Object Management Group
Business Process Management Plus (BPM+) Initiative
Academic and Professional Education (APE) Committee

BPM+ Educational Strategy Charter and Roadmap
Version 1, Approved November 9, 2020

Sign for the APE Committee at https://www.bpm-plus.org/working-groups/sign-up-form.htm

Contents

What is BPM+ (WHY we are doing this?)

The Business Process Management Plus Health (BPM+) initiative on standardization of clinical pathways allows visual representation (modeling) and communication of business standards (process flow (workflow) and data flow) to build health information technology (HIT) applications. BPM+ standards improve usability of HIT applications for end users (clinicians, public health professionals, researchers and other) for tasks and activities that require data capture, management, analysis, access, use and re-use thus supplying right data, at the right time, in the right format to those who need to know.

As a suite of business standards, BPM+ represents clinical pathways in machine-readable way to assist end users in effective/efficient communication in and across various health settings to improve patient

treatment experience, enhance patient safety, facilitate efficient clinical operations and communications, and aid public health interventions, research and workforce education.

The BPM+ initiative is managed by the Object Management Group (OMG), a standards development organization charged with development, management and oversight of all activity relating to BPM+.

Vision (WHY)

BPM+ needs a workforce proficient in standards-based representation of data, information, and knowledge in health information technology (HIT) applications for sharing, use and re-use across participating stakeholders, so those who need to know have right information, at the right time, in a right format.

Mission (WHAT)

The Academic and Professional Education (APE) Group of the BPM+ initiative enables adoption of BPM+ standards through educational resources in support of professional and academic education.

Objective (HOW)

Develop and adopt BPM+ educational resources on standard-based, sharable, computable clinical pathways in educating workforce via
- ***academic education*** *in informatics, analytics and data science in schools of medicine, nursing, public health computer science, system engineering and other*
- ***professional development*** *for health organizations, professional associations, public health agencies, clinical research organizations and other*

Goals/Outcomes

Build a proficient workforce to participate in:
- Developing standards-based computable pathways at healthcare, public health and research organizations
- Developing standards for computable clinical pathways at standards development organizations (SDOs)
- Implementing standardized, computable clinical pathways in HIT products

Open Issues

1. Define metrics for achieving "proficient" over time, eg, current/future state. Use BPM+ Health Maturity Model Integration (example from Capability Maturity Model Integration CMMI in software development (Reference: https://en.wikipedia.org/wiki/Capability_Maturity_Model_Integration). Collaboration with the Adoption Workgroup.
2. Expand the description of the Goals/Outcomes by the following target audience:
   a. Academic education;
   b. Professional educations at healthcare organizations, vendors, SDOs, other
3. Define a roadmap for BPM+ Health Maturity Model Integration along with process measure to achieve its goals.
4. Address current (EHR, mobile, digital) and emergent (eg, Digital Twins) HIT, their impact on BPM+ Health standards, and vice versa

Scope and Tasks

The initial effort includes defining the four aspects of BPM+ education as follows:

1. Who to teach (Target Audience)
2. What to teach (Content, Product and Services)
3. How to teach (Delivery Options and Timeline)
4. Who will teach (Teaching Experts)

Who to Teach: Target Audience

Teach BPM+ Health standards to the following three stakeholder categories via the academic and professional education:

1. Users of HIT products (end users)
2. Vendors/developers of HIT products
3. Standards developers and
4. Influencers.

Academic Education (prospective employees)	Professional Education (current employees)
End Users: Program leadership, students and faculty of, schools of medicine, nursing, public health, computer science, health information management (HIM) programs, health informatics (HI) and analytics programs, other	**End Users:** Healthcare organizations' staff (Clinical Documentation Improvement (CDI) professionals, health information managers (HIM), informatics and analytics staff, executives), other Professional Associations/Certification Bodies *Clinicians*: AMIA, AHIMA, ANA, CAP, ACOG, ACEP, HIMSS, ADA, AAO (*to be invited*), other *Public Health Professionals*: APHA, APHL, CSTE, ASTHO, NACCHO, SDMPH, (*to be invited*), other *Researchers*: clinical research organizations (CROs) Payors/Donors: CMS, private payors, foundations, etc. Researchers Governmental Agencies: ONC, CDC, FDA, HRSA, AHRQ, NLM (*to be invited*) and their equivalents in other countries, other
Vendors/Developers: Computer science (CS), systems engineering (SE) programs, other	**Vendors/Developers**: Professional Associations: HIMSS, SAS, Open source community (*to be invited*), other HIT vendors: IT developers (EHR, etc.), open source community, business analysts, integrators, modelers (HIMSS, OMG)
Standards Developers:	Standards development organizations (SDOs): HL7, IHE, ISO/TC215, DICOM (*to be invited*), other
Influencers: Academic leadership for courses/programs for executives, policy makers, patient advocates	**Influencers**: LEAN and Six Sigma Communities (industrial engineering), Systems Engineering (INCOSE) Health Care working group, other

Survey on User Needs

Conduct a survey on *Teaching of BPM+ in academic and professional programs* during the Summer 2020, in order to define the needs of the target audiences and to create educational resources and materials.

