

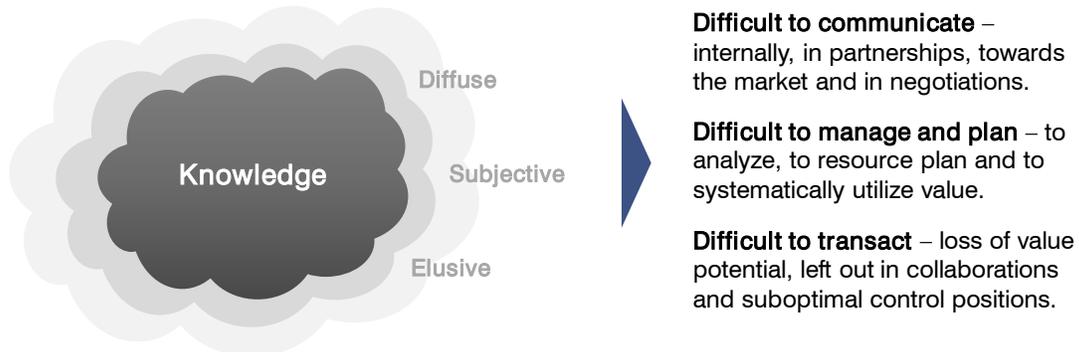
SUMMARY

Intellectual Asset Management (IAM) gives individuals and organizations an improved ability to communicate, collaborate on, manage, and exploit valuable knowledge and technology. The IAM methodology makes it possible to quickly generate both high level overview and detailed insight into existing valuable knowledge within an R&D project, technology area or company. Capturing knowledge as discrete assets enables a systematic and granular approach to improve return on investment from R&D.

BACKGROUND

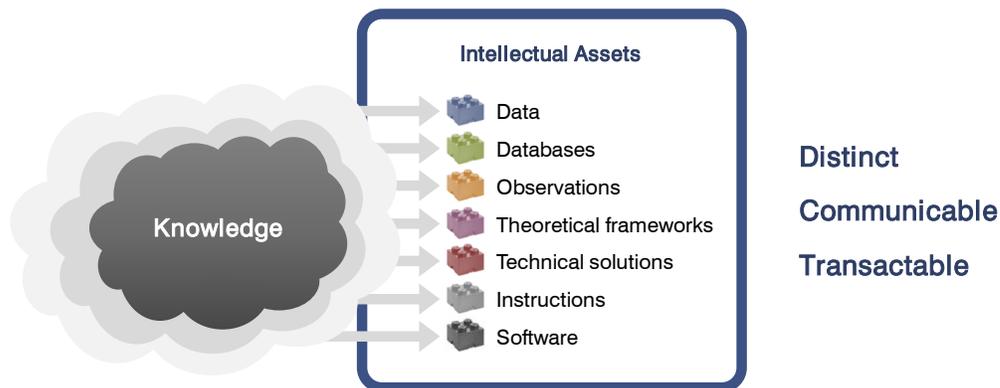
Innovation and new knowledge are drivers of competitiveness and profitability in most companies. However, due to the subjective and diffuse nature of knowledge, utilizing the developed knowledge is plagued by inefficiencies and problems. While critical knowledge may be available, it is typically difficult and costly to locate, catalog, characterize, evaluate and share across organizational borders. Adding to the complexity are R&D collaborations with suppliers, partners, customers, academia and larger consortia, and increasingly knowledge-based business models. For technology-based companies, managing knowledge is thus a core activity for growth, competitiveness and profitability.

In technology-intensive contexts, knowledge is inherently difficult to manage:



The Intellectual Asset Management (IAM) methodology put forward in this paper is based on interdisciplinary research at Chalmers University of Technology and University of Gothenburg initiated in the late 1990s and has been applied in more than one hundred projects. The methodology offers a lean and efficient approach to manage the most fundamental building-blocks in any business – discrete pieces of knowledge and technology. The methodology has been used and implemented by universities, research institutes, and companies ranging from start-ups to multinational corporations with 30+ billion Euros in turnover.

IAM turns knowledge into manageable intellectual assets:



INTRODUCING IAM

Intellectual Asset (IA) refers to identifiable and distinct knowledge that is unique and possible to control as a transactable object. In an R&D setting, such objects can for example be databases, instructions, or technical solutions. This means that IAM addresses the layer below the intellectual property rights. A patent right can for instance not exist without the set of technical solutions (IAs) it claims. Through capturing and assessing knowledge as intellectual assets, it is possible to adopt a structured and systematic approach to securing control of such knowledge and, most importantly, utilizing and creating business value from it.

