

Project Infusion
Index Awards Presentation



Background

Facts

- 35% of people in India earn less than \$1 a day
- 65% of the world's population earns less than \$2,000 a year
- 4 billion people live at the bottom of the economic pyramid



Background

Misconception

These low-income populations have little to spend on goods and services, and what income they do have is spent on basic needs like food and shelter.

Situation

The poor often purchase luxury items (t.v.'s, pressure cookers, etc.), choosing to improve their quality of living now.



Relevant Trends



Increasing Expectations

Growing Globalization

Internet Penetration

Emerging Technologies

New Relationships

Economic Upheaval

The growing availability of television in remote areas is providing people with daily reminders of the products and services available in developed countries. These encounters create expectations that at best may be incentives for entrepreneurship, at worst, may generate deep-seated resentment.

Relevant Trends

Increasing Expectations

Growing Globalization

Internet Penetration

Emerging Technologies

New Relationships

Economic Upheaval

Nations are less and less independent entities. International corporations and global trade are creating a one-world economy in which there are potential markets for virtually anything of value. Diversity of culture offer niche markets, but also provide specialized sources of products.

Relevant Trends

Increasing Expectations

Growing Globalization

Internet Penetration

Emerging Technologies

New Relationships

Economic Upheaval

Computer use and Internet access grow exponentially every year. Information of encyclopedic detail can be obtained more and more easily, and complex, sophisticated processes can be used remotely. Opportunities for high-quality communications are increasingly available to groups anywhere.

Relevant Trends

Increasing Expectations

Growing Globalization

Internet Penetration

Emerging Technologies

New Relationships

Economic Upheaval

The pace of technological change continues to accelerate, bringing new science and its commercial uses to entrepreneurial applications at an ever quickening pace.

Relevant Trends

Increasing Expectations

Growing Globalization

Internet Penetration

Emerging Technologies

New Relationships

Economic Upheaval

Greater mobility and access to information is changing the nature of association for many organizations. Organizations that once operated in isolation are now players in a common environment. Sometimes the emerging relationships are competitive, sometimes cooperative.

Relevant Trends

Increasing Expectations

Growing Globalization

Internet Penetration

Emerging Technologies

New Relationships

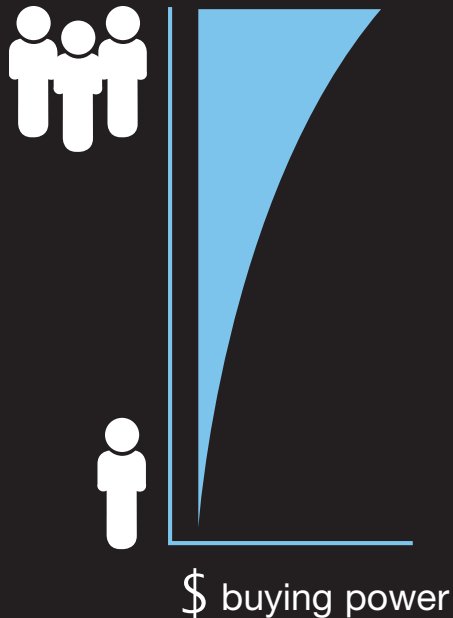
Economic Upheaval

Wars, droughts, environmental disasters are catalysts that induce people to abandon or supplement previous occupations with new ways to make a living. Entrepreneurial styles of working are finding new currency in a world where wages and funding are limited, but desires are fed by ubiquitous reminders of what is attainable.

Economic Opportunities

Market Model: Shared Buying Power

Aggregate Income



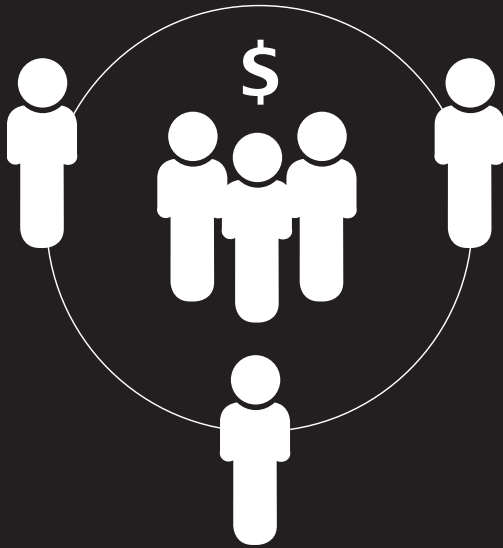
While individual incomes may be low, the aggregate buying power of poor communities is actually quite large. Groups tend to band together to obtain services unaffordable by individuals alone.

Example: Grameen Telecom

Economic Opportunities

Business Model: Cooperative Business

Shared Goals,
Shared Resources



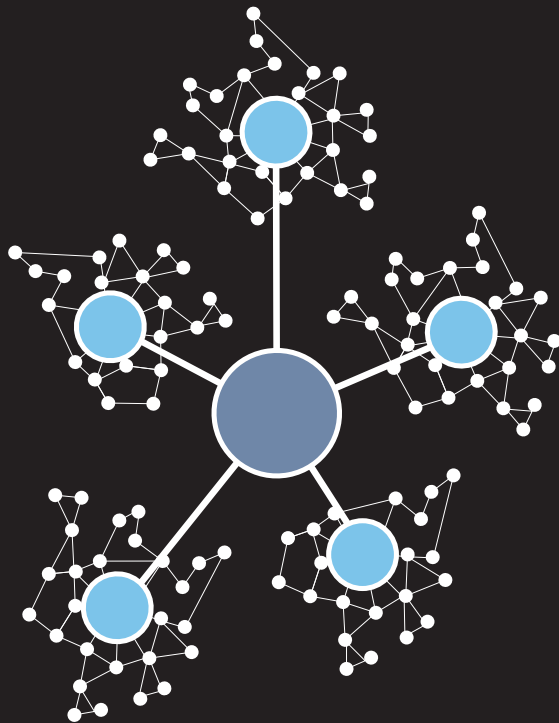
When a group of distant individuals unite under a shared goal the synergistic result can lead to combined economic stability.

Example: Amul

Economic Opportunities

Investment Strategy: High-Cost Infrastructure

Planned ROI



When services are used by a large number of people, the delivery costs per customer become so low that the initial investment can be recovered astonishingly quickly.

Example: Aravind Hospital

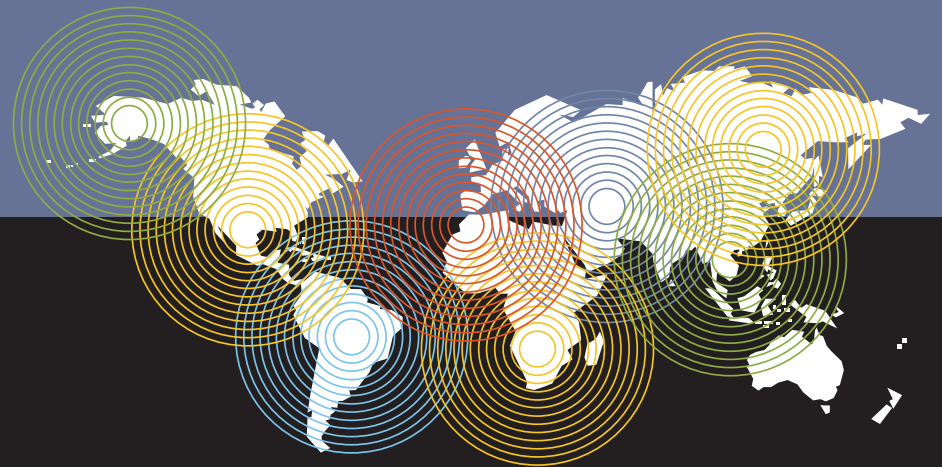
Our Challenge

- Empower individuals and communities economically
- Encourage groups to form
- Extend their abilities to grow



Project Concept

Project Infusion is a large-scale system of computing solutions that can be implemented worldwide in developing nations. Leveraging the processing power of grid-computing, the system requires only low-cost I/O devices that can be massively distributed. Community productivity will be multiplied and individuals empowered with the knowledge-tools technologies can deliver



System Outline

The system contains 48 solutions that fall into 10 categories.

