STM TECH TRENDS 2021
Trust and Integrity

STM Annual US Conference, Washington DC
27 April 2017
Presented by Eefke Smit
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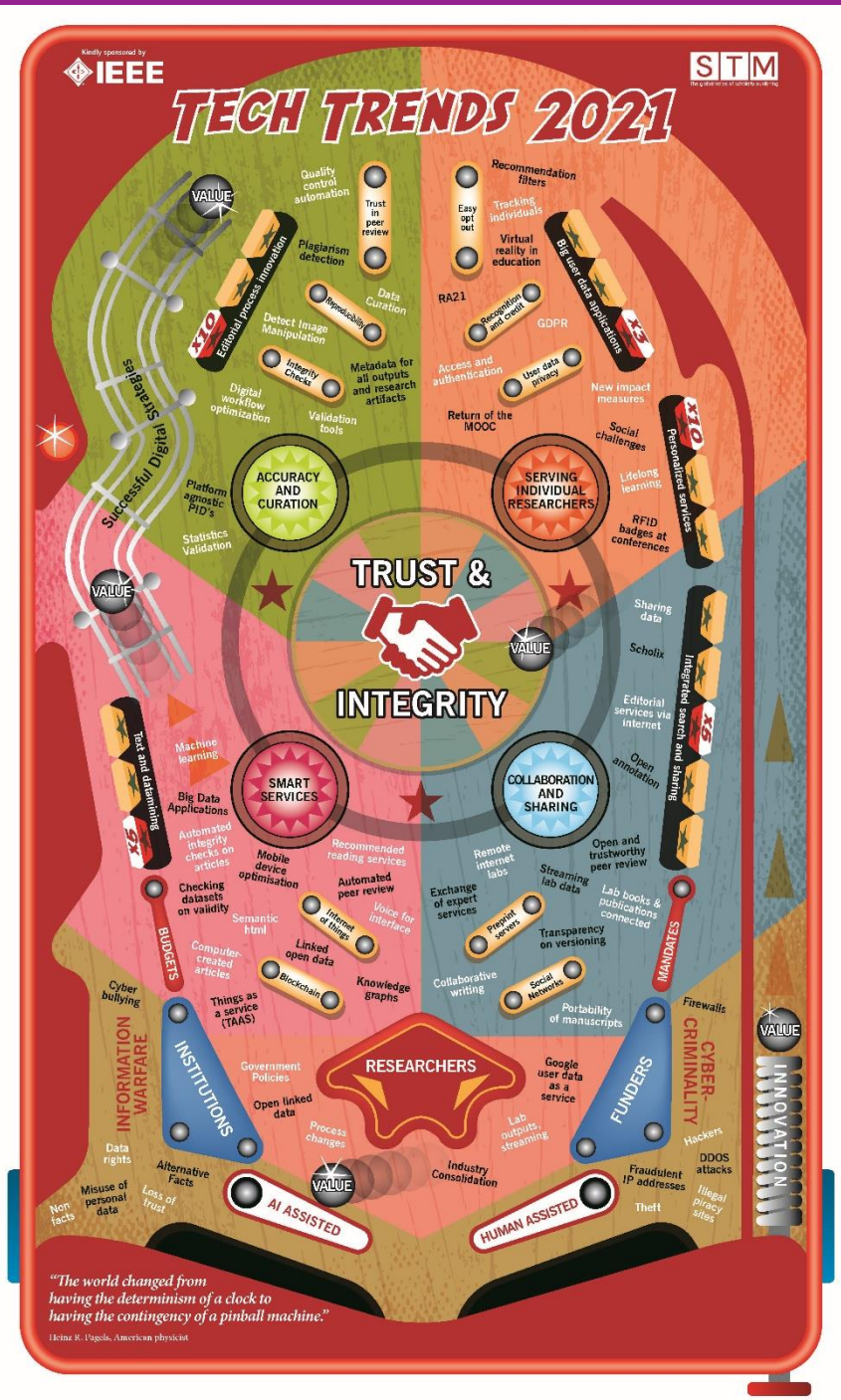
“The world changed from having the determinism of a clock to having the contingency of a pinball machine.”

