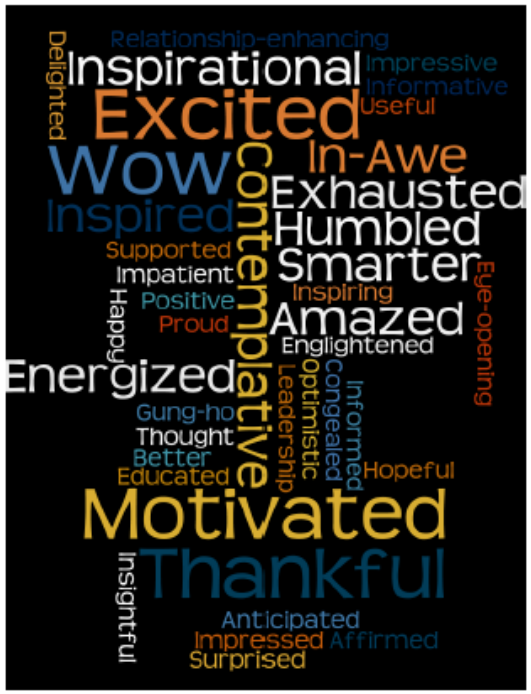

APQC KM Working Group Update
Critical Knowledge 2020

Jeff Northey, David Meza, Michael Bell, Julie Barnes

May 17, 2016

APQC KM Working Group Team Members

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Project Coordinator

PFIZER

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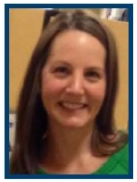

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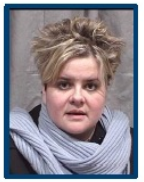

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NASA Lessons Learned
Program Manager

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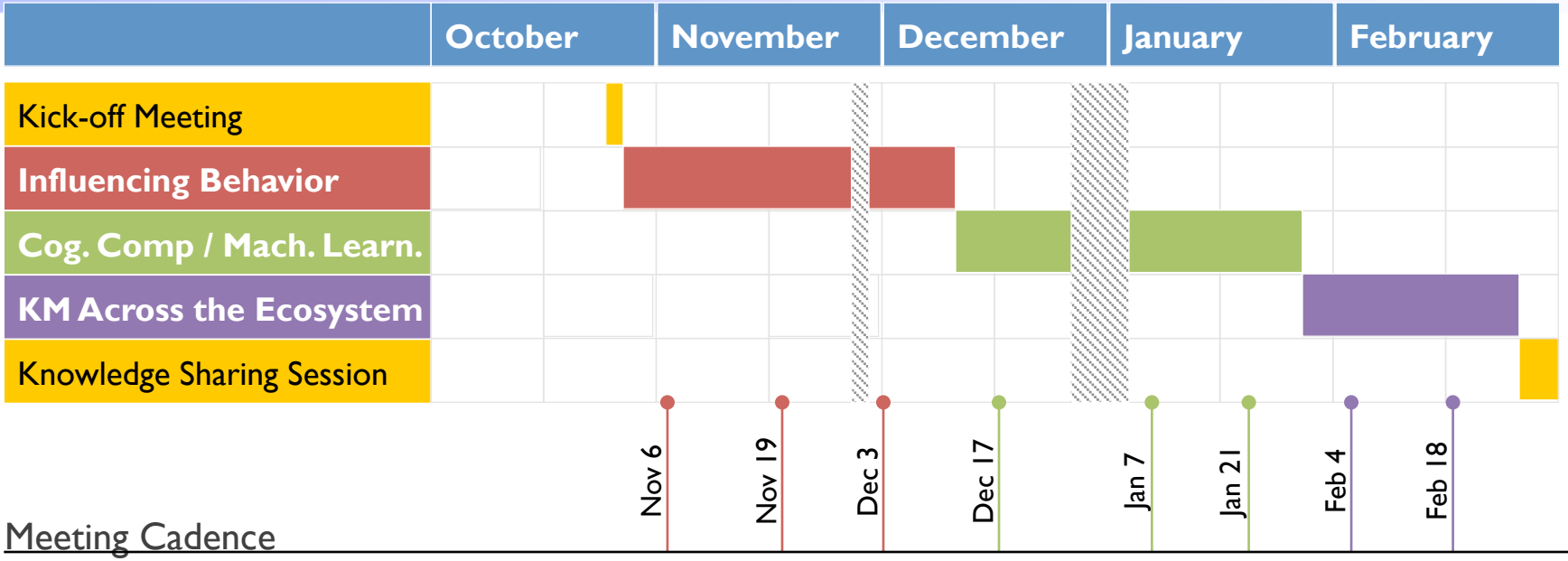
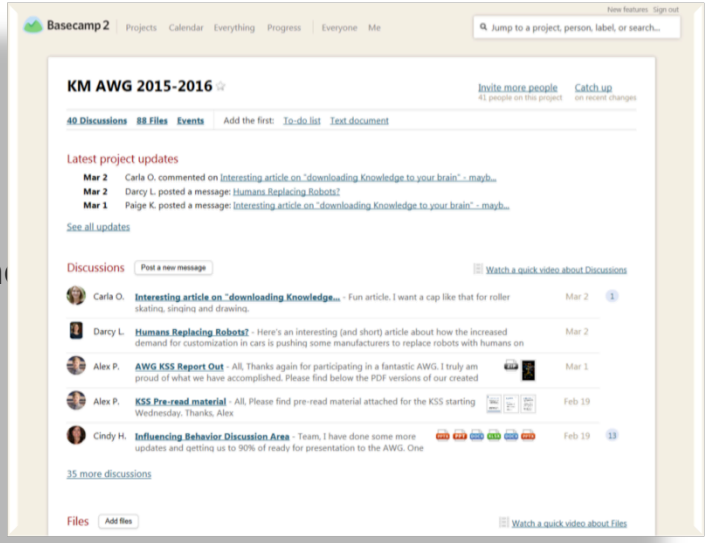
Strategic
Communications
Office Lead NASA
IV&V Program