Mobius NC
OneWorld
MarketPlace
Globuserve
Daily Notes
Streamline

ClusterWeb
Architecture
Building Patterns Palette
Community Access Outlet
Environments

Smart Card
Group Account

ViaWeb
SkillBuilder
TrainingPro
Developer Program
Support Triage

EconoMap
EntrepreneurWorks
Context Design
Base Maker

1. Global Entrepreneur



2. On Demand Services

Savant
Smart Grid
Horizon
Minx
Profile
User Database
Infudentity

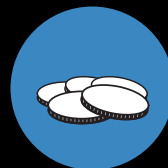
3. Distributed Networks



4. Life Cycle Supply Web

SalesCast Tools
Infracycle
Distrifusion

5. Shared Use



6. Peer Networks

Exeus NC
Patrius NC
Ad Channel
Mobius Mosaic
Lock Point
Community Site
IP TeleCommunity
Co-Op

7. Community Learning



8. Intelligent Systems

CogniSys
Wizard
FeedbackTrack
iThink
SenseNet
WeatherSky
Premeasures
Performetrix

9. Cultural Relevance



10. Global Impact

Tri-Alignment
StateSite

Global Entrepreneur

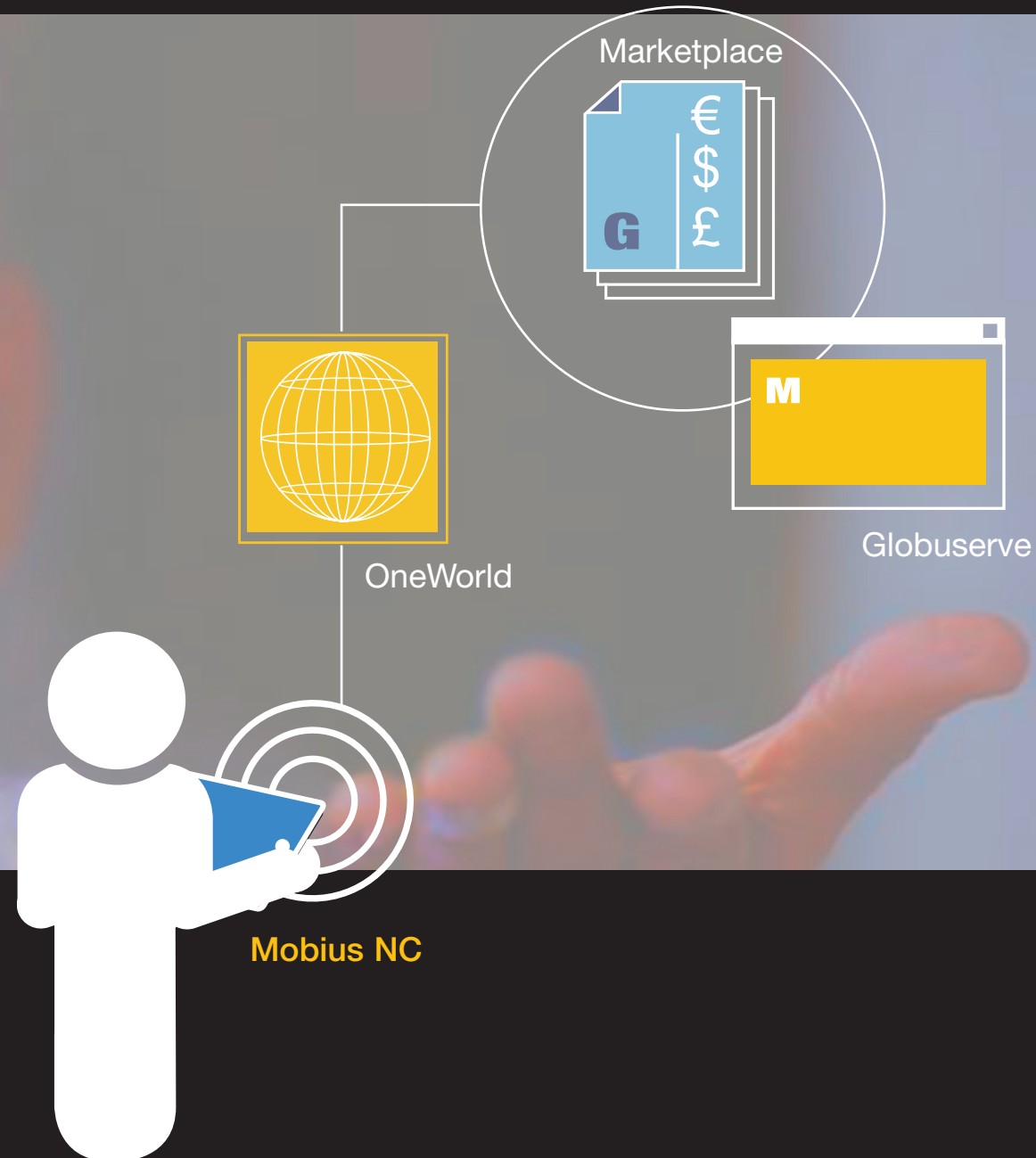


Entrepreneurs have access to a suite of applications that they can use to realize their own business initiatives