Heinz R. Pagels,
American Physicist

STM TechTrends 2021

is.....

a Pinball Machine



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How these Tech Trends are developed

How we do this:

- Annual brainstorm
- Using the Delphi-method
- Around 30 people participating
- In London, part of STM week
- Everyone lists own top-3
- Group discusses meaning
- Draws the bigger picture
- Main trends clustered

Results available for all STM members:

- posters, stickers, ppt
- This version is **UNDER EMBARGO** (until 25 April 2017)
- Full launch at STM Spring Conference
  (on April 27 in Washington-DC)
- Webinars, in-house presentations
  available at your request

* Contact smit@stm-assoc.org

6 December 2016, London, Burlington House

Gerry Grenier	IEEE
Maxwell Rigebee	Gadget Software
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Sam Bruinsma	Brill
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Daniel Hangartner	Karger
Matt Turner	MarkLogic
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Eefke Smit	STM Staff

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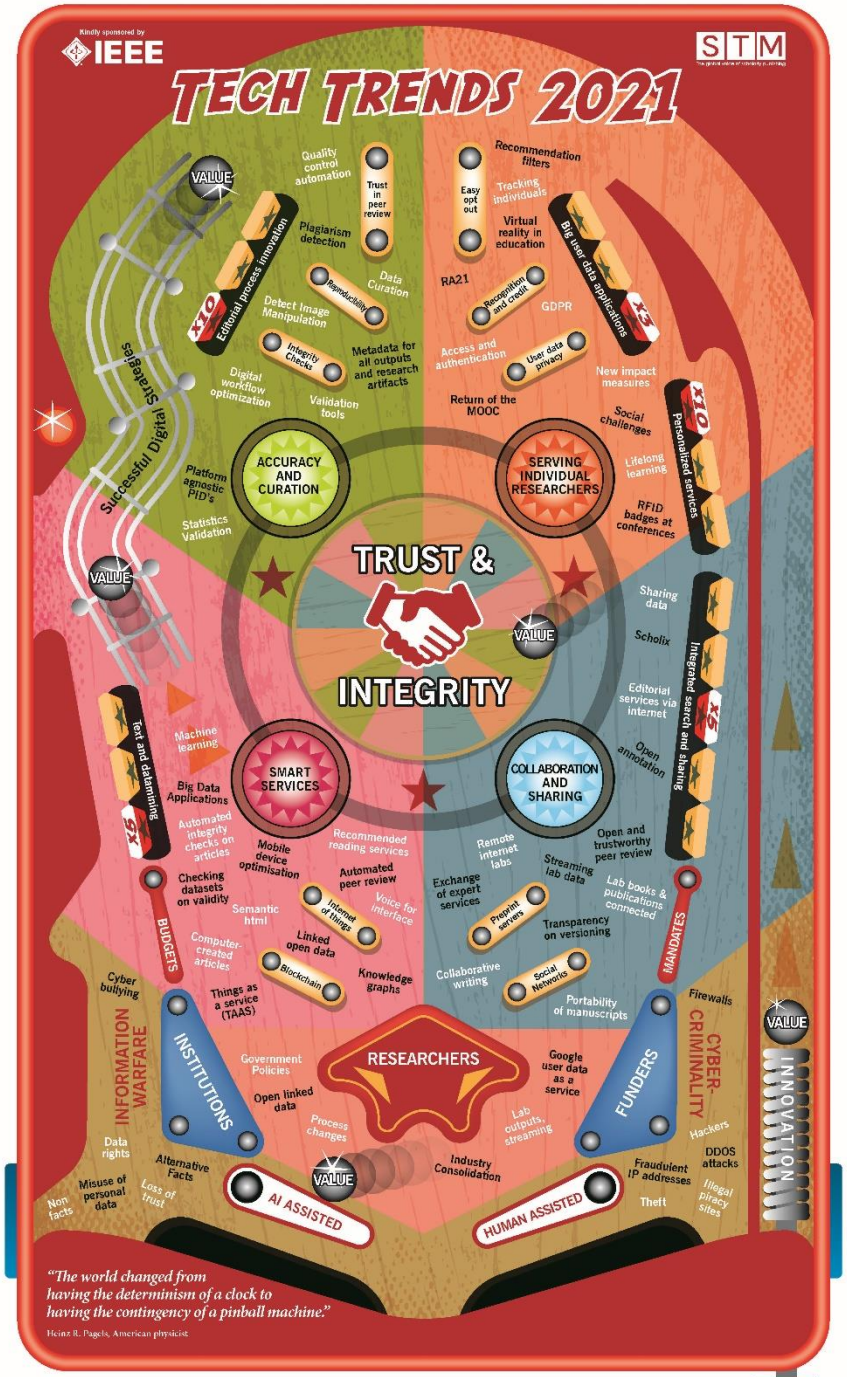
And to our sponsor: IEEE



