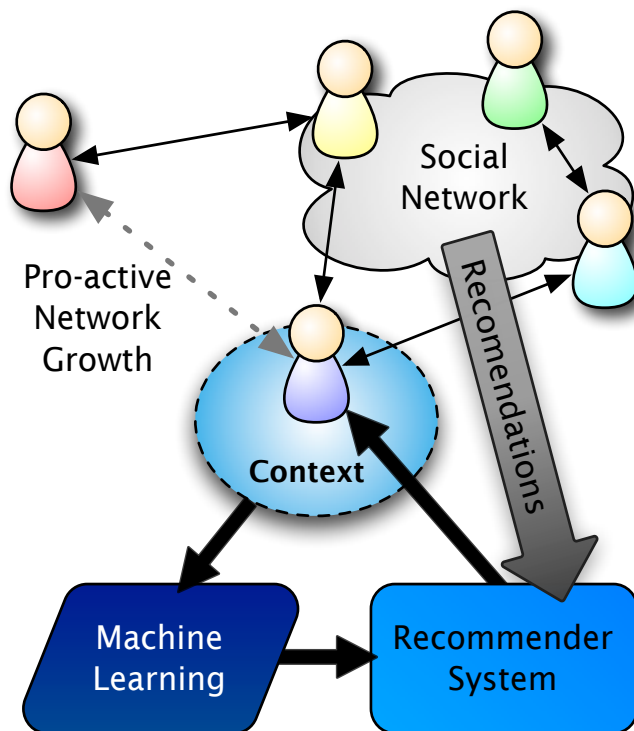


# Instant Knowledge: Visualisation Brief

## IK Concept

Instant Knowledge enhances the value of any organisation's most important asset—the information held by its employees. Rather than requiring staff to fill out skills profiles, which are very general, become outdated, and require significant effort, IK uses an application on employees' smart phones and laptops to gather information on what they are doing and who they are communicating with. This context is used to build dynamic skills profiles along with a social network map for the enterprise, which provides a resource to proactively offer recommendations to participants. Using IK, staff can always find the best person for the job.



*IK Concept: It's not what you know, it's who you know, and who they know...*

## Visualisation Concept

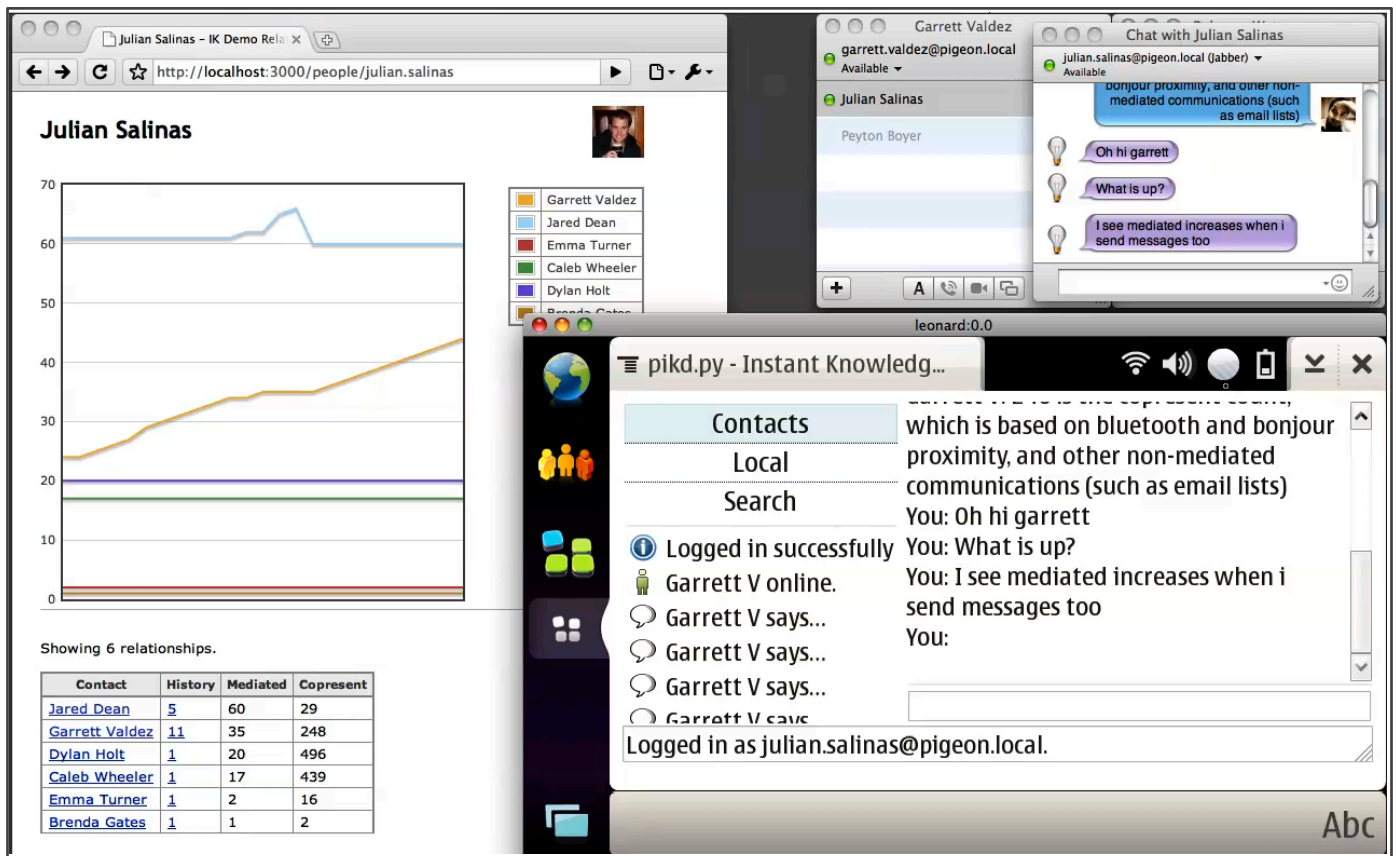
The working relationships between employees can be considered as a large social network graph. Understanding how this graph develops over time is crucial. By analysing and visualising data about these relationships, we can achieve this goal.