Global Entrepreneur

Mobius NC

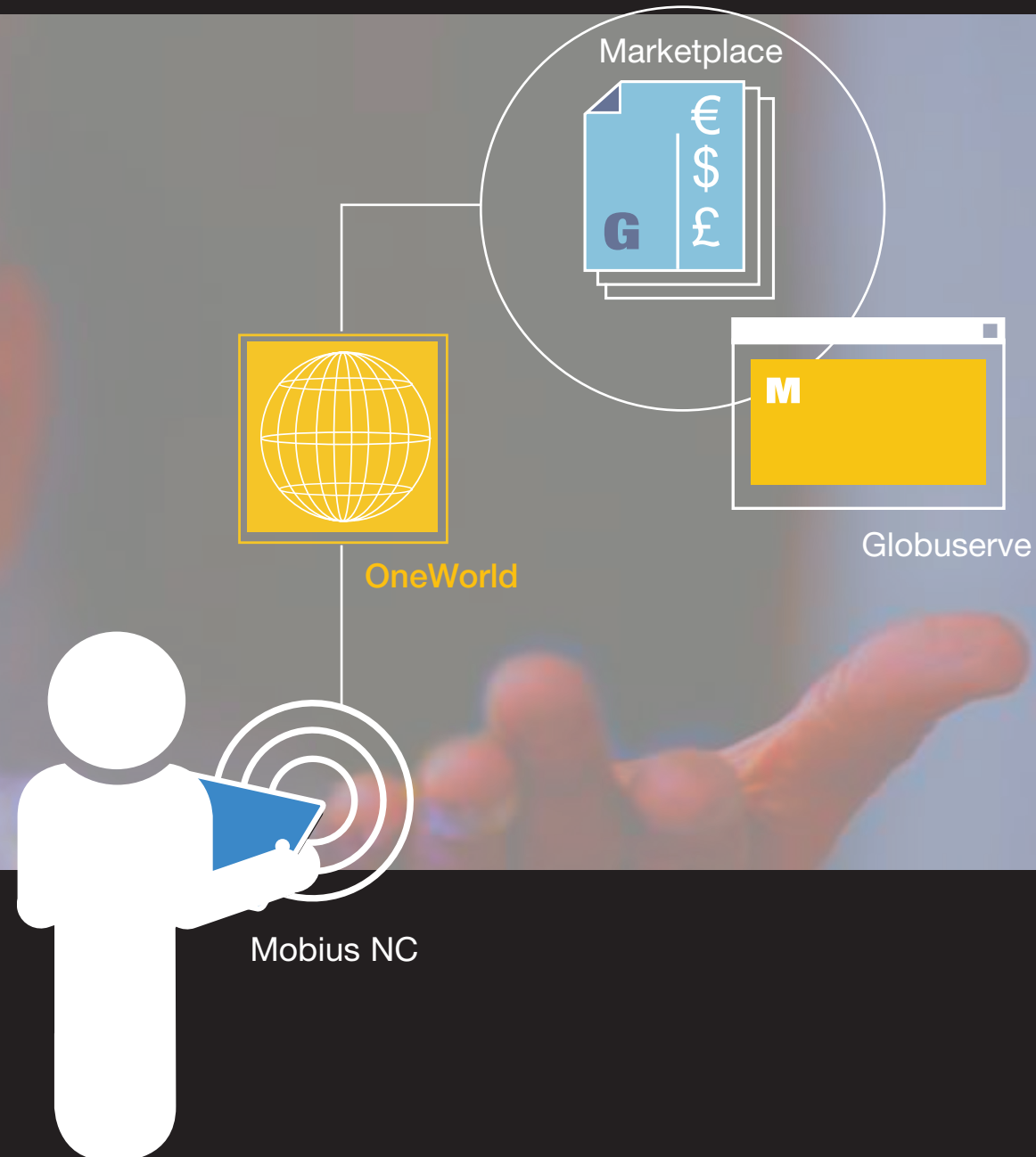
Similar in size to a tablet, the Mobius NC (Network Computer) functions as an input/output device – all processing occurs on the grid, freeing the device of the need for costly hard drive and memory. Mobius accesses documents, applications and processing power, residing on the grid, via wireless technology



Global Entrepreneur

OneWorld

One of the most enabling tools Mobius provides is OneWorld, a language translation software program. Using OneWorld, all text and voice commands are translated to the user's primary language. A OneWorld Button resides in the corner of the screen, providing low-literacy users with the ability to translate text into audio.



Global Entrepreneur

Marketplace

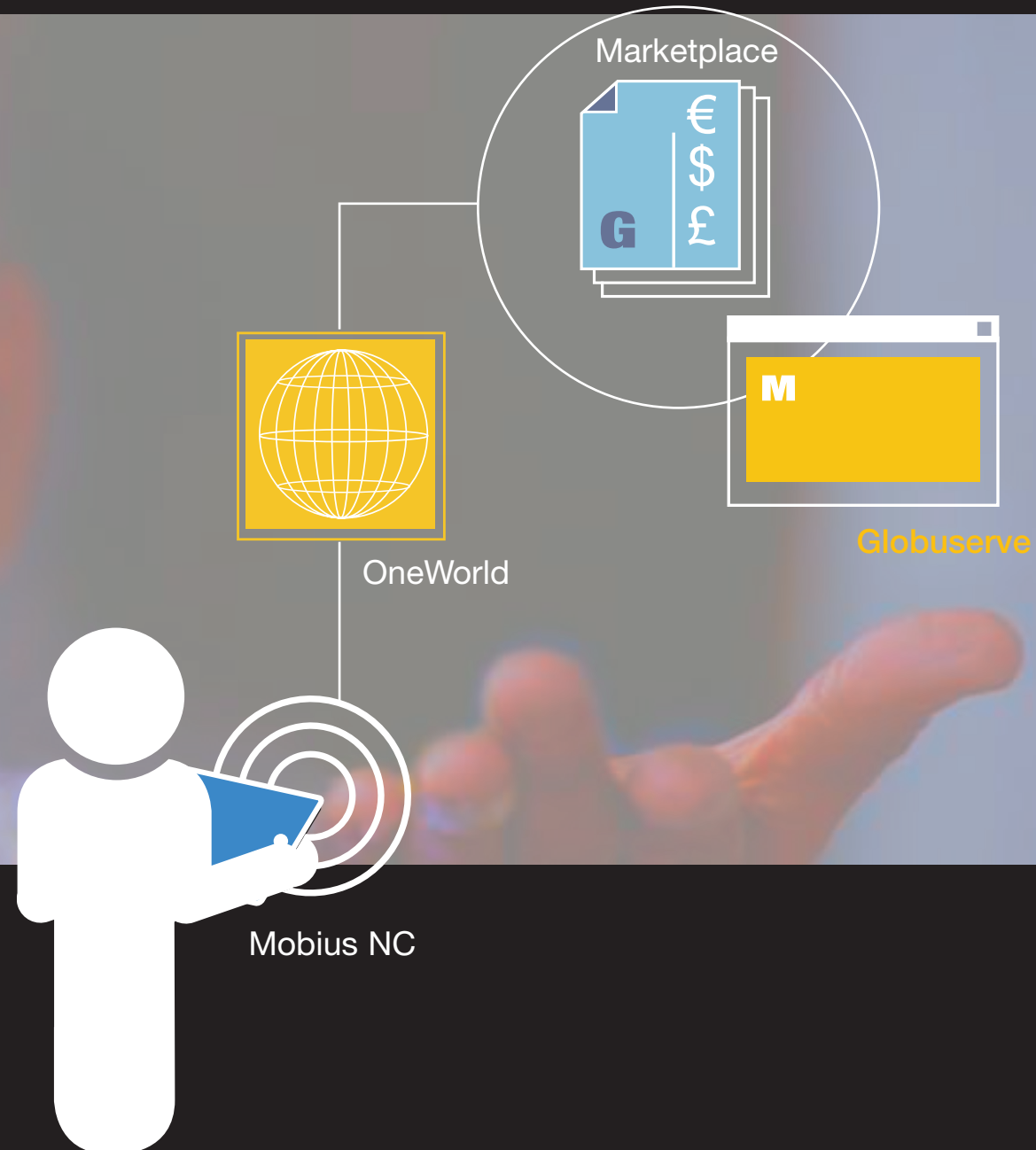
Marketplace is an online sales, barter and auction site that provides users with the ability to coordinate the trading of their goods and services. Marketplace allows for both local and global transactions.