How does our pinball machine work ?

- *Like any other pinball machine*
- *If your ball hits the right elements: you add value, you gain, you win*
- *And if you cannot keep your ball in the playing field….you lose….*
- *Let's take a closer look at the game to play*

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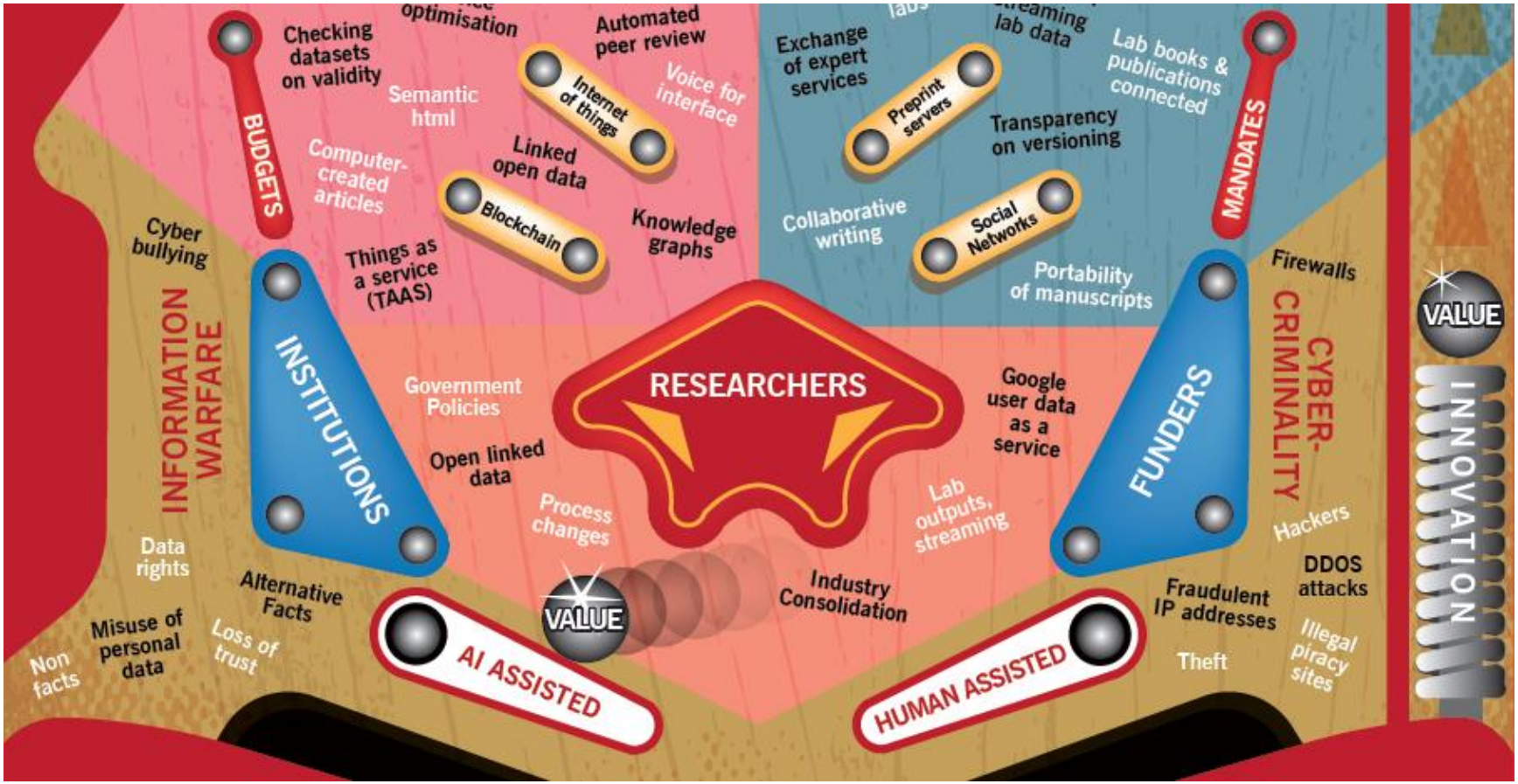
Core Theme: Trust and Integrity

