

# Request for Proposals (RFP)

Precarn Industrial T-GAP  
(Technology Gap Assistance Program)  
For Projects in Intelligent Systems



## Total Funding Available: up to \$4M

*Applications should be submitted to*

Rick Schwartzburg  
Precarn Incorporated  
schwartzburg@precarn.ca

Deadline for submission: May 17, 2010  
(Midnight local time)

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Release Date April 1, 2010

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## Precarn Incorporated Industrial T-Gap RFP

### 1. Background

Precarn is a member-owned industrial consortium that supports industrially relevant, market-oriented research and development in intelligent systems. Precarn is supported by the Federal Government through Industry Canada. Precarn's mission is to make Canadian firms more competitive by promoting the development and use of intelligent systems technologies and expertise. Intelligent systems have applications in virtually all sectors of the Canadian economy, and directly impact the productivity, international competitiveness and profitability of firms.

There is a recognized chasm in the commercialization of technologies especially in very small companies. It is the black hole on the 'research to reality' road where innovative and viable technologies get lost. Because the development step often lies outside the domain of traditional investment sources, many valuable technologies and ideas are needlessly shelved. In an effort to address this situation, Precarn has allocated up to \$4M in funds in fiscal year 2010-2011 for projects to advance technologies that show commercial promise. T-GAP (the Technology Gap Assistance Program) is the conduit through which the funds are awarded.

Proposals are reviewed by a committee of technical and business experts. All reviewers all under non-disclosure agreements with Precarn and all applications are treated as confidential by Precarn and are used for review purposes only.

The T-GAP program has the following characteristics:

- A focus on small (2-50 person) companies and includes start-up companies;
- Maximum Precarn funding is up to \$100,000 ;
- Maximum Precarn support is up to 40% of total eligible project costs;
- Project duration of 9 months or less; and,
- 50% of Precarn's contribution will be paid at the mid-point of the project and the remaining 50% will be paid upon project completion and receipt and acceptance of the final report.

Available funds are intended to bring technologies closer to pre-commercial readiness; naturally, this represents a wide range of different activities, but some examples include:

- Developing and building engineering prototypes,
- Refining and implementing designs,
- Conducting scale-up activities,
- Product-specific market research,
- Conducting field studies, or
- Carrying out technical and market assessments.

This RFP has a specific emphasis on projects that will produce commercial results quickly. It is expected that the technologies developed within these projects will be taken to market shortly after the end of the project.

Please note that all funded projects must be completed by March 15, 2011. Projects, therefore, will be no longer than 9 months in duration with an expected start date of July 1, 2010.

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### 2. Mandatory Eligibility Criteria

To be eligible for consideration proposals must meet the following **mandatory** criteria. Projects that do not meet these mandatory criteria will be rejected.

- a. Proposals must be led by a company incorporated federally or provincially in Canada. The Lead is usually a technology development company.
- b. Proposals must be for R&D projects in “**intelligent systems**” (as defined in **Appendix 1**).
- c. At least one of the participants must be an end user/first customer.
- d. The participation of an academic institution is required.
- e. The Lead Applicant must demonstrate their financial capability to carry out the project by providing copies of their latest financial statements (audited statements are preferred).
- f. Laboratories operated by the Federal and Provincial Governments can participate on a self-funded basis, but cannot be project Lead Participants and are not eligible to receive project funding.
- g. Requested funding from the Program must not exceed 40% of all eligible project costs, and cannot exceed \$100,000. Program funds can only support the eligible expenditures of Canadian participants. International participants can participate on a self-funded basis.
- h. The proposal must describe the potential intellectual property that will result from the project and must address the treatment of all intellectual property as summarized in Section 2 (Program Requirements) of this document. Projects that involve the transfer of foreign technology, provision of routine analytical services, data collection without interpretation of underlying mechanisms, or the exercise of professional practice or provision of general consulting services will not qualify for support.
- i. Proposals must be in the format as specified in this RFP including the required authorized signatures from all participating organizations. Proposals lacking such signatures will not be reviewed.
- j. Lead Applicants must agree to become Precarn members if their projects are selected for funding.

### 3. Program Requirements

#### a. Funding Principles

Funding from this Program can only be applied to eligible expenditures incurred by Canadian participants. Projects must demonstrate potential economic benefits to Canada by the growth of the company through increased sales in new or expanded markets. Subcontractor expenses are eligible project costs, but limitations apply (please refer to **Appendix 2**, Financial Guidelines). Precarn's funding is defined as a contribution and is not subject to repayment.

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### **b. Project Team**

The Lead Applicant must be a Canadian private sector company. The Project Team must consist of the Lead Applicant (usually a technology developer), an end user/first customer, and an academic institution (university or community college).