Global Entrepreneur

Globuserve

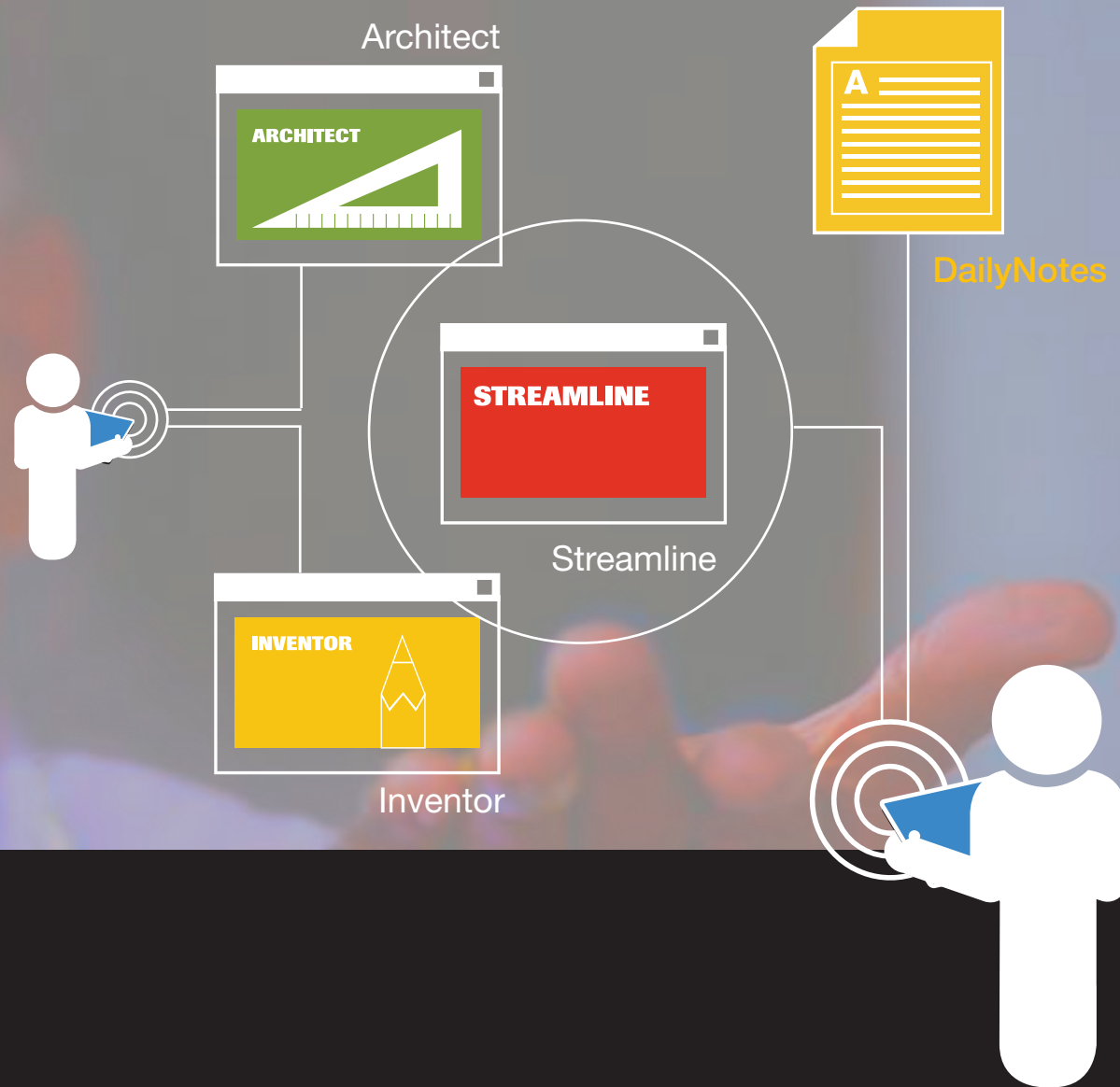
Marketplace is part of a suite of web-based applications called Globuserve, a collection of tools that empower entrepreneurs to succeed in the global marketplace. Globuserve itself offers access to resources such as country-specific trade data, market research and international tax and accounting standards.



Global Entrepreneur

DailyNotes

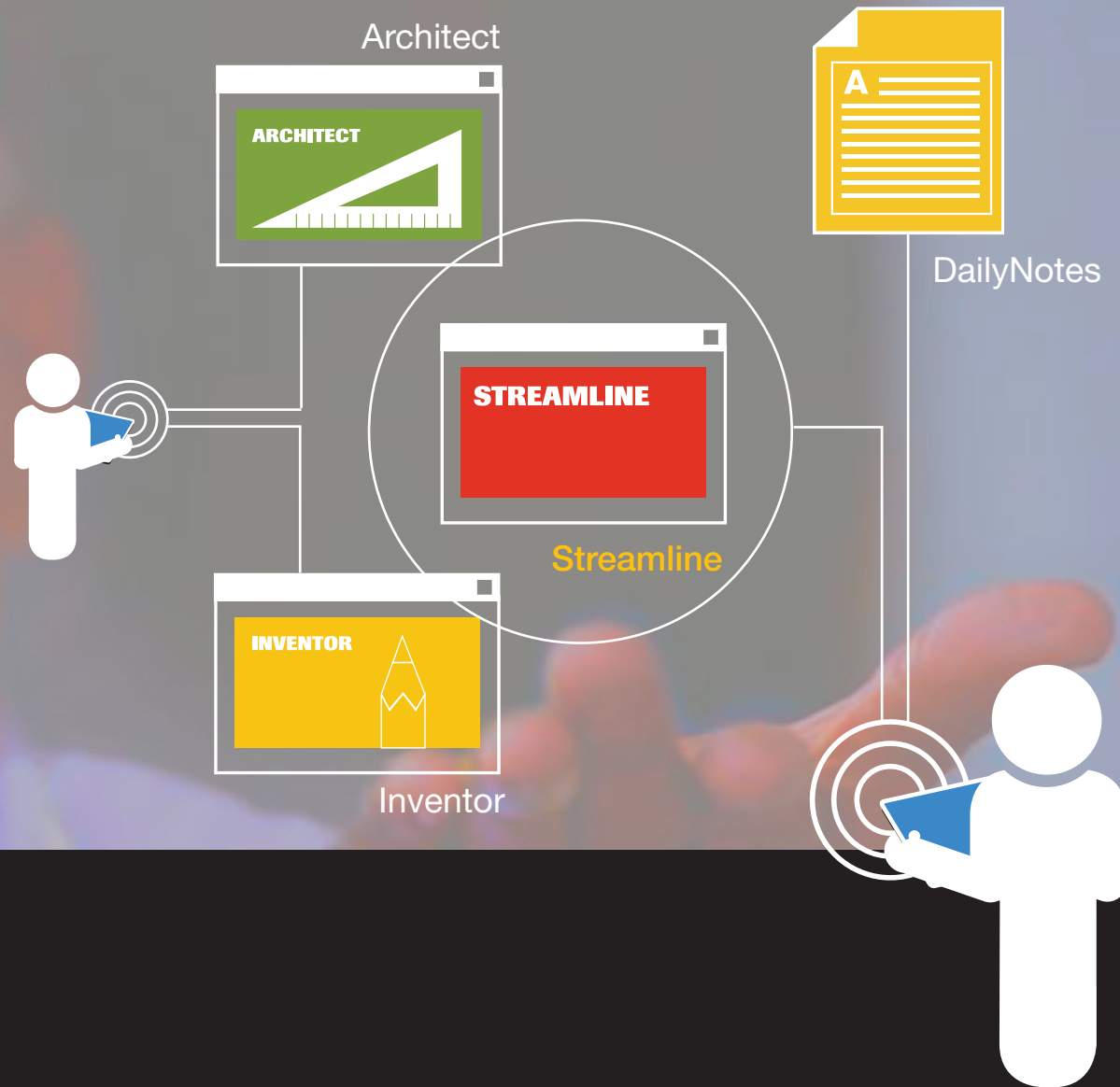
Every day, the application DailyNotes displays on the Mobius screen a pop-up window of news, reminders and updates. DailyNotes also learns its users, recognizing their patterns. Over time, DailyNotes learns the user's preferences and automatically searches the grid for more relevant knowledge they might desire.



Global Entrepreneur

Streamline

Streamline is a web-based management tool that helps users organize and coordinate group projects. Streamline allows users to share project information by posting time-tables and schedules. Group administrators can then monitor the group's progress through workflow management features.