How to play the game



There is the launcher (“Innovation”), there is the ball (“value”), there are flippers (“Human Assisted” and “AI assisted”). Budgets and mandates can keep your ball in the field.
Enough budget keeps the ball in play, while funders and institutions can be bumping the ball around; researchers are a central force and influence the direction of the ball a lot.
You can lose the ball in the dark areas of INFORMATION WARFARE or CYBER CRIMINALITY.

The Central Spinner is all about:

- Accuracy and Curation
- Serving Individual Scientists
- Sharing and Collaboration
- Smart Services

Accuracy and Curation

Bonus points for:
Editorial Process Innovation

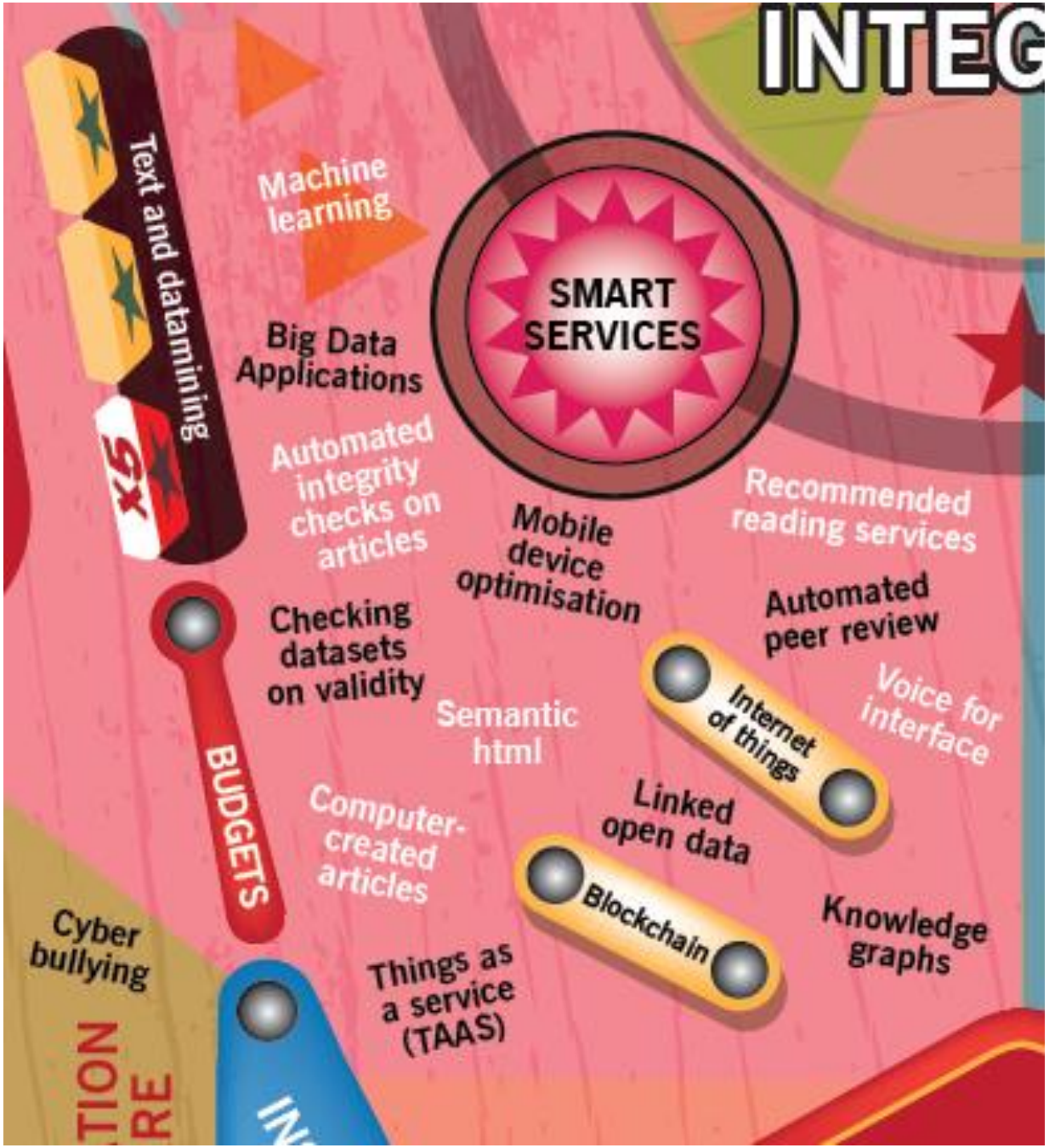
The ball may bounce on:

- Trust in Peer review
- Reproducibility
- Integrity Checks

Important elements:

- Validation Tools
- Plagiarism Detection
- Detect Image Manipulation
- Statistics Validation
- Quality Control Automation
- Digital Workflow optimization
- Data Curation
- Metadata for all outputs

Relaunch the ball via
Successful Digital Strategies



Smart Services

Bonus points for
Text and Dataming services

The ball may bounce on:

- Internet of Things
- Blockchain

Important elements:

- Machine learning
- Big Data Applications
- Automated integrity checks
- Computer created articles
- Recommended reading
- Automated peer review
- Knowledge graphs
- Mobile device optimisation
- Linked Open Data
- Things as a service
- Voice as UIF

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Serving Individual Researchers

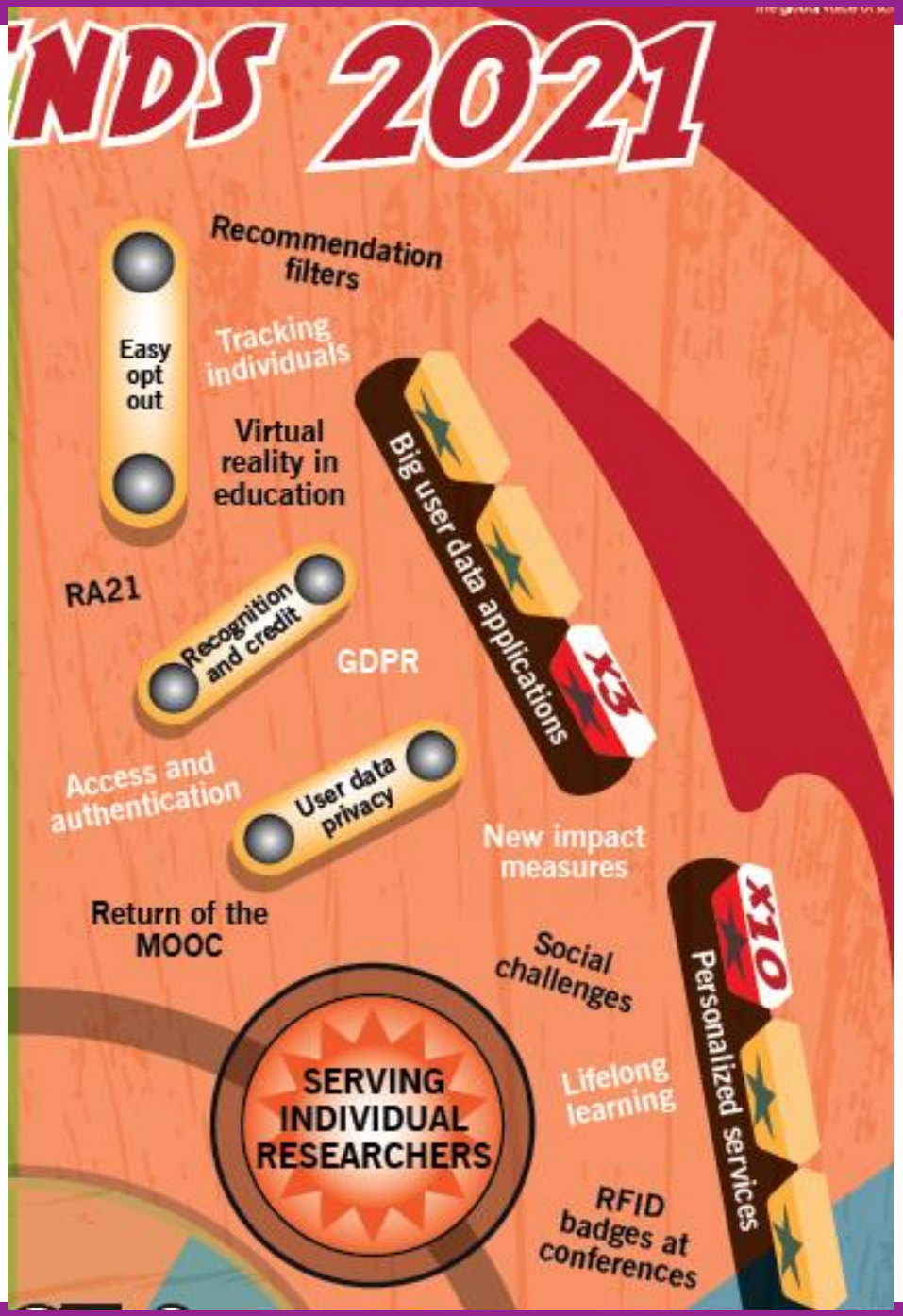
Bonuspoints for:
Big User Data Applications
Personalized Services