An end user/first customer provides validation and feedback on the technology being developed. Given the nature of the Industrial T-GAP being further along the continuum of R&D, the involvement of an academic institution may be different than what is normally expected in a Precarn project. Universities or Community Colleges may participate in the R&D, in the business development, or marketing aspects of the project. The roles of the end user and the academic institution in the project must be clearly specified in the proposal.

### **c. Scope of Projects**

Precarn's contribution to a project will not exceed 40% of total eligible project costs up to a maximum of \$100,000, inclusive of all applicable taxes. All of the project participants together will contribute the remaining eligible project costs. Within the project each individual participant may contribute more or less than 60% as long as the overall total is respected. As well, the portioning of Precarn's contribution to each participant may also vary as long as the total is respected.

Work on the project must be completed and all expenses incurred no later than March 15, 2011.

Project deliverables are the stated outcomes of the project and include such things as: building engineering prototypes, refining and implementing designs, conducting scale-up activities, product-specific market research, conducting field studies, or carrying out technical and market assessments. As well, a Final Report presenting the technical results of the project, the commercialization activities, and an outline of the next steps with a timetable that will be taken in order to bring the technology to the marketplace and, a financial summary of the project expenditures is required.

Due to a short timeframe for execution of these projects, there is an emphasis on projects with a small "R" and larger "D" components that can demonstrate near-term commercialization potential. Projects that produce technologies that may be ready for commercialization at their conclusion, are eligible for funding and are encouraged.

It is expected that technologies produced in these projects will be commercialized quickly showing demonstrable results within 12 months of the end of the project.

### **d. Intellectual Property**

Projects may produce new intellectual property (IP) and project participants retain the ownership of any new IP. The program recognizes the value to the participants of any background IP they might bring into the project and a participant's background IP will remain vested with the owner. The proposal must describe the new IP that is expected to result from the project, and must address the treatment of the new IP among the participants.

Applicants must agree that if their proposal is accepted, they will be required to disclose any background IP to be used in the Project to each other. Proponents will also agree to disclose further background IP, if necessary during the course of the project.

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### e. **Commercialization Strategy**

Project proposals require clearly identified near-term commercialization goals and strategies. Project requirements for commercialization of the proposed technology development and the costs associated with those start-up commercialization activities including marketing activities are eligible expenses that must be defined in the budget.

### f. **Technical Challenge**

Proposals must include an innovative application of the results to a real industrial problem or market opportunity. The project must address a specific technical problem, the resolution of which will result in significant benefits to the competitive position of the participating firms.

### g. **Project Reporting**

Report preparation is the responsibility of the Lead Participant. Projects are required to present a mid-term report and a Final Report providing technical and commercial progress along with a financial summary of project expenditures to date.

## 4. **Concept Document**

A concept document is not required prior to the submission of a full proposal. However, applicants are strongly encouraged to contact Precarn to discuss the eligibility of their proposal prior to submission.

## 5. **Full Proposal**

It is to your benefit to contact Precarn's office prior to your submission of a Full Proposal to discuss how we might assist you with your submission, and to ensure compliance with the criteria. This is especially encouraged for first-time applicants.

A Full Proposal consists of the completed Proposal Application Form (**Appendix 3**), the Proposal Content section (10 pages maximum) and **Appendix 4** - Schedules A (Financial Plan), B (Personal Data Forms), and C (Company Financial Statements).

### a. **Proposal Application Form (Appendix 3)**

#### i. **Lead Participant Signature Page**

This page will contain the Title of the proposed project, the Name, Address, Telephone number, Fax number, Email address and affiliation of the Lead Applicant, and the Date. The Lead Applicant is the person designated by the project team as the point of contact between Precarn and the project, and will normally be the eventual manager of the project. There is also space for the inclusion of ten key words that describe the project and the I.S. technologies to be employed in the project. As well, one of the 16 identified sectors of application must be checked off. This page represents a formal endorsement of the proposal by the Lead Participant.

#### ii. **Participant Signature Page**

This page (1 or more pages as required) is the formal endorsement of the proposal by all the applicants. It is also an affirmation that the participants have committed to the financial support of the project. It must also contain the name, title, affiliation and appropriate signatures of the respective participant organizations. At the time of proposal submission, participants must be constituted federally or provincially, and must have the financial and other resources that are deemed adequate to achieve their respective roles.

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For university or college participants, the signatures of both the researcher and a signatory of the Office of Research Services (or equivalent) are required. In the case where the researcher is also in the position to be the authorized signatory on behalf of the academic institution, a counter-signature must be provided.

For each organization indicate the number of employees and annual revenues (not required for academic institutions).

### iii. Executive Summary

This section is an executive summary of the proposal suitable as a stand-alone document that can be used for a public release that uses wording that is aimed at a non-technical audience, and must not exceed one page. It must list all of the participants, should highlight both the market and technical objectives of the project, describe how the project will be carried out, describe the main expected deliverables and the commercial and economic benefits.