Project Stages



Meeting Cadence

- 8 bi-weekly meetings on Thursday 1-3PM CT
- GoToMeeting platform
- Attendance policy: team attendance, not individual attendance
- Basecamp will be utilized for communication and docum sharing

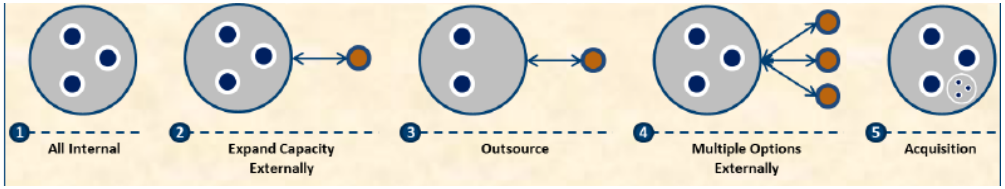


KM Across the Ecosystem

Need: Our organizations have multiple alliances, partners, vendors, universities, subcontractors, customers, and suppliers constantly gaining new knowledge. *How can the organization harness this knowledge and lessons learned?*

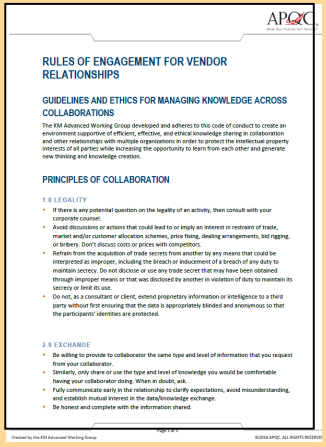
Outcomes

- ✓ Envision and draw ecosystem of the future
- ✓ Document current ecosystem
- ✓ **A code of conduct or set of business rules**
- ✓ Characteristics of the different types of vendor relationships



SpaceX Falcon 9 Dragon CRS-7 Launch Mishap

Blue Origin's Controlled Vertical Landing



RULES OF ENGAGEMENT FOR VENDOR RELATIONSHIPS

GUIDELINES AND ETHICS FOR MANAGING KNOWLEDGE ACROSS COLLABORATIONS

The KM Advanced Working Group developed and adheres to this code of conduct to create an environment supportive of efficient, effective, and ethical knowledge sharing in collaboration and other relationships with multiple organizations in order to protect the intellectual property interests of all parties while increasing the opportunity to learn from each other and generate new thinking and knowledge creation.