Ball may bounce on:

- User Data Privacy
- Recognition and Credit
- Easy Opt out

Important elements:

- Recommendation services
- Tracking individuals
- GDPR
- New impact measures
- Social challenges
- Access and Authentication
- Return of the MOOC
- Lifelong learning

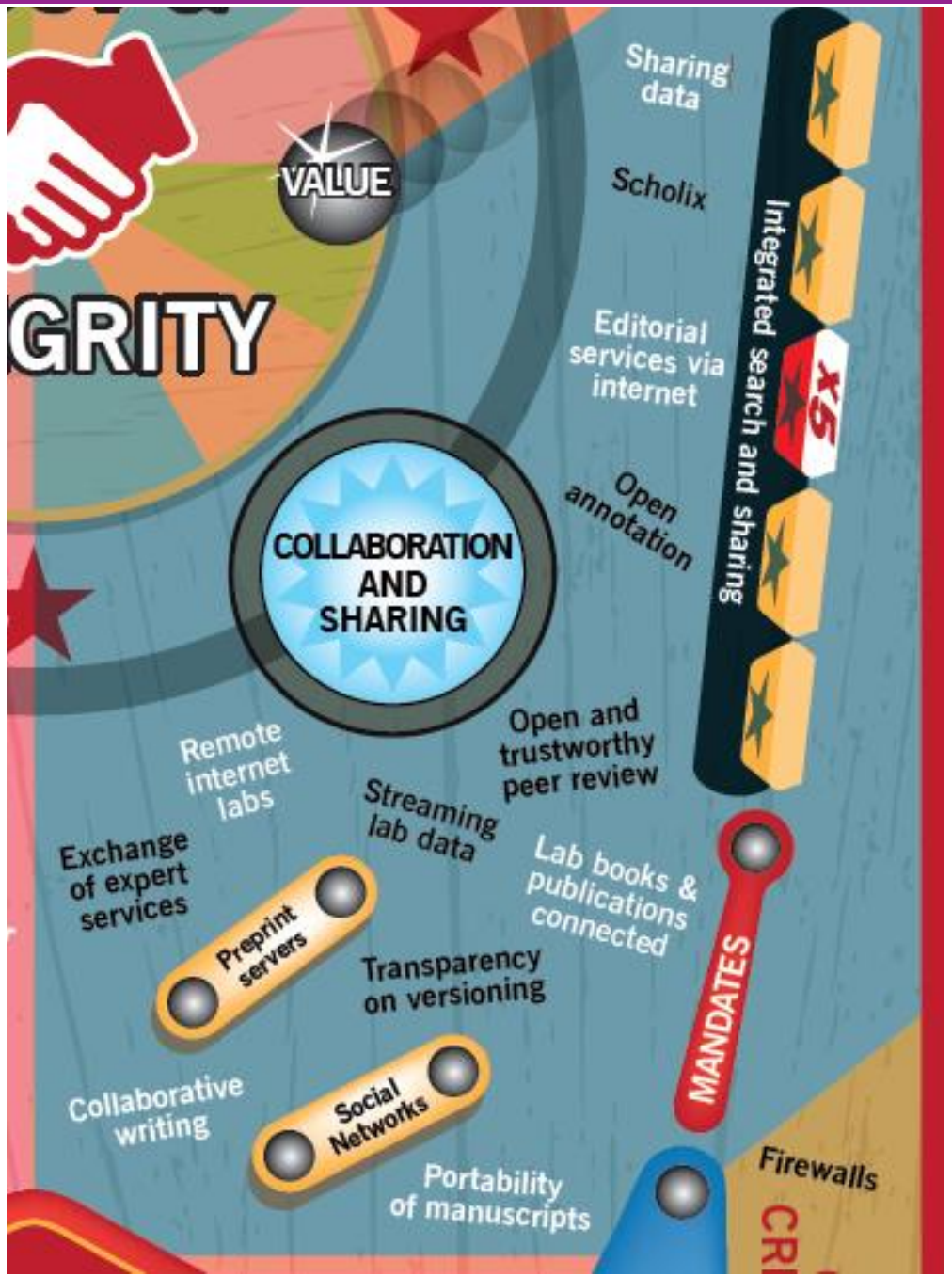


Collaboration & Sharing

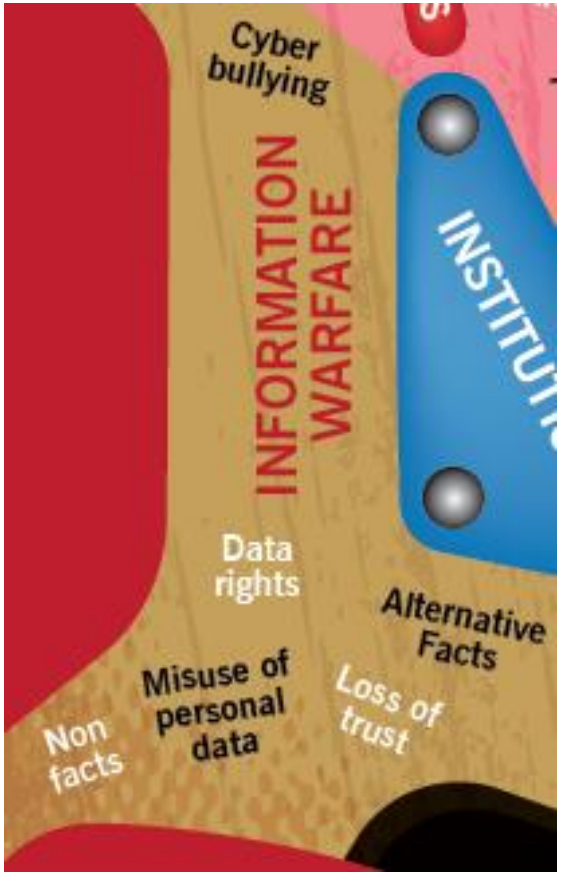
Bonuspoints for:
Integrated search and sharing

Ball may bounce on:
- Preprint Servers
- Social Networks

Important elements:
- Sharing Data
- Streaming lab data
- Remote Internet labs
- Labbooks and publications connected
- Transparency
- Collaborative writing
- Exchange of experts service
- Portability of manuscripts
- Open annotation
- Internet editorial services