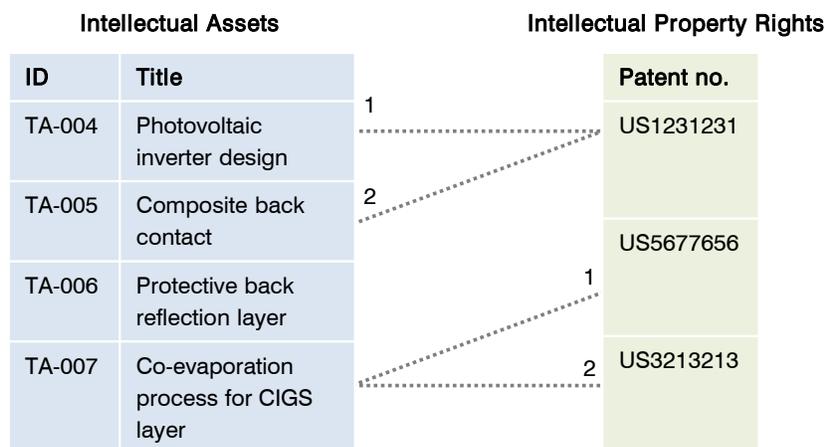
Example of Intellectual Assets:

ID	Title	Description	Category
TA-001	Thin film solar cell with a thin CIGS absorber layer	A thin film solar cell consisting of two front contact buffer layers, a back contact and a CIGS absorber layer that is less than 1,5 μm thick.	Technical solution
TA-002	CIGS layer production control process algorithm	An algorithm for production process control of CIGS absorption layer thickness and composition, which adjusts the fluxes from evaporate sources in response to sensor data	Instruction

Capturing intellectual assets means identifying important knowledge and defining it as IAs by making clear descriptions and categorizations based on its' characteristics. To further increase manageability and usability, intellectual assets can be tagged with relevant metadata such as the creator of the IA is, who carries it, what IPRs are associated, in which project was it created, and what agreements apply.

Assessment of Intellectual Assets is typically done in terms of value and control. Value can be assessed using parameters like uniqueness, value for commercial offers, and value for further R&D. Control is typically assessed using parameters like difficulty of imitation, secrecy-based control, and IPR-based control.

Example of multiple relationships between IAs and IPRs:



An overview of captured and assessed Intellectual Assets shares similarities with a financial balance sheet, illustrating at any given point what exists within the research project, department, or company. It enables management of individual assets, including monitoring of improvements to existing assets and the creation of new assets over a specific time period.

VALUE OF IAM

IAM delivers significant benefits to its users. The overall benefit is the ability to get an overview of all assets in an R&D project, technology area or company and at the same time to be able to address specific assets from multiple perspectives.

Overarching benefits of IAM

- **Communicative ability.** IAM provides a powerful common language facilitating communication of knowledge on all levels; including strategic decisions on for example further R&D development or applicability of new business models, and operational interactions such as introductions to new team members or knowledge sharing cross organizational silos.
- **Steering ability.** IAM enables pro-active steering of projects and monitoring of progress and output not limited to high level project gates and final deliverables. IAM also enables efficient prioritization discussions and can be an effective tool for work and resource coordination to promote synergies and avoid redundancy.
- **Utilization ability.** With IAM, managers and decision makers can quickly see the contents of R&D projects or technology areas and the links to business value, and more efficiently make informed decisions. The high resolution enables an increased ability to assess opportunities in terms of business potential and control, as well as more efficient external market assessments.
- **Collaborative ability.** IAM enables clarity of who brings what into a collaboration, and what is being developed both in and in parallel with the collaboration. This clarity builds trust in the collaboration, reduces risk and increases efficiency of the work.
- **Knowledge management ability.** Through mapping intellectual assets to the individuals who carry the knowledge it is also possible to identify critical knowledge “in the minds” of only one or two people, to be documented or transferred to additional people to minimize risk of losing the knowledge.

Specific benefits for different parts of an organization

- **R&D.** The transparency and communicative means that IAM brings enable individual researchers to become more business-oriented by understanding the value-driving mechanisms of the research. It enables efficient collaboration and knowledge transfer in and between research teams as well as detailed reporting on progress and outcomes towards stakeholders.
- **Product development.** IAM enables effective hand-overs between early research and product development. It provides the ability to connect customer benefits to functions and underlying intellectual assets. It also enables improved management of key knowledge in interaction with suppliers, partners and customers and can be an effective support in make, buy or license decisions.