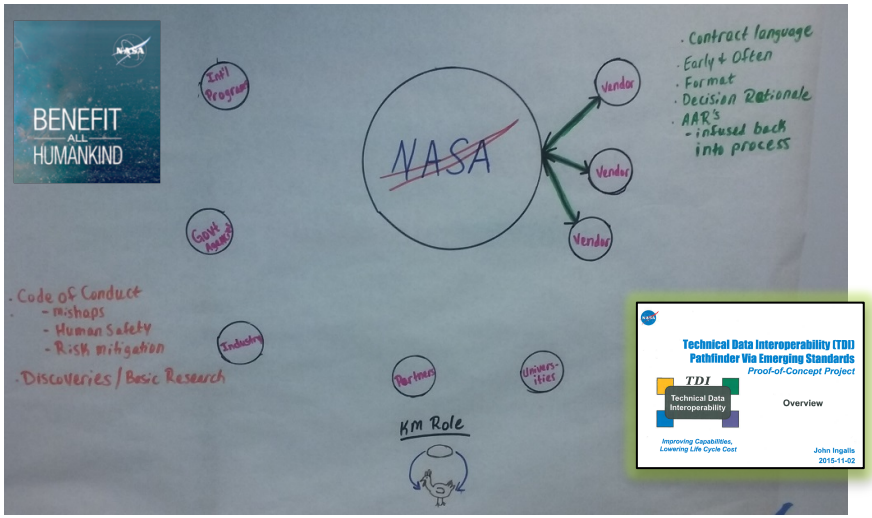
PRINCIPLES OF COLLABORATION

1.0 LEGALITY

- If there is any potential question on the legality of an activity, then consult with your corporate counsel.
- Avoid discussions or actions that could lead to or imply an interest in restraint of trade, market and/or customer allocation schemes, price fixing, dealing arrangements, bid rigging, or bribery. Don't discuss costs or prices with competitors.
- Refrain from the acquisition of trade secrets from another by any means that could be interpreted as improper, including the breach or inducement of a breach of any duty to maintain secrecy. Do not disclose or use any trade secret that may have been obtained through improper means or that was disclosed by another in violation of duty to maintain its secrecy or limit its use.
- Do not, as a consultant or client, extend proprietary information or intelligence to a third party without first ensuring that the data is appropriately blinded and anonymous so that the participants' identities are protected.

2.0 EXCHANGE

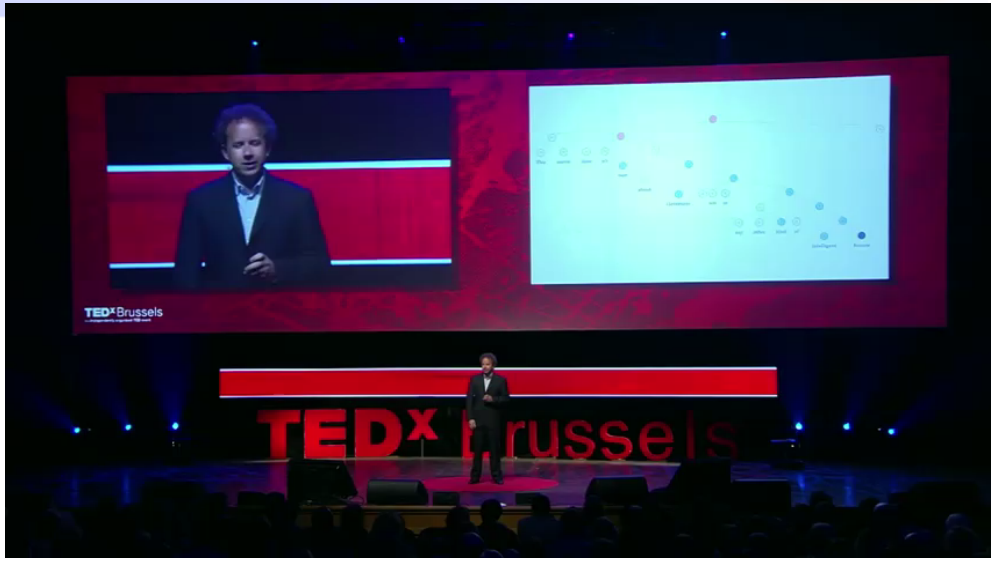
- Be willing to provide to collaborator the same type and level of information that you request from your collaborator.
- Similarly, only share or use the type and level of knowledge you would be comfortable having your collaborator doing. When in doubt, ask.
- Fully communicate early in the relationship to clarify expectations, avoid misunderstanding, and establish mutual interest in the data/knowledge exchange.
- Be honest and complete with the information shared.



Cognitive Computing and KM

Topic Definition

1. To investigate how cognitive computing and **machine learning** can address traditional and emerging KM capabilities.
   - Select the current and future KM approaches and capabilities that we want to work with. (e.g., expertise location and profiling; search; collaboration (e.g., communities of practice; social networks); lessons learned; knowledge mapping; etc.)
   - Envision how CC might enable or impact
2. Capture and use lessons learned from mobile, social and cloud
3. What issues need to be addressed to make it work?



