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Topic II: Planning and management of statistical projects

CHANGING MANAGEMENT PRACTICES

Invited paper

Submitted by Statistics Canada¹

SUMMARY

1. Information Technology is a key enabler in a statistical agency's intrinsic ability to respond effectively to program demands. However, to respond quickly requires more than technology; it requires adherence to common standards and practices across the agency so that the opportunities for reuse and integration are maximized.
 2. As the organization matures we must look for common elements that can be shared effectively and these should gradually become part of our arsenal of reusable parts. Improvements in response time will come largely from our ability to reuse capacity, capability and knowledge.
- Organizational Maturity**
3. Over the last few years, studies in management science have focused on the processes by which organizations *learn* and mature. The *Software Engineering Laboratory* of Carnegie-Mellon University has developed a model and an assessment method for ranking organizations in terms of their maturity - the Capability Maturity Model (CMM). Not only is this model useful in understanding the state of an organization, it provides some guideposts in getting to the next stage.
 4. The CMM is used as an indicator for our future development as a *learning* organization. How we will evolve our methods and standards, manage our knowledge and incorporate it into our processes and practices to expand our capabilities.
 5. The next wave of technology use can be said to advance the *infrastructure* towards an *infostructure*. This means incorporating into the infrastructure the

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necessary reference information and practices that can truly assist our knowledge workers to perform their jobs more effectively.

6. The tangible result of establishing an infostructure is the availability of *tools* that embody a growing component of corporate knowledge of two kinds: libraries of reference material that can be reused from project to project; and templates for methods that incorporate best practices learned from experience. Preservation and reuse of these *knowledge assets* are characteristics of a *learning* organization. The ready availability, commonality across the organization and how easily these tools and supporting knowledge assets work together is key to their effectiveness. How quickly we respond to a new demand depends on our ability to adapt and reuse these assets.

Metadata Management

7. The evolution of metadata management is a prime example of how Statistics Canada is maturing. We have reached a stage in our organizational development where corporate management of our metadata is paramount in our ability to further integrate and reuse our information assets.

8. We can modify the CMM and specialize it to the management of information. The presentation will show we have made some key progress in developing policy and organizational structures to take the next step. We must now develop the processes, repositories and services to make it truly relevant to Statistics Canada's operation.

Reference Components

9. Metadata is one example of a *reference component* within Statistics Canada's information architecture. In general, we can distinguish two container types for knowledge assets: *registers* and *repositories*.

10. Registers manage the identity and structure of something of interest, whether it is businesses, addresses, data products or classifications. They become prime determinants of quality, completeness, access and control in our operational systems.

11. Repositories, on the other hand, are stores of working knowledge and experience. They include libraries of reusable templates that can incorporate our shared definitions, practices, metrics and values. When combined with tools they can directly support our knowledge workers in developing new capability.

Conclusion

12. A common theme is the value of tools in supporting the effectiveness of knowledge workers. If the corporation as a whole is to improve its response time to new challenges we must put stronger emphasis on the use of *common* tools. When these tools can also incorporate our preferred practices and reference material that is specific to our business they become the means for communicating knowledge throughout the Agency.

13. A further customization of the CMM is used to indicate how tools may evolve in the coming years to become an integral part of the infostructure. It is suggested that an investment in tools and the supporting infostructure will have a strong influence on the future ability of the Agency to meet its client requirements.