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Recommendations for organizations to implement consistent data management practices

1. Introduction

Some draft and rough thoughts on the development of an overall RDM startegy for organizations. this could apply to larger organizations like Helmholtz, but also to individual centers, implementing this in their institutes or sub-units.

2. Recommendations

2.1 gather information

- Do overall research:
- What organizations exist in RDM
 - what is their goal and overall strategy? Do they have a clear goal? ist it commercial or community driven?
 - who funds them
 - o are they sustainable will they still exist tomorrow?
 - Which of them are relevant for you? Why?
- find use cases where similar problems have already been solved e.g. by an improved level of digitalization, organization, and/or cooperation.

2.2 Define your overall high-level goal

- The goal needs to be as concrete as possible
- blend into global practices
- support someone
- it can be visionary, so quite far in the future, or not exactly practically achievable.
- But it must describe a situation you'd like to achieve, a better world, where fancy things can happen, which couldn't be done right now.
- formulate a narrative, which starts at the top level goals, digging into steps to take and activities to be implemented.

2.3 Define the steps you want to take, to achieve this goal

- Define the steps that need to be taken.
- These steps need to serve the goal and possibly someone defined in the goal
- These steps need to be achievable, at least on the long term
- these steps need to be realistic
- the steps should be aligned with overall global RDM practices or concepts.
- the steps may be depndant on each other. Take a look at the dependencies

2.4 Prioritize the steps

- Make a preliminary priority list based on possible dependancies
- Define activities, that need to be conducted, in order to achieve these goals.

- take a look at the ressources you have to conduct activities
- prioritize your steps again, based on resources and dependancies.
- if by all means possible don't invent anything new:
- - if you need tools or services take a look if you can reuse existing tools
- - if you need standards make sure you can use existign standards
- - if you need sematic concepts, make sure you use or add to existing vocabularies
- - compile a list of criteria and metrics to decide, which tool / standard / vocablulary you want to implement
- always document what you indend to do, what you did and what use cases you implemented or discovered.

2.5 take a look at your organization

- RDM requires change management
 - what kind of structure exists? Where are the advantages and disadvantages of the existing structures?
 - what tools, services and procedures are already in use?
 - Where do these structures support your strategy and where do they not support it?
 - what steps have already been implemented, which standards are in use?
- Do you have support by your center management? Do you have a mandate to implement or even suggest chages in RDM workflows?
- make a list of stakeholder, who should be involved
- evaluate your stakeholders who is critically necessary for the next steps, who can be adressed later?
- evaluate your sub-organization (institutes, centers, labs) whic ones are more sisceptibel to iomplement changes workflows than others? Make a list of partners.
- Conduct information events and/ or workshops to promote your overall strategy. Find out who is interested and who sees benefit in what you plan to do. Do not do this unprepared. Do your homework in steps 2.1, 2.2, 2.3 first. Discuss the goal and steps with them.
- Form a network of interested people.
- Find out what their demands are, but also to which incentives they react.
- read your stakeholders What is their role and who in your organization might be responsible for which step in our plan?

2.6. Take a look at national and international activities again

- as we are trying to harmonize your conduct, partners and organizations implementing similar solutions you envision, make your plans more robust and likely to be successful.
- look for partners, regional, national, international
- who is in the same situation as you? How did they deal with the problem. Do they even have the same problem you have?

2.7. Some general recommendations

- be prepared with a consistant story of what you want to achieve
- Talk ands listen to your stakeholders, try to Understand their demand and pain-points
- Try to join or form networks of like-minded people on multiple levels: for general exchange across organizations, for implementation within an organization.
- Do not demand things, if you don't know how they fit into your overall goals
- As an organization delegate a mandate, as a data manger, try to get a mandare from your organization.
- Explain what theis mandate means. It can mean to make changes to current procedurtes and

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workflows. Try to keep these cnages ans minimal invasive as possibele.

- do not build tools or services, without knowiong how to operate them long-term. Only build
 persistant reliable services, other wise they are prototypes and pilot studies. Build use-cases if
 they help to explain, what you want to do. Remember, that sustainable systems and workflows
 can not rely on protoypes and pilot projects.
- do not use terms or buzz-words where you don't understand how they fit into your overall concept. This in particular includes terms like knowledge graphs, ontologies, AI, machine learning, FAIR Digital Objects (FDOs) or alike.

Finally: show leadership. don't order people what to do, but give them confidence, that what you expect them to do has been thoroughly thought through, is part of a larger master plan, and will not be revised or overturned in the near future. and it will benefit science and research as a whole.

3. Conclusion

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