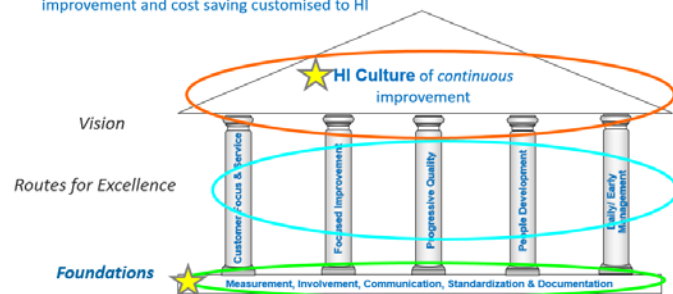
- **Shift improvements to more tactical and specific as maturity evolves**
- **Sponsor individuals in each business unit for training and certifications in Operational Excellence**

General Information

- Philips Connected Care & Health Informatics businesses sales in 2017 were EUR 3,163 million
- Healthcare Informatics is home to approximately 1,500 global employees
- The size of the current deployment challenge spans across 2 global business divisions- Cardiology Informatics and Radiology Informatics
- The penetration of the Operational Excellence deployment across the organization is end to end, involving many groups including Research and Development, Service, Implementation Engineering, Finance, Sales, Solutions Architecture, Applications consultants and more
- The impact of our Excellence deployment can be seen today by:
  - o Increase in Customer Satisfaction Score in Cardiology
  - o Customer testimonials in Cardiology Informatics in September-October 2018:
    - "This is Fantastic- I wish we upgraded sooner"- Customer Physician
    - "I wish all our upgrades went like this; I'm dreading the next one we have with our other vendor" – Customer IT Employee
    - "Philips really came through here"-Customer Sponsor
    - "I can't believe I can actually sleep at night during an upgrade!"- Customer Project Manager
    - "I'd like to thank you. Your organization and structure was really beneficial. We haven't seen this from Philips in past upgrades. Since you had such a firm handle on this, I didn't feel like I had to be directly involved."- Customer Sponsor
  - o New process pilot sites for implementation in Radiology Informatics have had positive outcomes
  - o Reductions in cycle time, variation, cost of non-quality in Cardiology Informatics
  - o No failure points above the upper control limits of monitored Cardiology Informatics Implementations Processes due to common cause
  - o Internal feedback and testimonials from Gemba through senior leadership
    - "This team sparked something- it's hard to put my finger on it but we are definitely transforming"- Health Care Informatics Senior Business Unit Leader
    - "I've learned that sometimes we need to go slow at first when problem solving to truly understand the issues at hand to get the right solution in place with results and sustainability"- Cardiology Informatics Senior Business Unit Leader
    - "Our planning accuracy has improved and we are hitting out target dates 97% of the time"- Cardiology Informatics Zone Implementation Manager
    - "This helps me save time and the customers love it"- Project Manager in Cardiology Informatics
    - "My customers are more comfortable and really appreciate the attention to detail and rigor from our new processes"- Project Manager in Cardiology Informatics
    - "This improvement journey that we are on, I really feel like we are starting to make a difference and see the results"- Radiology Informatics Project Manager and Process Improvement Team Member
- The impact of the Operational Excellence deployment affects all members of Cardiology and Radiology Informatics.
  - o Global Operations is actively coaching improvement project team members on the Problem Solving methodology and tools referenced above
  - o Stakeholders and sponsors have been trained on their roles and responsibilities as tollgate keepers for improvement initiatives and provided a template to assist in decision making and steering
- In 2017, four Operational Excellence projects were launched. In 2018, the Program launched across HI consisted of 10 strategic initiatives in Radiology Informatics (an additional 4 in queue) and 6 in Cardiology Informatics (2 in queue). In addition to these strategic initiatives, 16 quick win initiatives to introduce countermeasures and fast defect fixes, were launched that took less than 30 days each to complete
- A new Kanban board has been implemented for the Healthcare Informatics Continuous Improvement Projects with great success, resulting in teams working across organizations, improved communications and fewer "silos"