Global Entrepreneur

Inventor

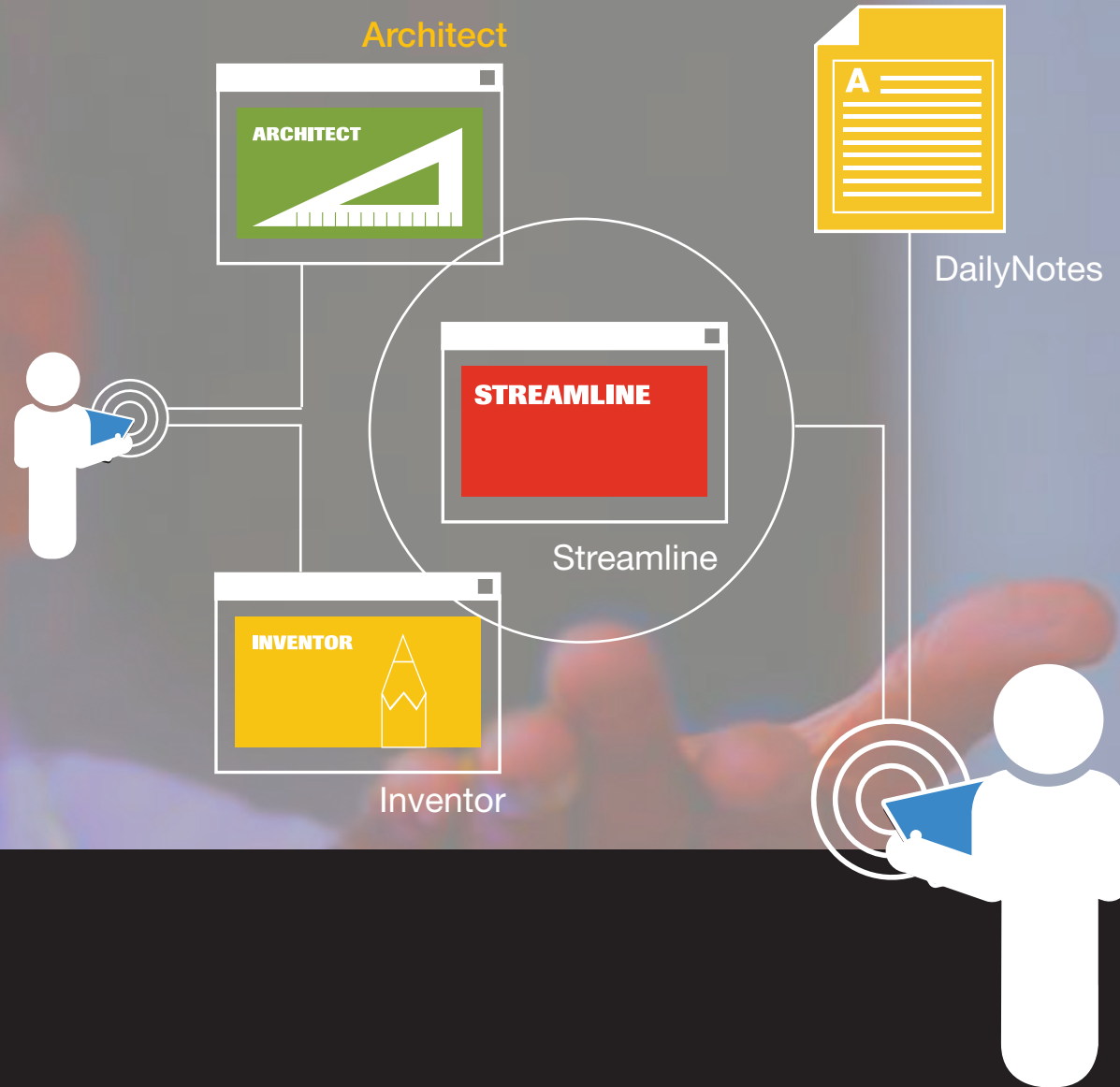
Streamline contains a suite of productivity tools that help entrepreneurs and their partners to remain innovative. One example is Inventor, A CAD drafting tool able to create 2D and 3D drawings.



Global Entrepreneur

Architect

Craftsmen and designers use Architect to reference international manufacturing standards relevant to their work. Within Architect, users can reference size, measurement and material standards and compare them to their designs created in Inventor. In this way, they ensure that their work will adhere to international manufacturing standards.



On Demand Services

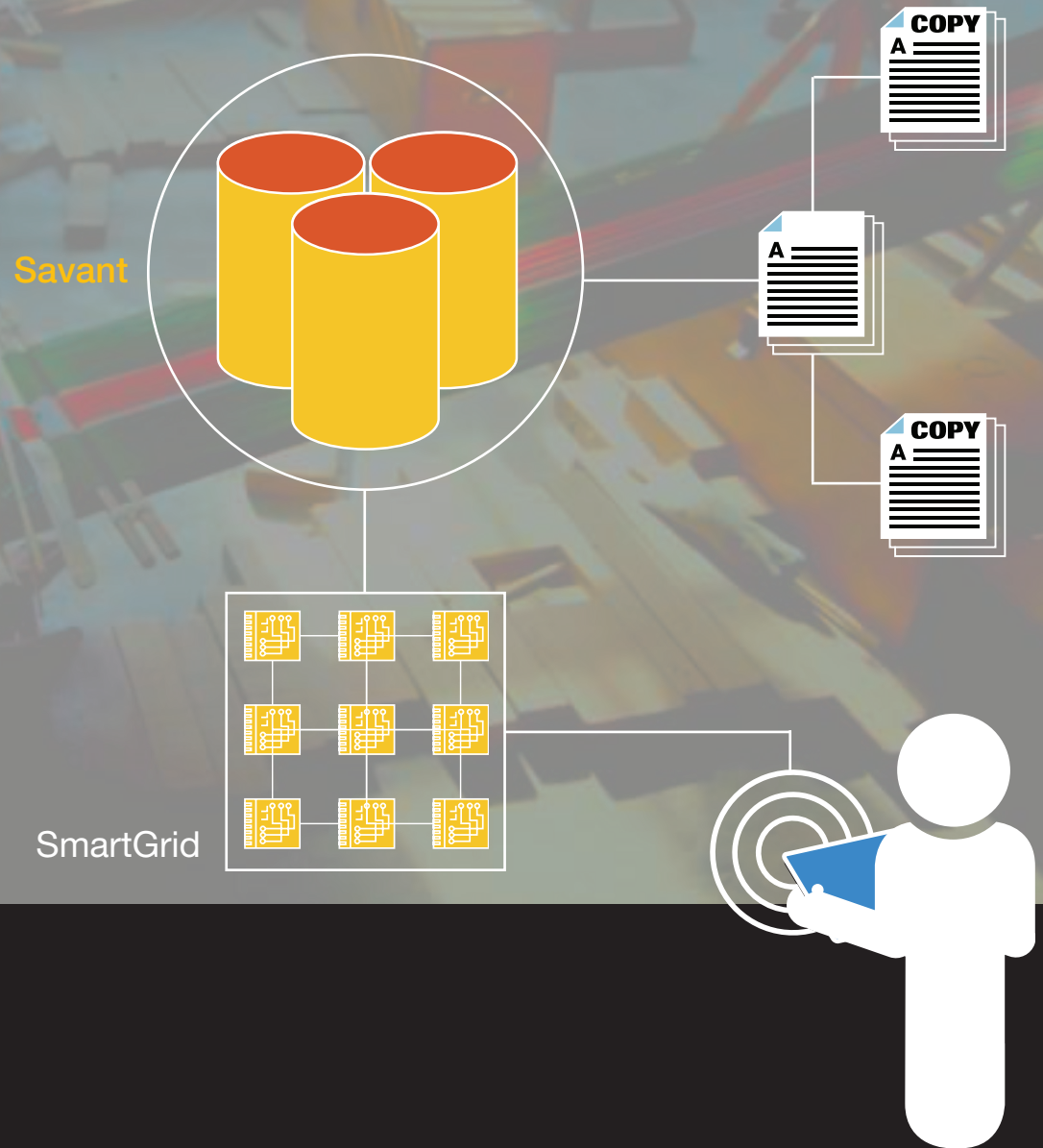


All of the applications, data and processing power are controlled by a distributed set of networked servers