### b. Project Proposal Content

(10 pages maximum) There are nine sections to a complete proposal.

#### i. Understanding of the Technical Problem and its Application Context

This section demonstrates that the project team understands the context and scope of the technical problem and its application. It also describes the specific problem being addressed from the customer's point of view. For example, is the problem being addressed a cost issue or a productivity issue or something else? A description of other similar work being done elsewhere is also required along with an explanation of how the proposed work differs.

#### ii. Proposed Solution

This section describes the innovative aspect of what is being proposed. Starting from the technical problem and context described above, the proposal describes the proposed solution or solutions (or application of the technology) to be sought. A proposal should discuss the nature of the advance (from incremental technological advance, which solves the specific problem through major scientific breakthrough which not only solves the identified problem but opens new opportunities). If this is a new technology, what functions or features will it have? What are its unique features (cost, design, simplicity, etc.)? How does it achieve this purpose? Describe the current and potential features, functions and benefits of the proposed product and compare to would-be competitors. What is its current stage of development (e.g. idea, engineering model, engineering prototype, production prototype)? How long will the technology remain relevant and useful (i.e. length of life cycle)? Will this be a single product, or will it lead to further products, features or refinements? Discuss some of the next generation possibilities for the proposed product.

Describe what the added benefit and impact is expected as a result of receiving Precarn funding.

This section also describes any new Intellectual Property that is expected from the project. Detail on the specific product or service that will result from the development and implementation of the new technology should be fully described.

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### **iii. Technical Methodology**

This section should describe the technical methodologies that will be employed in the project. Past experience in such methodologies, if applicable, should be discussed.

### **iv. Team Capacity and Organizational Expertise**

This section should demonstrate that the team has the combination of staff, work environment, tools, expertise, experience, facilities and financial stability to successfully complete the proposed work and bring the resulting product or service to market. Relevant CVs must be attached as Schedule B.

This section also identifies key personnel including the project champion and the percentage of time they will commit to the project. This section should describe the nature and value of the background intellectual property that is being brought into the project (including how its value was calculated).

### **v. Work Plan**

This section contains a brief statement of work that details the process that will be followed. The details of the approach and methodology in order to achieve the project's objectives, milestones, and deliverables should be described here. A Work Breakdown Structure describing the project's tasks, costs, and the assigned responsibility for their execution is to be included.

### **vi. Program and Technical Risks, Including Risk Mitigations**

This section identifies and explains any program and technical risks that the project could encounter. Further, it must contain a mitigation plan of any identified risks. Merely, stating that risks will not occur, or will be mitigated based on team expertise, does NOT constitute risk mitigation. Instead, contingency plans in light of the risk transpiring must be presented. Risk avoidance is not the same as risk mitigation.

### **vii. Market Analysis**

This section requires the team to demonstrate an in-depth understanding of the market in which their technology is aimed, its application, current customer base, composition in the market, and proposed business model to bring the technology to market. The analysis should include a description of the scope and scale of both market and customer needs. The initial target market for the product or service as well as any plans to expand the market opportunity should be described. The expected market share upon introduction of the product at the end of the project as well as the expected market share over the next five years should also be described.

### **viii. Commercialization Strategy, Including Commercialization Risks**

Since it is expected that the project will result in technologies brought to market and that show demonstrable commercial results within 12 months of project end, a description of the exploitation strategy, designed to meet these expectations, is required. The strategy must detail the company's plans to bring the product to market quickly and its strategy for market entry. This should include market channels, distribution, licensing etc. Describe the current customer base for the existing product or service; provide specific names as examples. Describe the path to commercialization and list current competitors to the proposed product or service. Describe the competitive advantage that the new product or service will provide the customer and any new opportunities that the new product or service will offer the developer or the customer. This section should also demonstrate the potential for long-term return on investment, identify commercialization

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risk, including identification and assessment of competitors and present a risk mitigation plan

### **ix. Commercial Impact**

This section should describe the potential that the developed technology will have to contribute to the economic growth of the participants by creating expanded commercial opportunities and new sustainable employment based on new applications, or application areas that would directly benefit from the project. A description of the anticipated growth in product or process unit numbers as well as sales and revenues to the companies should be included.

### **c. Schedules (Appendix 4)**

In addition to the 10 page proposal, the following schedules must be submitted with the full proposal.

#### **i. Schedule A - Financial Plan**

The Financial Plan must contain all eligible costs relevant to the project for all participants, including all technical, research and commercialization costs to be incurred during the course of the project. As well, all post-research investment projected to achieve market readiness should be detailed separately. Further, the financial plan should include details of equipment and other costs that need to be identified as per the Financial Guidelines. Identify other sources of potential or approved external funding support that have been applied for that are related to this proposal.

Include all costs for all participants (Lead, End User, Research Institution) even if those costs will be contributed as in-kind contributions.