Where you may lose your ball



Information Warfare

- Misuse of personal data
- Alternative facts
- Non facts
- Cyber bullying

Cyber Criminality

- Piracy Sites
- Hackers
- Theft
- Fraudulent IP addresses

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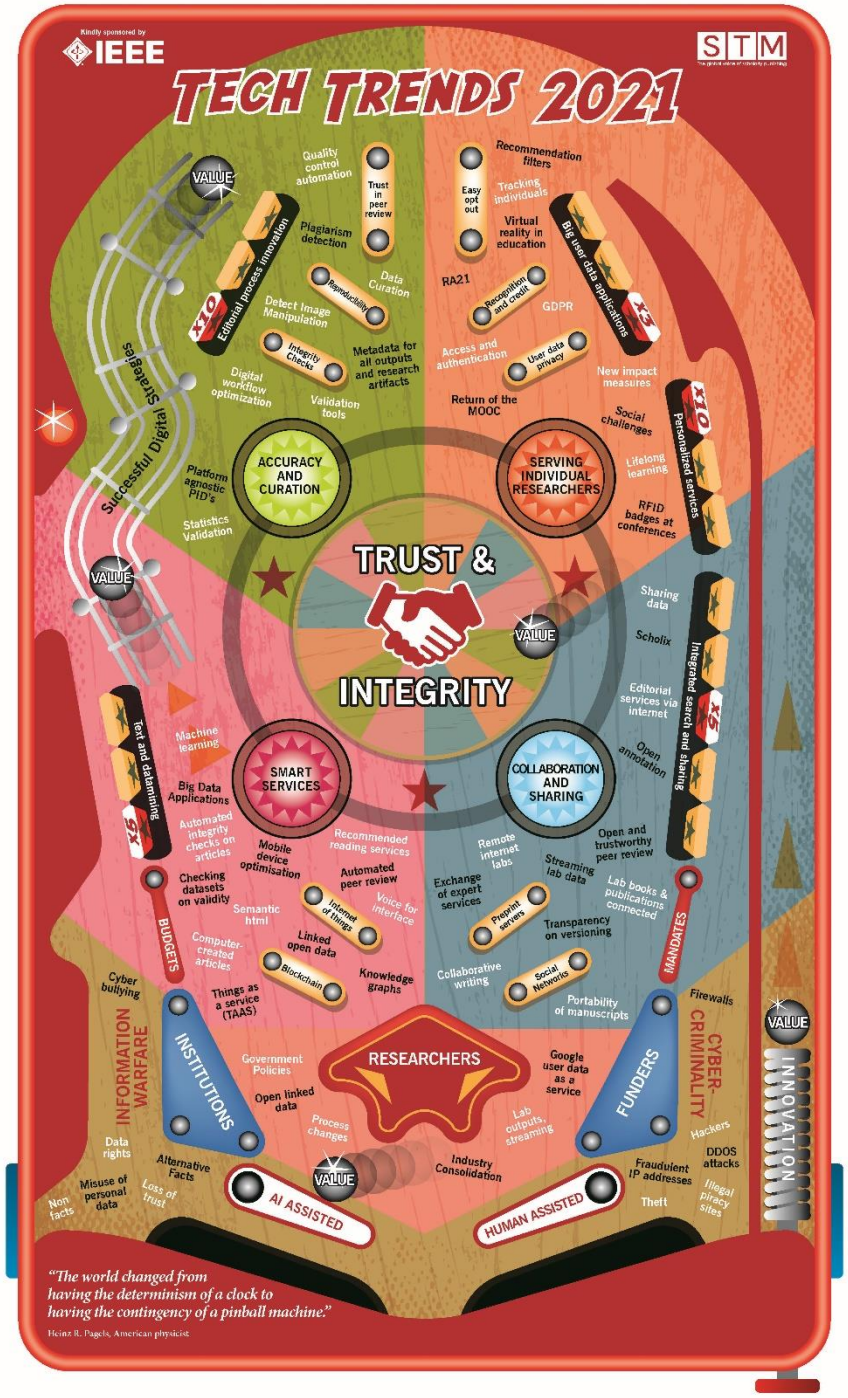

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Comments, Questions ?

Please note:

Presentations available for your organisation
(by webinar or live)

PDF poster available on the stm website: www.stm-assoc.org
(prints nicely on A3)

More info: smit@stm-assoc.org