On Demand Services

Savant

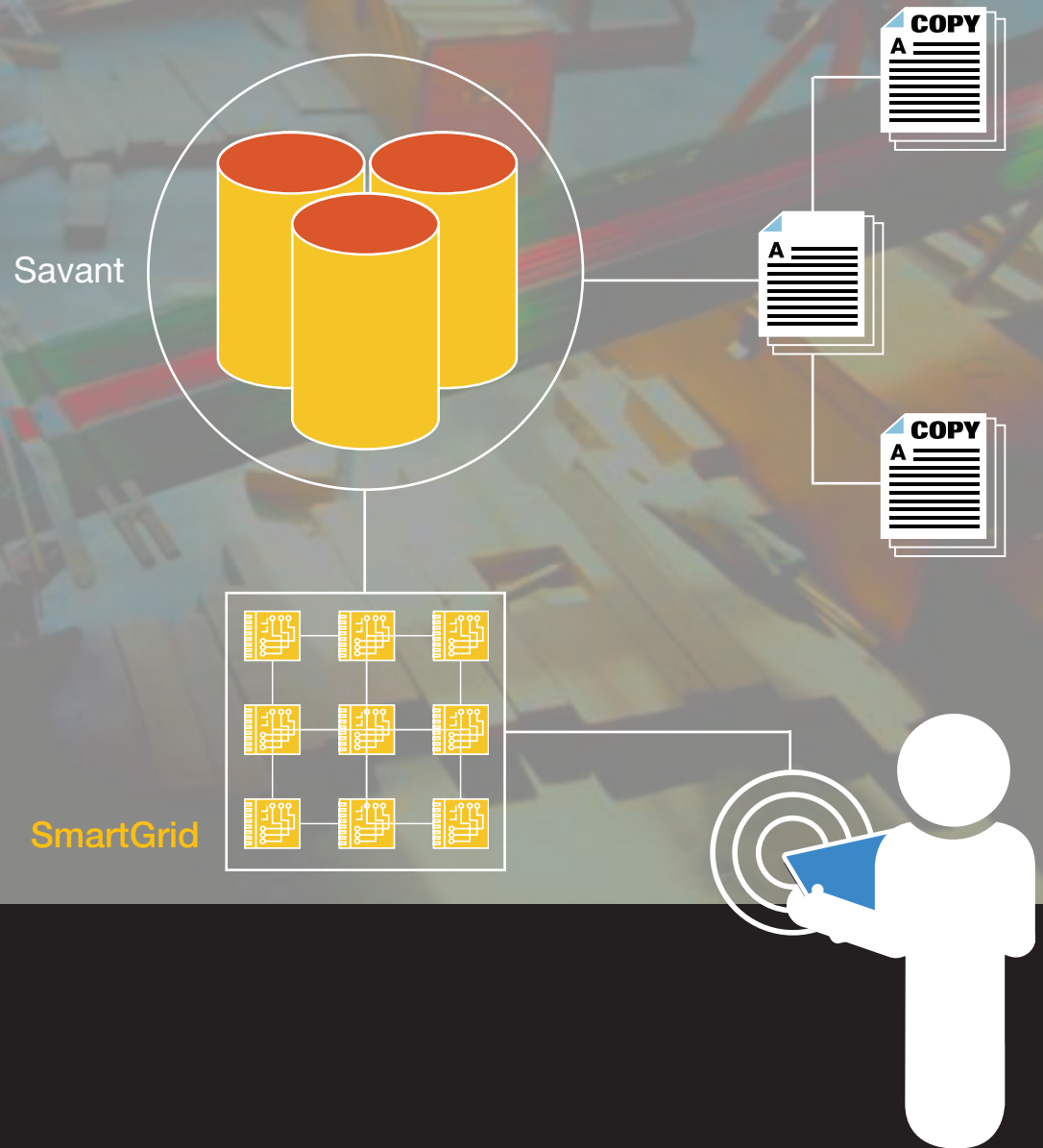
The set of distributed servers that manage all of the systems applications is called Savant. Savant is a set of clustered, networked servers that store and organize all types of information, converting it into manageable data packets. Savant makes duplicates of these data packets, arranges them in hierarchies, and distributes them throughout the system. These redundancies make accessing information much faster and ensures its existence in the event of a disaster.



On Demand Services

SmartGrid

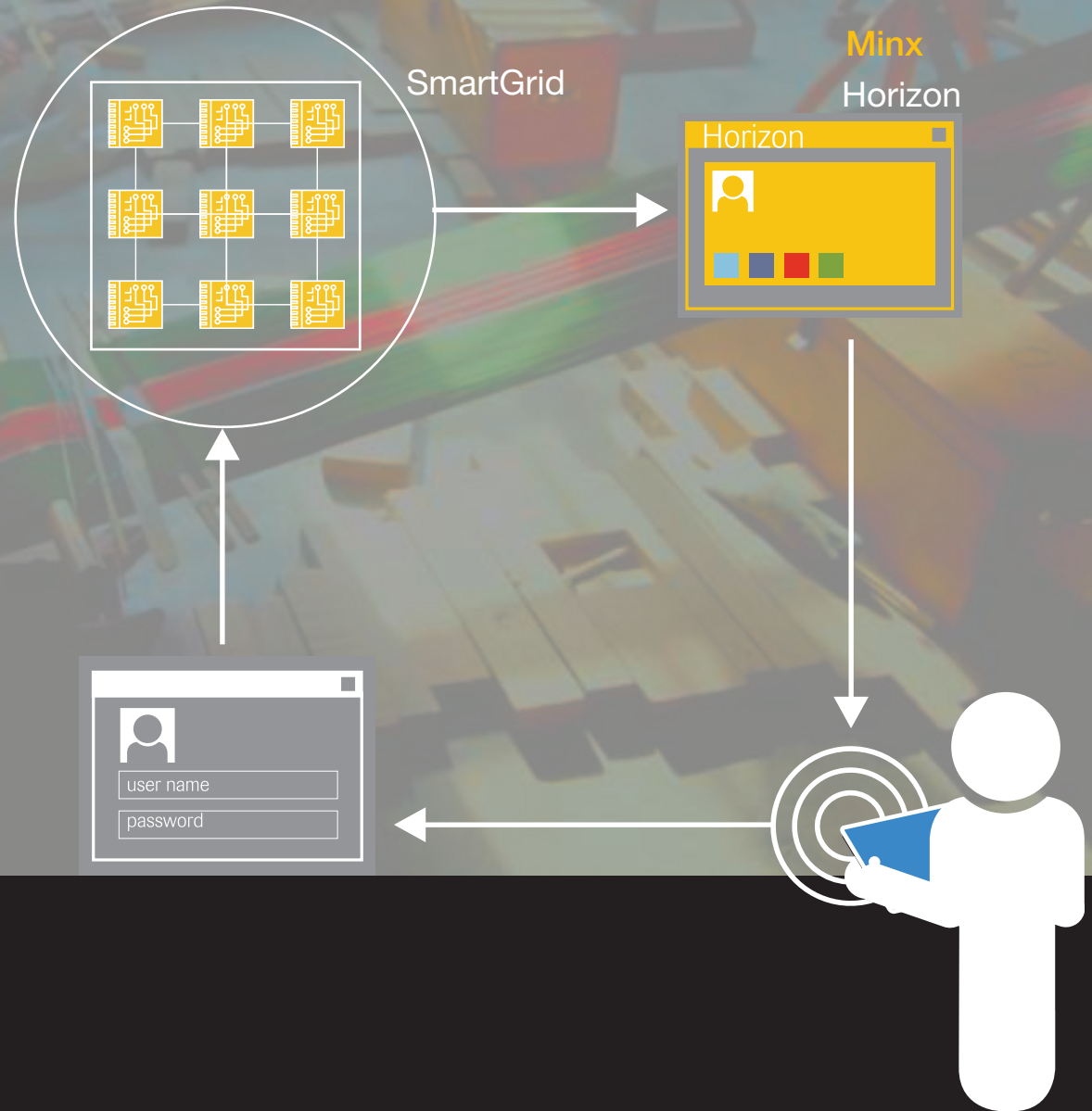
The vehicle that coordinates all of the computer activity on behalf of the end user is called SmartGrid. SmartGrid takes a single system image of all the distributed processors, working together as one integrated computational resource. In this way, Smart Grid is scalable to five hundred or five thousand NC devices.