The attached Financial Guidelines (Appendix 2) detail the eligible costs that will be considered. If you are unsure about the interpretation of these guidelines, please contact Precarn's office.

The start date for an approved project to incur eligible expenses is the date that the contract between the Lead Participant and Precarn becomes effective. The financial plan must be in the format set out Appendix 4, Schedule A. Applicants will receive electronic copies of the form.

#### **ii. Schedule B - Personal Data Forms**

This schedule contains the CVs of all of the key project participants. For academic participants, use of the standard NSERC *Personal Data Form 100* is allowed.

#### **iii. Schedule C - Supplemental Financial Information**

The Lead applicant is required to submit the following information:

- The most recent company financial statements (audited is preferred); and,
- A quarterly cash-flow statement forecasting cash balances up to and including the quarter following the end date of the research project.

### **d. Deadlines**

Proposal Documents must be submitted no later than May 17, 2010 (Midnight local time).

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### e. Format

Font size must be no smaller than 11 point and the margins must be no smaller than one inch all around. **Proposals that are non-compliant will be rejected.** Please submit the completed application form compiled into two Adobe PDF format files or two Microsoft Word format files with electronic signatures by email to:

Rick Schwartzburg  
Senior Manager  
Precarn Incorporated  
schwartzburg@precarn.ca

#### **File # 1:** Compiled and in PDF or Word

- a. Application form - complete contact information and other requested information for all participants
- b. Executive Summary
- c. Project Proposal (10 pages)
- d. Schedule A - Financial Plan (using template provided)
- e. Personal Data Forms (for all key participants) – Compiled

#### **File # 2:** Supplemental Financial Information - Compiled

### f. Proposal Assessment

Proposals will be assessed in a two-stage process: first by Precarn staff to determine eligibility, and then by an Expert Advisory Panel. Applicants will be notified immediately if one or more of the mandatory eligibility criteria are not met.

## 6. Contract Award and Management

### a. Project Approval

Upon approval, the successful applicants will be contacted and provided with a draft contract. Precarn retains the right of final approval on any proposed changes.

### b. Method of Payment

The first installment for 50% of the total project contribution will be paid upon receipt of the mid-term report and proof of expenses at the mid-point of the project. Precarn will provide standardized electronic files for the project to report with. The remaining 50% will be paid upon receipt and acceptance by Precarn of the Final Report.

## 7. Questions

Any questions or requests for clarification on this Request for Proposals should be directed to Precarn's office by contacting:

Rick Schwartzburg  
Senior Manager  
Tel: (613) 727-9576 x231  
Fax: (613) 727-5672  
Email: schwartzburg@precarn.ca

**Appendix 1 – Technology Description**

**Intelligent Systems Technologies**

In the broadest sense, Intelligent Systems are systems that emulate and actively employ some aspect(s) of human intelligence. In the context of Precarn’s mandate, this description is focused on what are generally referred to as “high-end” systems, namely, those that demand some combination of sensing, reasoning, acting and interacting.

**Intelligent Systems:** Are comprised of sensors, software and computers, embedded in machines and other devices—are the tools that bring the power of computing technology into our daily lives and business practices. Together, these technologies emulate, and even enhance, the human ability to perceive, reason, and act. To provide context, an archetypal intelligent system would allow a machine to autonomously interact with environments that are complex, foreign, hazardous or unpredictable.

For the purpose of assisting proponents, examples of Intelligent Systems technologies are given below, which is, however, by no means exhaustive.

**Sensing- and Vision-Systems:** Sensors are integral components of many systems, and which support (among others) robotics, process control, vision and other intelligent systems. To illustrate, proximity sensors are used in collision avoidance and to facilitate close-proximity operations of remote manipulators. Tactile sensors, on the other hand, facilitate the manipulative capability of robot arms and end-effectors. Although many of these sensors have a variety of applications, some are more prevalent in specific industries. A variety of sensors (e.g. moisture, pressure, flow and temperature) are widely applied in the manufacturing sector, to both monitor and control processes. Image-capture sensors include those that capture visual data (e.g. CCD cameras) as well as those that are based on lasers, infrared and spectroscopic technologies. These image-capture sensors, having gone through several miniaturization iterations, have broadened the range of many applications; medical testing and surgical procedures, are two examples that readily come to mind.

**Remote sensing technologies:** comprise a variety of techniques that are used for collecting image or other forms of geographic data. Both image- and data-processing are an integral part of remote-sensing systems. Remote sensing has applications within natural resource management and environmental monitoring, and is routinely used by professionals in the fields of, oceanography, geology, agriculture and forestry among others. The intelligent systems community contributes technologies and software that supports image collection and analysis, including sensors for image capture and image-processing software.

