Technology Tool for Nurses (TTFN): A Clinical Transformation Methodology for Nursing Informatics

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Background

Technology projects within healthcare are more complex than typical healthcare decision-making processes due to the multi-layer factors that influence the technology life cycle (Saba and McCormick, 2015).

Using a framework of a technology assessment generates questions that facilitates a goal of providing quality patient care and nurse satisfaction (Manning and McConnell, 1997). The conceptual building blocks of data and information transformation into knowledge in 2002 by Graves & Corcoran, and its expansion to gain wisdom by Nelson in 2013 establishes the foundation for nursing informatics to influence decision-making (ANA, 2015).

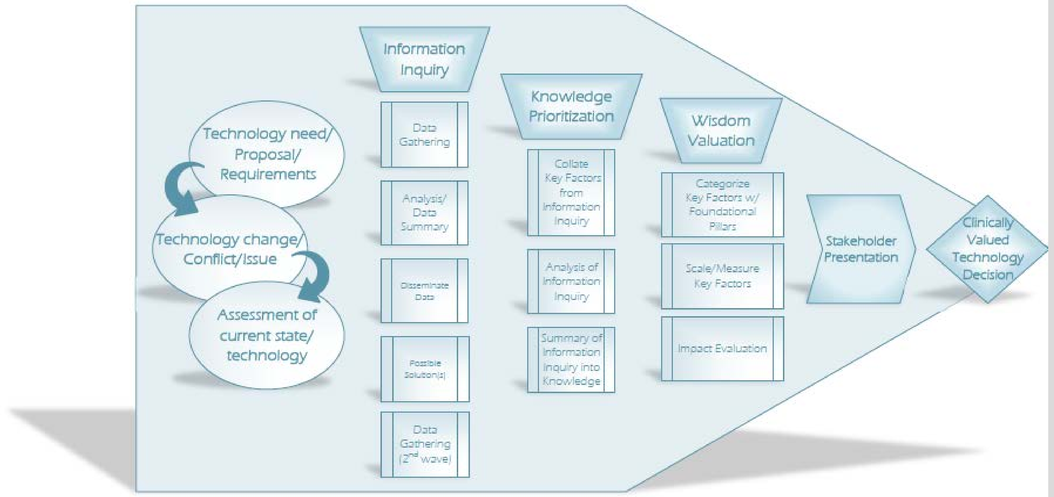
The Technology Tool for Nurses (TTFN) is a modified practice tool which is scalable to facilitate technology decisions or projects such as a clinical communication solution.

Purpose

The TTFN provides a method of empowerment for an informatics nurse/informatics nurse specialist (IN/INS) to transform healthcare technology by:

1. Enabling an assessment of clinical technology effort stream(s), device(s), or system(s)
2. Promoting a transparency between opposing forces of clinical value versus technology driven implementations by weighting key factors (i.e. Cost-Benefit, etc.)
3. Uses both quantitative and qualitative data to support, promote, or decline an impactful clinical technology decision

TTFN Framework



Design

The TTFN guides, for example, the selection process of a clinical communication solution, by following these steps:

- **Proposal/Need**: Defines the requirements for user, goal, or solution
- **Conflict/Issue:** Examines any issues or arisen problems with need
- **Information Inquiry:** Current state assessment includes gathering, analyzing, summarizing, and disseminating results
- **Knowledge Prioritization:** Defines/collates key factors from assessment during analysis
  - **Key factors:** Critical criteria that strongly influence the decision-maker(s) stakeholder(s) opinion of the technology
- **Wisdom Valuation:** Assigns key factors to foundational pillars while measuring or scaling them.
- **Stakeholders Presentation:** Disseminates results, subjective user feedback, and weighted value of key factors within foundational pillars
- **Decision:** Stakeholders are able to comprehend clinical value versus cost

6 Foundational Assessment Pillars

- **Productivity** = End-user experience; Efficiency; Improve/streamline workflows
- **Quality/Safety** = Does no harm; Impact clinical outcomes neutrally or positively
- **Patient Experience** = Enhanced perception and reality
- **Cost-benefit** = Financially responsible
- **Feasibility** = Ability to actually implement with reasonable resources

Wisdom Valuation Examples:

Key Factors	Foundational Pillars	V1	V2
"Hands-Free" device	Productivity Feasibility	P = 5 F = 5	P = 1 F = 1
Provides features like broadcast, staff assist, emergencies notifications	Quality/Safety Feasibility	QS= 4 F = 5	QS = 3 F = 4
Enhances patient experience with perception (i.e. work versus using cell phone)	Quality/Safety Patient Experience	QS= 4 PS= 5	QS= 3 PS= 2
Communication device option for patient/family	Quality/Safety Patient Experience	QS= 4 PS= 4	QS= 3 QS= 3
Allows opportunity to multitask (e.g. verbally communicate whilst still providing patient care.)	Quality/Safety Patient Experience Productivity	QS = 5 PS = 4 P = 5	QS = 3 PS = 3 P = 3
Ability to translate text messages to voice (vs. reading texts, disrupting patient care)	Productivity Feasibility	P = 5 F = 5	P = 1 F = 1
Personalize voicemail ; stored on server	Productivity	P = 5	P = 3
Single number to access system from outside the facility or inside	Feasibility	P = 4	P = 1
Searchable directory by name or variations of name/names	Productivity	P = 5	P = 4
[illegible]	Productivity	P = 5	P = 4
[illegible]	Cost-benefit Productivity	P = 5	CB = 4 P = 2
[illegible] plemented at	Cost- benefit	CB = 2	CB = 5

	Questions from Survey tool	Vendor 1 (scores of 5 by role)		Vendor 2 (scores of 5 by role)	
Q1	"This solution is an improvement from our current state"	RN MD RT Other	86% 100% 100% 60%	RN MD RT Other	43% 0% 0% 40%
Q2	"This solution will make my job easier"	RN MD RT Other	71% 100% 100% 40%	RN MD RT Other	14% 100% 100% 40%
Q3	"This solution supports on-campus and off-campus workflows"	RN MD RT Other	43% 0% 0% 40%	RN MD RT Other	29% 0% 0% 40%
Q4	"This solution will replace my need for a pager"	RN MD RT Other	57% 100% 100% 60%	RN MD RT Other	29% 0% 0% 60%
Q5	"This solution supports workflows when working at patient bedside"	RN MD RT Other	86% 100% 100% 40%	RN MD RT Other	29% 0% 0% 40%
Q6	"I would prefer to use this communication solution for my clinical work"	RN MD RT Other	71% 100% 100% 0%	RN MD RT Other	14% 0% 0% 20%

Summary/Benefits

The TTFN Framework:

- Designed to guide the IN/INS
- Analyzes potential technology
- Assists with any changes into the Electronic Health Record (EHR)
  - Optimization of workflows
  - Changes in documentation
  - Additional documentation considerations or other considerations within the system
- Tailors and isolates key elements to be identified within the planning phase of a system design life cycle (SDLC) for specific technology implementation requests (Saba and McCormick, 2015)
- Assigns "weighted value" to the key factors

References

American Nurse Association. (2015). *Nursing Informatics: Scope and Standards of Practice, 2nd ed.* Silver Spring, MD: Print.

Manning, Judith, & McConnell, Edwina A. (May/June 1997). Technology Assessment: A Framework for Generating Questions Useful in Evaluating Nursing Information Systems. *Computers in Nursing*, 15, (3), 141-146.

Saba, Virginia, K. & McCormick, Kathleen A. (2015). *Essentials of Nursing Informatics, 6th ed.* New York, NY: McGraw Hill Education.