PROJECT PERIODIC REPORT

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1. Publishable Summary

In its second year, the ROBUST project has proceeded well on its course. Work in all work packages is on track, all milestones have been reached and all deliverables were submitted on time. Work in the individual work packages has concentrated on the consolidation of the results from the first year, the implementation and integration of modules and components as well as the next series of results and progressing the planned work.

In WP1 development and integration work focused on updating and integrating the risk management framework components. The components included the risk editor, risk dashboard, evaluation engine as well as the risk registry. The risk templates were introduced and can be configured by a functional prototype editor in the risk dashboard. As a visualization technique, SOTON has introduced the risk matrix displaying simulated and estimated risks in a layout based on the probability and impact of an event. The risk management framework enhanced with streaming support features has been integrated with various components from other work packages. The analytical tools from WP3 and WP5 feed into the prediction services, the simulation environment from WP4 serves as strategic planning tools and the graphic equaliser of WP9 as well as a WP6 components showing the role composition of a community have been integrated for visualisation purposes.

WP2 has implemented operators for distributed processing of community data. As a result a large number of operators have been implemented and committed to the Apache Mahout library. Mahout is executed on Hadoop, which serves as a scalable, parallel execution platform. Furthermore an additional, particularly interesting point here is the incorporation of the Pregel-like approach Giraph for distributed graph processing. Giraph is a project of the Apache software foundation and ROBUST is an active contributor in this context via partner TUB. Analytical questions of the use case scenarios have been addressed and were executed on the community data processing platform. To this end, large datasets from the use case partners have been fed into the parallel execution framework of WP2 and the results have been connected to WP5.

Community analysis on a user level and the role modelling and detection have been pursued further in WP3. Joint activity with the use case partners (in particular IBM) lead to the application, extension and adaptation of these methods in very concrete settings in ROBUST. The first phase of modelling and analysis of user value has been implemented and applied to use cases and first results have been published. Furthermore, a lot of progress has been made on the side of behaviour analysis and role detection and evolution, especially in terms of scalability, debugging, handling of streamed data, accuracy, and fitness to the use cases. The behaviour and health analysis has been wrapped up as a service in the ROBUST platform.

The community simulation framework from WP4 has been extended and refined. In collaboration with WP1, the framework has been developed as a core component, which then has been applied to several scenarios. The development, description and analysis of specific policy changes for the SAP and IBM communities are currently investigated. This addresses the question of attention management under the aspect of different policies for ranking and displaying contents to the users.

WP5 has provided community analysis methods for each of the use case partners - for example, role analysis of SCN (SAP) and Tiddlywiki (Polecat) data and graph sampling on IBM Connections data. Focal points of interest were stream processing of huge amounts of data, in particular graph data. In this context a lot of progress was made and scalability has been demonstrated in a

dedicated demo application. Further research was made on sentiment analysis, agreement networks and cross-community analysis.

WP6 on integration has focused on integration on two levels. The first level was concerned with software integration, where ROBUST presented a first version of its platform at the WWW 2012 conference in Lyon with a live demo. This first integrated prototype was developed under the contribution of all ROBUST partners and featured components from data analytics to risk management to the visualization of the state of a community. The second focus was on the development of a common semantic data model for describing the communities ROBUST is analysing. This data model has been implemented on the basis of the Semantically-Interlinked Online Communities (SIOC) ontology and under the contribution of all partners. Progress made in the technical work packages is constantly integrated and reflected in the latest versions of the demo systems.

Accordingly, also for the individual use cases an integrated prototype based on the ROBUST framework has been developed. In WP7 this is reflected in a content analysis and recommendation system which serves the issue of attention management in the IBM community. SAP has elaborated and extended the PULSAR framework in WP8 for analysing the SCN community. Polecat completed work on the graphic equaliser and started work on metaphor based visualisation techniques.

On the dissemination side, ROBUST has been very active in the second year. Beyond numerous scientific publications, ROBUST has sponsored the WWW conference and an associated workshop (MSM'12). Results were featured in keynote talks and invited talks at academic institutes. The website is lively with news articles and we provided a short video to present the project's objective to a wider public.

From the management perspective, one of the main activities was the project review and reporting for the first period. ROBUST has passed the review and was observed to have achieved its objectives and technical goals for the period.