On Demand Services

Minx

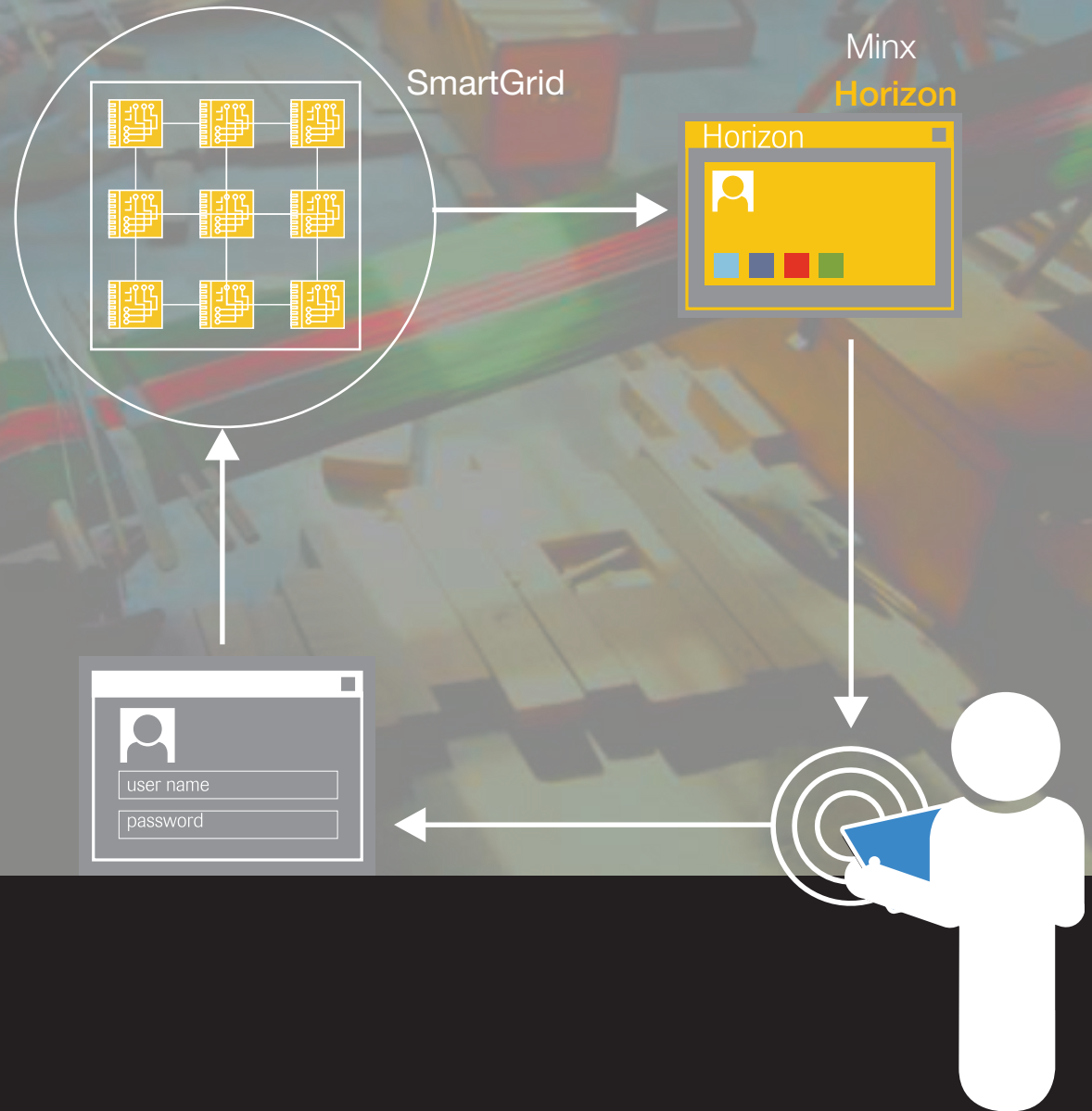
Minx is the Linux-based operating system that runs project Infusion's NC devices. Harnessing the power of open source, Minx is a powerful and cost-efficient OS solution. Minx employs a variable interface design to accommodate multiple input devices.