The survey will consist of 2 parts as follows
   Part 1: Access existing academic and professional programs with BPM content, eg, workflow modeling (who, what, to which extent programs are teaching BPM)
   Part 2: Survey of Tools/Value Engineering Methods - Access BPM+ tooling for teaching.

What to Teach

Existing Programs

Assess existing programs that are teaching BPM in informatics and computer sciences program curricula via literature review and/or survey. Examples include (*add proper course titles*):

Johns Hopkins Divisions of Health Sciences Informatics, HIT Standards and Interoperability Course (Anna Orlova): https://ocw.jhsph.edu/index.cfm/go/viewCourse/course/infstandards/coursePage/index/
Tufts School of Medicine MS Health Informatics and Analytics (HIA) Program (Anna Orlova) HIA Program Catalog: https://onlinepublichealth.tufts.edu/online-masters-health-informatics-analytics/course-descriptions/?&l=GGL%7CTUF-MHIA%7CSEM%7CBRD%7CTIER0%7CExact%7CBrand%7COffline&ef_id=c:433185977723_d:c_n:g_ti:kwd-719580414904&gclid=CjwKCAjw88v3BRBFEiwApwLevdPPd7EI-A2fDotXdkauUEGxHeN3dZxLb4_xN91CAOpUHohyy58XvRoCSK0QAvD_BwE&gclsrc=aw.ds#required-core
Idaho State University MS Health Informatics Program (Velma Payne) Program Catalog: http://coursecat.isu.edu/graduate/college-of-health-professions/healthinformatics/ Department / HI Section: https://www.isu.edu/mshi/
University of Utah (Robert Lario, Bruce Bray)
Duke University School of Nursing (Rachel Richesson) MSN programs: https://nursing.duke.edu/academic-programs/msn-master-science-nursing/health-informatics MSN Core curriculum: https://nursing.duke.edu/academic-programs/msn-master-science-nursing/msn-curricula Informatics curriculum: https://nursing.duke.edu/sites/default/files/msn_curriculum_requirements_-_nursing_informatics.pdf
Other

*MS-Master of Science

Competencies

Collaborate with AMIA, CAHIIM, AHIMA, HIMSS Technology Informatics Guiding Education Reform (TIGER) and other entities* for validation or addition of BPM+ content. Examples of competencies include

- **Health Information Management and Systems Society (HIMSS). Certification.**
  https://www.himss.org/resources/certification

  o *CAHIMS* – Certified Associate in Health Information Management Systems.
    https://www.himss.org/resources-certification/cahims

  o *CPHIMS* – Certified Professional in Health Information Management Systems.
    https://www.himss.org/resources-certification/cphims

- **American Medical Informatics Association (AMIA).** Health Informatics Certification Commission. Health Informatics Certification. *Work in progress*. https://www.amia.org/ahic and https://www.amia.org/ahic-certification-commission

- **American Health Information Management Association (AHIMA)**. Global Academic Curricula Competencies for Health Information Professionals. 2015.
  http://www.ahima.org/about/global/global-curricula

* HITComp (http://hitcomp.org/) is a searchable database designed for educators, workforce developers, current and future workforce members, students, eHealth managers, staffing experts and other interested parties in healthcare information technology/eHealth. The HITComp Tool and Repository can be used to compile information on skills and competencies needed for a variety of healthcare roles, levels and areas of knowledge. The HITComp includes 1000 competencies in five domains – Direct Patient Care, Administration, Informatics, Engineering/IS/ICT and Research/Biomedicine. Competencies are associated with a particular level of skill (Baseline, Basic, Intermediate, Advanced and Expert). Competencies are also mapped to over 250 health IT-impacted roles in acute care and other health care settings in each of the five domains. As a part of the is the European Union-US eHealth Project, HITComp provides access to knowledge tools and platforms, and strengthening, disseminating and exploiting success outcomes for a skilled transatlantic eHealth workforce.

*HITComp <http://ehealthwork.eu/>, a European Commission-funded project under the Horizon 2020 program to advance digital skills development for workforce members for a skilled transatlantic eHealth workforce.