**Machine-Vision Systems:** integrate electronic components with software systems to imitate a variety of human functions. These range from image acquisition and mathematical analysis, through to higher-level functions including interpretation and decision-making.

Originally machine vision systems were employed by the automotive industry. The technology then migrated to the electronics industry, but is now rapidly becoming ubiquitous. Vision systems are routinely used in industrial applications: lumber mills, pharmaceutical factories, food processing plants and medical laboratories, are typical examples. Commercial machine-vision systems are now used in a myriad array of different ways: to measure part size, to detect surface flaws, to verify the absence of gross defects, to guide automated vehicles and robots, and to recognize and match patterns for optical character recognition.

**Computer-Based Intelligent Systems:** With its roots in expert systems, Knowledge-Based Systems (KBS) were the first major commercialization of artificial intelligence research. Expert systems’ contribution to intelligent systems allowed for human expertise to be captured and used to aid decision-making and allowed for the timely resolution of extremely complex problems. KBS technologies also

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include pattern recognition technologies such as statistical-pattern recognition, neural networks, case-based reasoning, deductive- or abductive-reasoning, genetic algorithms, and data mining. This area of research also includes intelligent systems work related to databases, distributed databases and agents, reasoning systems and intelligent agents. Knowledge-based systems have been incorporated into equipment diagnosis, process planning, claims processing, and user identification. The industries benefiting from these systems are as diverse as their applications and cover agriculture, manufacturing, transportation, communications, financial analysis, electric power generation, and health, among others.

Process-control systems make use of intelligent-systems technologies to optimize manufacturing processes. As an example process-control engineering, more specifically, encompasses both the design and on-line, real-time tuning methods for production and pilot plant operations.

Process control and instrumentation systems rely on the integration of actuators, switches, analyzers, controllers, optical and other sensors, and microcomputers. These intelligent machines monitor and control the operation of process equipment, including heat exchangers, distillation columns, chemical reactors, injection-moulding machines, surge tanks, pulp digesters, etc. Control systems measure key operating variables such as temperature, pressure, flow, colour, density, etc., and adjust the operating conditions to optimize efficiency.

Recent efforts have explored how expert systems and neural networks can further contribute to the development of reliable and easy to use advanced control systems—which not only monitor operations, but also diagnose problems. Advanced process-control strategies make use of feed forward, cascade, decoupling, and model predictive control.

**Robotic Systems:** Robotic systems perform physical manipulations loosely based on human abilities. The technologies involved in developing these systems depend on machine vision, sensors, and knowledge-based software.

The first robot systems—as with machine-vision systems—were implemented in the automotive industry. At that time robots were utilized primarily to improve quality and productivity, not to mention the desire to lower production costs. As technologies evolved, robots become more useful in environments that are unpredictable and dangerous for humans (e.g. high temperature, radiation areas, munitions sites, environmental cleanup) and in, ironically, ultra-clean environments (e.g. microchip and pharmaceutical plants) where humans represent the undesirable element.

The current markets for robots (in decreasing order of maturity) include: materials handling, painting, spot welding, metal working and machining, continuous path welding, electronics assembly, and clean-room manufacturing/semiconductor production.

Robotic systems also include mobile robots, and their component sub-systems, and service robots (with applications, for example, in healthcare- or service-industries, such as cleaning and security processing).

**Human-Machine Interfaces for Intelligent Systems:** Because intelligent systems complement human abilities—rather than replace them—the human-machine interface is an integral component of many, if not all, of these systems. The interface, which is built around knowledge representation and interactive visualization software, allow operators to interact with intelligent machines by presenting vast quantities of data in formats that make sense to humans. In turn, input-output devices, which transmit and receive position, motion and force data, allow operators to give instructions to machines through movement and force.

**Appendix 2 – Financial Guidelines**

**1. General Conditions**

The definitions and descriptions of eligible costs are applicable to the Precarn- Program and all Participants in each Eligible Project. Costs shall be claimable to the extent that they are, in the opinion of Precarn, reasonable and within the intent of this Agreement.

All goods and services, including labour, provided by Participants in each Eligible Project shall be valued at cost and shall not include any mark-up nor shall they exceed market value.

These Financial Guidelines apply equally to all goods and services, including labour, acquired from related parties or associates.

Precarn is not obliged to accept any costs as eligible unless access is provided to the relevant records of the related entity.

**2. Stacking and Stacking Limit**

A stacking limit is the total of all government assistance as a percentage of eligible costs. Total assistance includes federal, provincial and municipal funding. Precarn's stacking limit is 75%. Any amount exceeding this limit is subject to recovery.

It is the applicant's responsibility to disclose all relevant information on other sources of expected funding or in-kind participation and to inform Precarn of any new funding sources that become available during the life of the agreement. Precarn has the right and responsibility to request any information and perform any verification it deems necessary in order to prevent costs and expenditures from also being claimed and reimbursed from other funding sources.