- **IP & Licensing.** IAM provides a high-resolution ability to monitor development in R&D projects and to pro-actively guide IP creation (e.g. patent the right inventions using the right claims for the right business reasons). It also improves portfolio management and all kinds of licensing by creating the ability to manage and exploit not only IPRs but all relevant intellectual assets.
- **Legal.** IAM enables efficient collaboration between Legal and R&D in contract drafting and enables creation of granular agreements referring to individual assets or lists of assets. It also provides the ability to granularly monitor and claim results as background, sideground and results in R&D collaborations.
- **M&A.** IAM enables a high-resolution basis for decisions in M&As, joint ventures and divestures. It improves the bargaining position and value of deals by including captured intellectual assets. IAM reduces risk by enabling the ability to conduct more granular due diligence of R&D portfolios. It also and improves the ability for efficient post-merger-integration with transparency regarding overlapping and complementing technology, knowledge and individuals.
- **Sourcing & Procurement.** IAM can improve bargaining positions and mitigate risk in sourcing negotiations. It provides overview of the full value of and control over the knowledge to be exchanged with suppliers/partners, and allows effective communication of knowledge contributions.
- **Sales & Marketing.** IAM enables efficient two-way communication between R&D and Sales & Marketing regarding differentiating features and performance and customer buying criteria which allows efficient promotion of products and technology as well as steering R&D efforts based on customer insights.
- **HR.** IAM can be used to get a better understanding of the activity and performance of the R&D staff. Connecting IAs to the individuals who carry and develop them creates a foundation for performance management as well as talent management and incentive structures.

“The IAM approach fills a gap in our existing tool box by enabling us to efficiently get a clear high resolution overview of where the value resides in complex technology-based projects. Given the early research setting we are active within, this is important for us to be able to work with projects in the most effective way.”

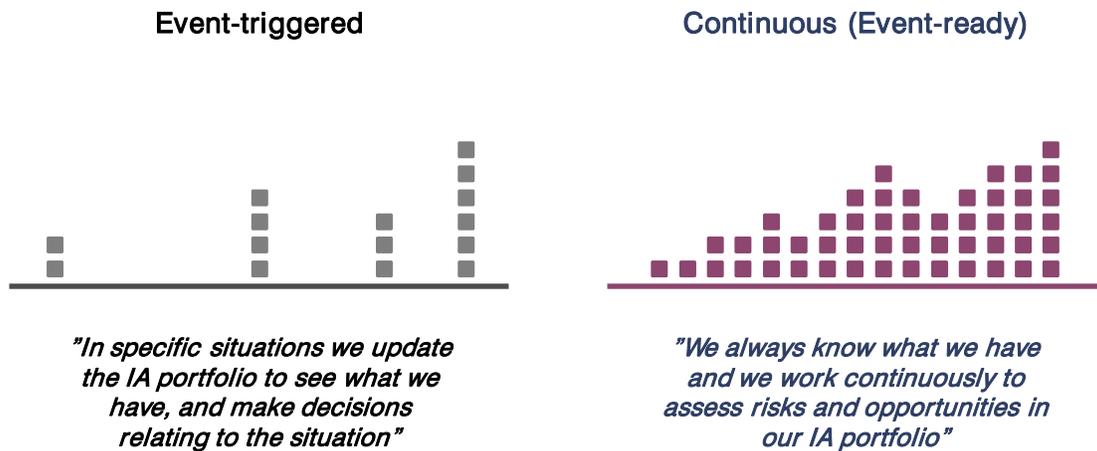
Knut J. Egelie, Senior IPR manager at NTNU Technology Transfer

IMPLEMENTING IAM

There are several different levels of ambition for implementing IAM in a technology-based company. From training of IAM-driven business advisors and particularly strategic research teams, to organization-wide implementation sometimes spanning over multiple research groups, departments and organizations.

IAM can be used continuously or in specific situations. By capturing intellectual assets continuously, there is always an updated inventory which allows for progress monitoring in projects. It is also possible to just capture intellectual assets in specific situations such as patenting decisions, collaboration decisions, business model decisions, or in internal or external technology transactions.

Two approaches to working with systematic: Continuous vs. event-triggered:



Konsert Strategy & IP has developed a rigorous IAM implementation methodology since implementing the first IAM organization at SKF, the largest bearing manufacturer in the world, in 2010. Work packages in the IAM implementation methodology includes:

1. Decide on short term and long term IAM objectives
2. Design and customize the IAM approach
3. Staff the organization
4. Train the people
5. Establish tools to be used
6. Build the processes
7. Support in managing initial portfolios

Konsert Strategy & IP has since 2008 also developed dedicated software to support its services within Intellectual Asset Management, called the IA Manager.

“The ‘Intellectual Assets & IP Strategy’ team was formed in 2010 as a result of an IAM implementation project run together with Konsert Strategy & IP during 2008-2010. We’re part of the Group Technology Development organization, and our role is to improve SKF competitiveness by supporting prioritized business areas with 1) business-driven IP strategy development, and 2) Intellectual Asset Management capability and strategy development.

Operatively, we support the organization in a few different ways. On the one hand, we work continuously towards business areas and innovation projects of particular strategic importance. On the other hand, we’re called upon to support other internal functions in specific situations – acquisitions, divestures and collaboration partnerships.”

Martin Jansson, Manager Intellectual Assets, SKF