IK devices record various communications metadata. This data is collated at a central server, where heuristics are applied to estimate the existence and type of relationships in the corporation. A web-based front-end to this system allows an authorised user to examine the history of these estimated relationships, and identify any issues which need to be addressed

## Novelty & Contribution

Real-time relationship estimation is a concept introduced by the IK programme. Our visualisation demonstrator is the first implementation of this idea. The visualisation system combines with the handheld N810 demonstrator to display real communications data, overlaid on top of the standard Reality Mining dataset. Relationships between members of this dataset are defined by previous and future communications activity; by using the N810 IK application, new chat messages will result in modified relationship graphs.

The handheld component of the system is a new instant messaging application, which uses server-side metadata about employees to enhance the chat experience. As communications occur over this standard XMPP protocol, the server component relays metadata to the visualisation system database. This activity is completely transparent to the handheld device user, until the system pro-actively helpfully recommends new useful contacts based on out-of-band communications.



Left: web-based application for relationship exploration, with graph showing relative importance of contacts over time. Right: N810 Instant Knowledge Messenger client, with automatically detected relationships between employees.

## Application Scenarios

This concept can be applied to smartphones, tablets, netbooks, laptops, and desktop PCs. Any communications device can be enhanced by automated social networking, and all such deployments may benefit from the server-side monitoring facility.

## Demonstration Results

The integrated systems in this concept demonstrator showed that this application is feasible on then-current but now-outdated mobile hardware. Future smartphones will certainly be capable of client-side relationship detection algorithms, which will remove the absolute requirement for server processing of this data.

Visualisation of the relationship data allows management to more clearly understand the key weak ties in their corporate structure. These tools in this demonstration scenario help to explain the logic behind the IK relationship estimation functions, which use gathered metadata to detect and suggest key contacts.

## Conclusions

Detecting and describing relationships is a key component of the IK system, and this comprehensive demonstrator concept shows both how these algorithms work in the lab, and how they may work in deployment.

This concept is based on the integration of three novel components: a web-based graphical visualisation system, a server-side relationship estimation system, and an IK messaging client on a handheld device. Combined, they demonstrate the value of relationship detection systems.

## Further Information

Videos and Technical Reports for all of the Instant Knowledge research outcomes are available to members on the Mobile VCE web site. For non-members the Instant Knowledge overview sheet is available at:

[www.mobilevce.com/infosheets/InstantKnowledge.pdf](http://www.mobilevce.com/infosheets/InstantKnowledge.pdf)

For further information and to register for information about future MVCE IK events please email Jerry Horton: [jerry.horton@mobilevce.com](mailto:jerry.horton@mobilevce.com)