**3. Claims Certification**

All claims submitted to Precarn must contain authorized signatures from each organization claiming costs in any particular quarter. The signature must be original (not electronic) or a faxed copy of the original. Participants cannot sign on behalf of any other Participants. Precarn is not obliged to accept any costs as eligible unless the costs are certified.

**4. Holdback Provision**

Precarn will process payments as claims are submitted up to 90% of the total Program contribution. The final 10% will be held back pending completion of all project deliverables and any required project audit.

**5. Verification of Eligible Costs**

**a) Prior to first payment**

Participants must provide payroll documents and financial reports to Precarn that supports the salary rates and overhead percentage to be claimed throughout the project. No payments will be made until this information is received and approved by Precarn.

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### **b) Sample testing of claims**

Any supporting documentation that is not required to be submitted with each claim is subject to random testing by Precarn. On a sample basis, Precarn will request supporting documentation for various costs. Non-compliance by the Participant could result in payments being held back by Precarn.

## **6. Financial Audits**

Precarn reserves the right to audit the financial reports and supporting documentation of any approved project. A financial audit may be conducted at any point throughout the life of the project and/or a complete project audit may be conducted upon project completion. If for any reason an audit is conducted, the 10% holdback will be retained until after the final audit report is received.

## **7. Eligible Costs**

### **a. Direct Labour**

- i. Direct salaries and wages paid by the Participant are eligible at the rates shown in payroll documents. Payroll documents must be provided for verification and audit purposes.
- ii. The eligible personnel groups are scientists, engineers, technicians, technical writers, draughtsman, laboratory and experimental shop labour, analysts, programmers and technical personnel conducting the Eligible Project.
- iii. The rate eligible for claims related to the salaries of senior management cannot exceed that of the highest paid functional engineer or scientist in the company or organization.
- iv. Individual employee time sheets or time logs for labour claimed must be maintained, and must be submitted to Precarn on an occasional basis, as requested.
- v. Labour costs may include salaries of university and college faculty members when the work performed takes place on university or college premises, provided that the academic institution is a Participant.
- vi. Salaries of administrative staff are only eligible within the overhead rate applied.

### **b. Benefits**

Actual costs of employment benefits are eligible. Actual benefits costs are claimed as a percentage of direct labour and cannot exceed 20%. Participants must calculate their benefits percentage by totaling all benefits costs of the organization as well as all base labour costs of the entire organization. The Participant can then apply this percentage to the direct wages claimed each quarter. Benefit costs can include the employer's portion of the following:

- CPP
- EI
- EHT
- Vacation Entitlements
- Health and Dental Plans
- Retirement Plans
- WSIB

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- Other costs may be proposed by the Participant but must be approved in advance by Precarn

Participants must supply the documents to support actual benefit costs.

**c. Overhead**

Actual overhead costs will be eligible up to a maximum of 100% of eligible direct labour costs excluding employment benefits for Eligible Project work performed by corporations, and up to a maximum of 65% of eligible direct labour costs excluding employment benefits for work performed by universities and colleges.

Participants must supply the documents to support actual overhead costs.

Examples of Included Costs	Examples of Excluded Costs
Rent – Project space only	Inventory Purchases
Insurance	Sales & Marketing Expenditures
Office expenses	Any direct project costs
Telephone	Land & Buildings
Electricity and heat	Income Tax
Admin Salaries & Benefits	Fines
Statutory holidays	Uncompensated Labour
Professional fees (non R&D related)	Interest & bank charges
Memberships	General Repairs and maintenance
General Amortization	Corporate Travel
Accounting	Sponsorships
Marketing	

**d. Direct Materials**

- Direct materials include components required to test and produce models and prototypes, and must be referred to in the Project Plan.
- Indirect materials are eligible to the extent that they are specifically identified in the approved Research Project Plan.
- Copies of the original invoice must be submitted with your claim for amounts over \$5,000. Invoices below \$5,000 will be requested for verification at Precarn’s discretion.

**e. Sub-Contractors & Consultants**

- Work performed by Canadian sub-contractors or consultants to advance an Eligible Project is eligible to the extent it is identified in the Project Plan of the approved Lead Participants Agreement. The fees charged must be reasonable and not exceed fair market value.
- If the consultant fee exceeds \$25,000 per project, prior written approval by Precarn must be obtained. Otherwise it shall be deemed non-eligible.
- The use of foreign consultants or foreign sub-contractors to be employed during the Research Project must be identified separately in the Project Plan. Precarn’s prior approval in writing is required.

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- iv. Copies of the original invoice must be submitted with your claim for amounts over \$5,000. Invoices below \$5,000 will be requested for verification at Precarn's discretion. Invoices must display hours billed or a description of the service provided.