NASA@work Challenge https://nasa.innocentive.com/ici/UXInquiry/show/12

Question # 12

Where Can Machine Learning and Advanced Algorithms be used to Advance Our Space Exploration Goals?

Much of the science, engineering, and operations that are required for NASA to get to the next level in Space Exploration may be significantly aided and improved by emerging Machine Learning technologies and Big Data algorithms. To better understand what advancements are being made in this area, check out Jeremy Howard's TED talk. Jeremy Howard is an expert in Machine Learning and describes several examples of the benefits of exploring and using Machine Learning. This capability may have significant applications here at NASA.

Uses of Machine Learning For Auto Generation of Pre-Task Safety Information

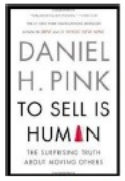
- When an employee is assigned to a new project, operation or task,
- a machine learning algorithm could review safety and mishap databases and compile relevant safety information about that task (latest Agency and Industry information)
- the system would send a summary e-mail highlighting lessons learned documents and videos based on the system and project life cycle.
- the system would identify potential experts or other working on similar projects across the Agency.

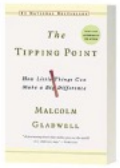
Uses of Machine Learning for auto generation of Knowledge Sharing Opportunities

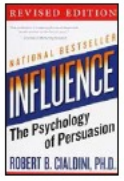
- When a meeting is scheduled through the Outlook shared calendar, a machine learning algorithm system would read the topic, agenda and attendees and then
- compile and summarize the latest Agency and Industry information about that topic
- learn of people at other Centers working on similar projects and then identify other potential attendees/ experts.

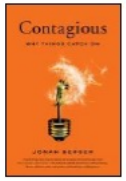
Influencing Behavior

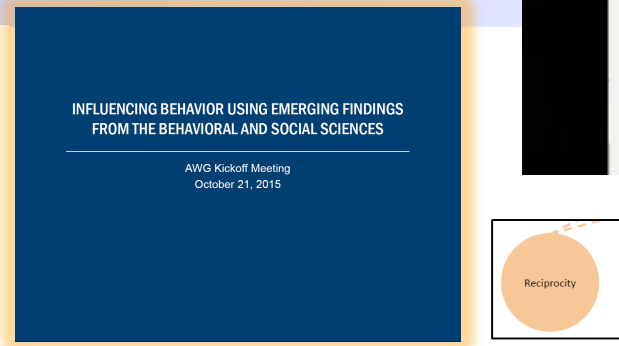
Influence Techniques

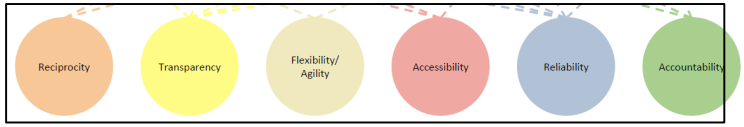




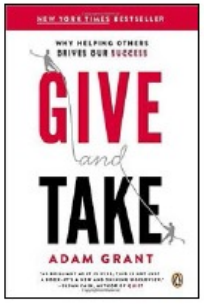


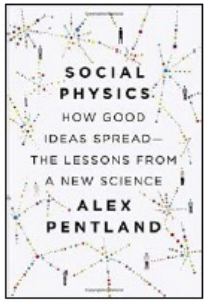






Group Dynamics

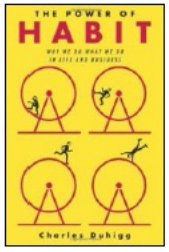


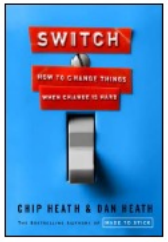


Potential Outcomes

- Futuristic story: visualizing how we might work in the future
- Provide a deeper understanding of behavior to gain better adoption

Individual Habit & Behavior Change





KM 5 Year Milestones

Other KM Initiatives	KM Strategic Plan	NASA Tube deployment	Roll out expert locator		KM Metrics	Revamp Knowledge Policy
Influencing Behavior	NASA Wikis		Silver Tsunami will change the dynamics of behaviors that can be influenced	Will need to understand the how to motivate this new workforce		
KM Ecosystem		Knowledge Sharing Influence Across Procurements	Interviews with EM1 participants		TCAT/ BSA cross Center capabilities	
Cognitive Computing		Improved search capability via HIS Goldfire	Data Driven visualization across Agency Systems	Link all lessons learned databases for search ability	Mining Outlook to invite people to meetings or send FYI notices	
	2016	**2017**	**2018**	**2019**	**2020**	**Beyond**