Products and Services
1. BPM+ educational strategy roadmap (current document)
2. Curriculum and content for educational modules on computable clinical pathways development and adoption for
   a. academic courses
   b. professional development and certification, eg, AHIMA CDI program (CDIP) https://www.ahima.org/certification/cdip); AMIA 10x10; OMG BPMN
   c. on-the-job training
3. Online tutorials and materials for educational webinars, presentations, online training, etc.
4. Reference Implementation Tooling/BPM+ Education Toolkit including inventory of content management, modeling and other software and tools including downloads, cloud, open source sandboxes, BPM+ + Smart on FHIR (Visio, Enterprise Architect, LEAN, Six Sigma, etc.)
5. Communication and marketing on APE efforts
6. Other

How to Teach
For content development, partner with BPM+ Committees.

For academic education, partner with Universities (Duke, Hopkins, Tufts, Utah, other) to share lecture(s) content, Case Studies for Labs, Capstones practicum, Fellowships (VA), Internships, Co-ops with industry, etc.

For professional education, partner with health organizations (clinics, public health agencies, clinical research organizations (CROs), SDOs, other) and professional associations to present at professional meetings (AMIA, AHIMA, HIMSS, other) via workshops, webinars, certification exams, etc.

Who will Teach

Collaborate/build a pool of training consultants via collaboration with the BPM+ Groups, BPM+ Ambassadors and other channels (*Train the Trainers*) to use and deliver BPM+ materials in
- academic courses of informatics, analytics and computer science programs
- on-the-job training in health organizations
- professional training at the conferences of professional associations, SDOs and other venues
- other.

Initial Timeline, Deliverables

Task #	Task Description/Deliverable	Dates	Point of Contact
1	By-weekly calls on Tues starting 4/14 2-3pm ET	3/27, after 4/14	Tracie Berardi, Linda Chan
2	APE Community infrastructure including calendar, announcements/communication, shared working space (Confluence, Trello), staff support and other	After 4/14	Tracie Berardi, Linda Chan
3	BPM+ Educational Strategy Roadmap (Charter) document	Initial draft - 4/14 Version 1 - 6/1	Anna Orlova, Lee Wise, Co-chairs
4	Call for Leads for the Action Items: 1. Access existing academic and professional program with BPM content 2. Access competencies for addition of BPM+ 3. Access BPM+ tooling for teaching 4. Conduct survey on user needs 5. Membership recruitment and outreach	By 4/28	Co-chairs and Leads: 1,2-Velma Payne 3-Mike Cesino 4-Ann Nguyen, Ken Rubin, Mike Cesino
5	Call for APE Representatives in Other BPM+ Committees	By 4/28	Co-Chairs and Representatives
6	BPM+ Educational Strategy Roadmap (Charter) – Review by BPM+ members at large	7/7-8/31	Anna Orlova, Lee Wise, Co-chairs
7	BPM+ Educational Strategy Implementation • Launch a pilot capstone during May 18-August 11: *Developing Educational Module on Clinical Pathway Standardization using BPM+* in collaboration with Duke university	5/8 – 9/01	Rachel Richesson, Co-chairs, Leads
	• BPM+ Training Pilot at the Fall BPM+ meeting in collaboration with BPM+ Jumpstart session	Fall 2020	APE members

Abbreviations

AAO	American Association of Orthodontists
ACEP	American College of Emergency Physicians
ACOG	American College of Obstetricians and Gynecologists
ADA	American Dental Association
AHIMA	American Health Information Management Association
AMIA	American Medical Informatics Association
ANA	American Nursing Association
APHA	American Public Health Association
APHL	American Association of Public Health Laboratories
AHRQ	Agency for Healthcare Research and Quality
ASTHO	Association of State and Territorial Health Officials
CMS	Center for Medicaid and Medicare Services
CDC	Centers for Disease Control and Prevention
CAP	College of American Pathologists
CSTE	Council for State and Territorial Epidemiologists
DICOM	Digital Communication in Medicine
FDA	Food and Drug Administration
HIMSS	Health Information and Management Systems Society
HL7	Health Level Seven
HRSA	Health Resources and Services Administration
IHE	Integrating the Healthcare Enterprise
ISO/TC215	International Organization for Standardization, Technical Committee 215 Health Informatics
INCOSE	International Council on Systems Engineering
NACCHO	National Association of City and County Health Officials
NLM	National Library of Medicine
ONC	Office of the National Coordinator for Health Information Technology
SDMPH	Society for Disaster Management and Public Health
SAS	Statistical Analysis Software