### f. Equipment

- i. Equipment necessary for the performance of the Research Project can be included in the eligible costs. To be an eligible cost, the equipment and its cost must be described in detail in the Project Plan.
- ii. The equipment cost cannot exceed 25% of the total of all eligible Research Project costs.
- iii. Eligible equipment will be valued at the proportionate capital lease payments or the net laid down cost to the Participant, after deducting trade discounts and cash discounts for prompt payment. If purchased from an Affiliate the cost is to exclude any overhead or re-evaluation.
- iv. Copies of the original invoice must be submitted with your claim for amounts over \$10,000. Invoices below \$10,000 will be requested for verification at Precarn's discretion.

### g. Training

- i. Tuition fees and related costs for special training through attendance at courses, conferences, seminars and similar events dealing with topics and subject matter directly related to the Eligible Project and necessary to advance the research activities are eligible. The total cost must not exceed \$10,000 per Eligible Project. Prior approval in writing from Precarn is needed if the total cost of training exceeds \$5,000 per year for each Eligible Project.
- ii. Copies of the original invoice must be submitted with your claim for amounts over \$2,000. Invoices below \$2,000 will be requested for verification at Precarn's discretion.

### h. Travel

- i. Travel costs essential to an Eligible Project or exploitation of the results are eligible, but shall not exceed Treasury Board approved rates. All updates will be posted on the Treasury Board of Canada website found at <http://www.tbs-sct.gc.ca>. Please contact Precarn's office for further clarification.
- ii. The purpose of the trip and the company or persons visited must be recorded on the claims. Meals can only be claimed for individuals working on the Eligible project.
- iii. Copies of original receipts for any trip costing more than \$1,500 need to be included. Trips below \$1,500 will be requested for verification at Precarn discretion.

### i. Patents

- i. The costs associated with patent or copyright searches and/or filing in Canada, the United States or Mexico are eligible expenses.
- ii. Prior written approval is needed for patent or registration costs incurred outside of Canada, the United States or Mexico.

## **Precarn Incorporated Industrial T-Gap RFP**

- iii. Copies of the original invoice must be submitted with your claim for amounts over \$2,000. Invoices below \$2,000 will be requested for verification at Precarn's discretion.

### **j. Rentals**

- i. Costs of renting equipment essential to an Eligible Project are eligible.
- ii. Copies of the original invoice must be submitted with your claim for amounts over \$2,000. Invoices below \$2,000 will be requested for verification at Precarn's discretion.

### **k. Audit Costs**

Any Eligible Project audits requested by or conducted by Precarn will be fully funded by the Program. Any financial audits conducted by the Participants will be included in the Participants overhead.

### **l. Other**

- i. Costs incurred to define or refine the specifications of the technology, product or process under development or to assess the prospects of exploiting them commercially may be eligible if specified in the Project Plan and incurred after the Eligible Project research and development has commenced. Such costs must not exceed 5% of the total eligible costs.
- ii. Copies of the original invoice must be submitted with your claim for amounts over \$1,500. Invoices below \$1,500 will be requested for verification at Precarn's discretion.

### **m. In-Kind Expenditures**

In-kind contributions are:

- i. Donations made by parties other than the project participants; or
- ii. Contributions made by participants that were purchased or developed prior to the project start date.

Any cost claimed as an in-kind contribution must be eligible according to the other sections of the Financial Guidelines. A maximum of 10% of project costs can be claimed as In-Kind expenditures.

Within each of the preceding categories, in-kind contributions are eligible as follows:

- Direct Labour, Benefits and Overhead are not eligible
- Direct Materials are eligible at the lesser of market value and book value.
- Sub-contractors and consultants are eligible at the lesser of market value and the rate offered to a preferred customer. Subcontractors must be at arm's length to be eligible.
- Equipment is eligible at the lesser of market value, book value and leasing rates.
- Testing and Demonstration is not eligible
- Training is not eligible
- Travel is not eligible
- Patents are eligible at the market value of licensing the patent if the patent is donated. The cost of obtaining a patent is not eligible.
- Rentals are not eligible
- Audit costs are not eligible

## Precarn Incorporated Industrial T-Gap RFP

### n. General In-Kind Restrictions

- i. Development Costs are not permitted as a valuation method
- ii. If the value of the contribution is difficult or impossible to determine or if the participant does not provide adequate documentation, the contribution will be deemed ineligible
- iii. Precarn has the right to disallow in whole or in part any in-kind contribution.

### o. General Non-Eligible Costs

The following expenditures are not eligible under any circumstances:

- All remuneration or fees paid to members of the Board of Directors
- Opportunity costs
- Donations in the form of knowledge, goodwill and other such intangibles
- Precarn membership fee
- User manuals, except first drafts and essential technical documentation
- Federal and provincial income taxes, fines or costs related to the prosecution of claims against the government
- Land, buildings and facilities
- Trademarks
- Personal computers – except as part of the overhead charge
- Companion contracts or value transferred from other R&D projects within a participant's organization
- Uncompensated labour

**Appendix 3 – Proposal Application Form**

**Date:**

**Project Title:** (max 200 characters)  
**Project Short Name:** (2 or 3 word title that will have meaning to a non-technical person)

<b>TOTAL AMOUNT REQUESTED</b>	<b>Total</b>
All Participants Contribution	
Precarn Contribution	
Total	

**LEAD PARTICIPANT**

**Designated Project Leader:**

Title / Department:  
Mailing Address:

Telephone:  
Fax:  
E-mail:

**Company Name:**  
Web site:  
Number of Employees:  
Annual Revenues:  
Ownership: Public/Private  
Current Precarn Member? Yes / No

---

Will Join Precarn if Proposal is successful? Yes / No

---

Participated in a Precarn-funded project in the last 5 years? Yes / No

---

Key word: Provide a maximum of ten (10) key words that describe the intelligent systems technologies to be created within the project. Use commas to separate each key word.

Sector of application of research (check primary area):

<input type="checkbox"/> Mining	<input type="checkbox"/> Infrastructure & Construction	<input type="checkbox"/> Aerospace	<input type="checkbox"/> Energy
<input type="checkbox"/> Environment	<input type="checkbox"/> Information Technology	<input type="checkbox"/> Arts & Entertainment	<input type="checkbox"/> Business & Finance
<input type="checkbox"/> Transportation	<input type="checkbox"/> Manufacturing & Processing	<input type="checkbox"/> Health	<input type="checkbox"/> Agriculture & Agri-Food
<input type="checkbox"/> Forestry	<input type="checkbox"/> Communications	<input type="checkbox"/> Education	<input type="checkbox"/> Security & Safety

Other (Please Specify): \_\_\_\_\_

I hereby submit the attached application to Precarn Incorporated in accordance with the terms of the Request for Proposals and with the agreement of the other project participants listed on page 2.

\_\_\_\_\_  
**Name**  
**CEO or President of the institution**  
**(or authorized representative)**

\_\_\_\_\_  
**Signature**

\_\_\_\_\_  
**Date**

Project Short Title: (from page 1 of application)

This project is submitted by the following group of institutions in addition to the lead institution. Each institution below agrees that the identified participants have the resources available to them to complete the project.

<b>PARTICIPANT</b>	
<b>Name of Primary Contact:</b>	
Title / Department:	
Mailing Address:	
Phone:	
Fax:	
E-mail:	
<b>Name of Company or Institution:</b>	
Web site:	
Number of Employees:	
Annual Revenues:	
Ownership: Public/Private	
Current Precarn Member?	Yes / No
Will Join Precarn if Proposal is successful?	Yes / No
Participated in a Precarn-funded project in the last 5 years?	Yes / No
<b>Name of CEO / President of the Institution / Authorized representative:</b>	
<b>Title:</b>	
Signature:	Date:

<b>PARTICIPANT</b>	
<b>Name of Primary Contact:</b>	
Title / Department:	
Mailing Address:	
Phone:	
Fax:	
E-mail:	
<b>Name of Company or Institution:</b>	
Web site:	
Number of Employees:	
Annual Revenues:	
Ownership: Public/Private	
Current Precarn Member?	Yes / No
Will Join Precarn if Proposal is successful?	Yes / No
Participated in a Precarn-funded project in the last 5 years?	Yes / No
<b>Name of CEO / President of the Institution / Authorized representative:</b>	
<b>Title:</b>	
Signature:	Date:

COPY PAGES AS NEEDED

Project Short Title: (from page 1 of application)

**EXECUTIVE SUMMARY**

Provide an overview of the project suitable for public release using non-technical wording in the following one page.

## Appendix 4 – Schedules

### **Schedule A: Financial Plan**

#### **Proposal Budget Forms**

- Insert the name of each participant into the budget at the top
- A participant may contribute funds without incurring costs. Extra lines may be added to the Contribution section of the Budget formats to accommodate additional funders who do not incur project costs.
- Any item considered as an in-kind contribution, as defined in the Financial Guidelines, must be described in explanatory notes added to the Budget.
- Any items that are significant in cost should have an explanatory note added to the Budget.
- Note that column 1 (Total Project cost) = Column 2 (Participants' Contributions) + Column 3 (Precarn Contribution)
- The financial plan must be in the following standardized budget format (**embedded Excel file – double click to open**):



**Schedule B: Personal Data Forms**

Applicants are to attach CV's of the key personnel that would be involved in the project. For academics, *NSERC form 100* is accepted.

**Schedule C: Supplemental Financial Information**

The Lead Applicant is required to submit the following supplemental financial information.

- The most recent financial statements (audited, if available)
- A quarterly cash-flow statement forecasting cash balances up to and including the quarter following the end date of the research project