On Demand Services

Horizon

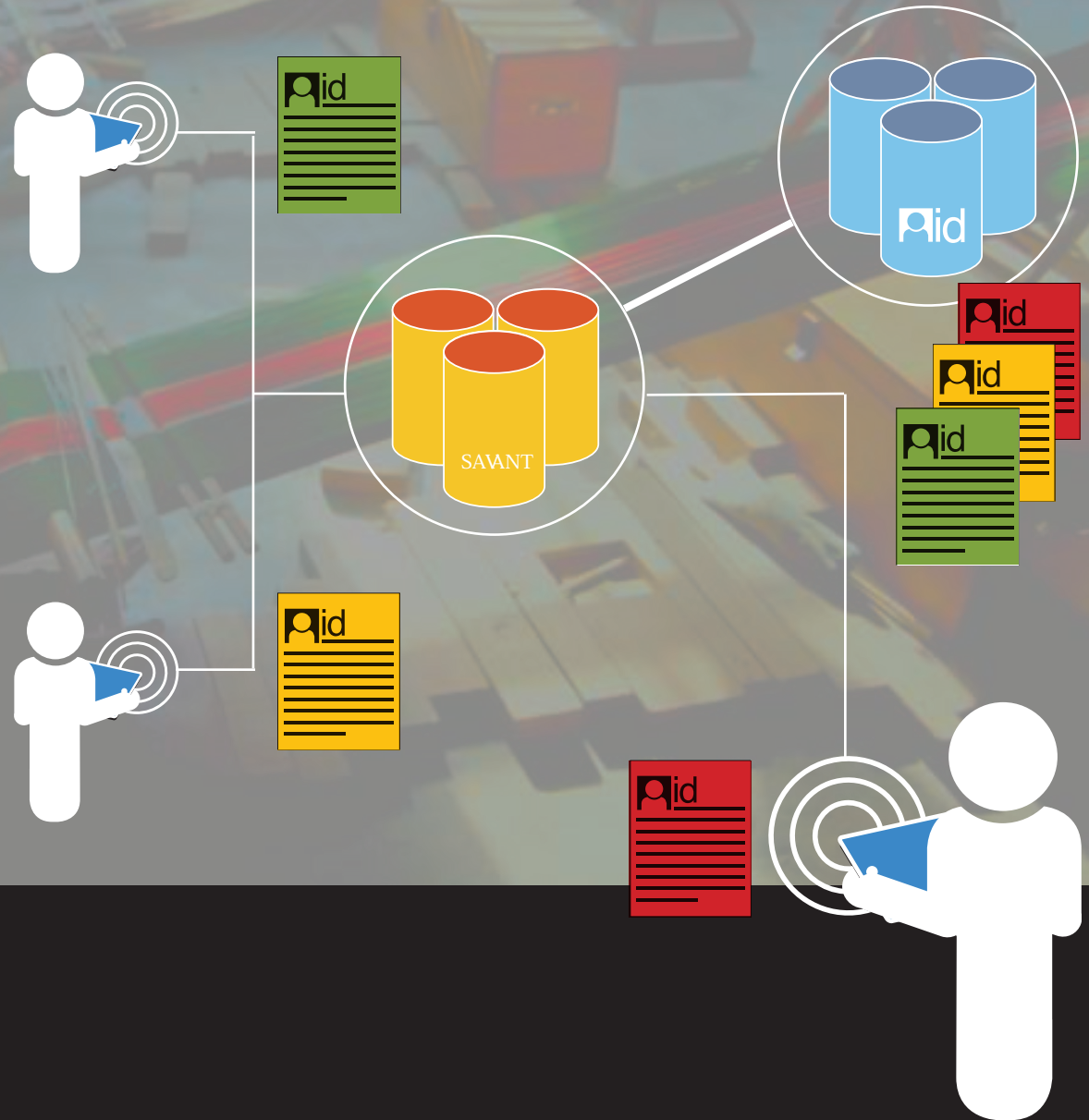
The Horizon homepage is the portal through which users access all Project Infusion applications. Horizon works in conjunction with Minx to display a menu of software applications in easy-to-understand icon language. The homepage also shows Memory Cubes, the folders where users can store, organize and access their own personal data, which are made available through Savant.



On Demand Services

Profile / Infidentity / User Database

Each user's account is associated with a Profile, which contains personal information and preferences which are stored in the distributed User Database. This Database stores and tracks Profiles through a back-end protocol called Infidentity, which represents the user's digital presence on the grid. Infidentity runs the initial interaction protocols, labels and tracks all of a user's data, logs their transactions and secures server space for running applications within the virtual workspace.



Distributed Networks

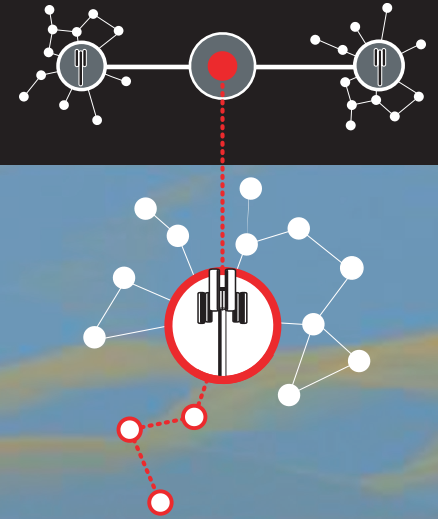


Network connectivity is established through wireless routers and expanded by each additional user.

Distributed Networks

Cluster Web Architecture

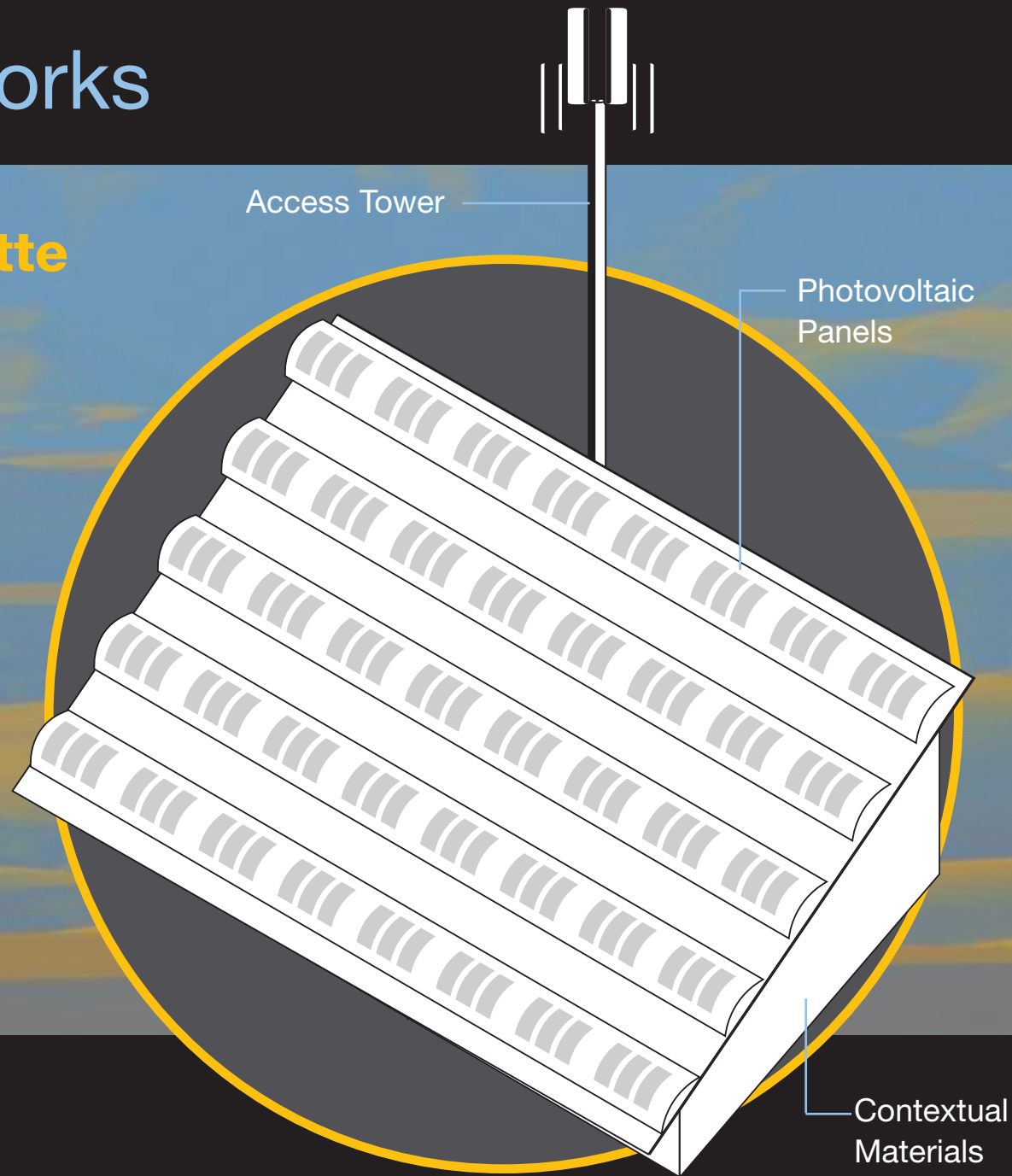
A wireless broadband network signal that can reach 40 miles away is created by making the NC device act as its own network signal router. Using a couple other users a signal can be bounced to its destination, the Access Point, creating an instant guerrilla network. This allows the network to expand into hard-to-reach locations without investing heavily in blanket coverage.



Distributed Networks

Building Patterns Palette

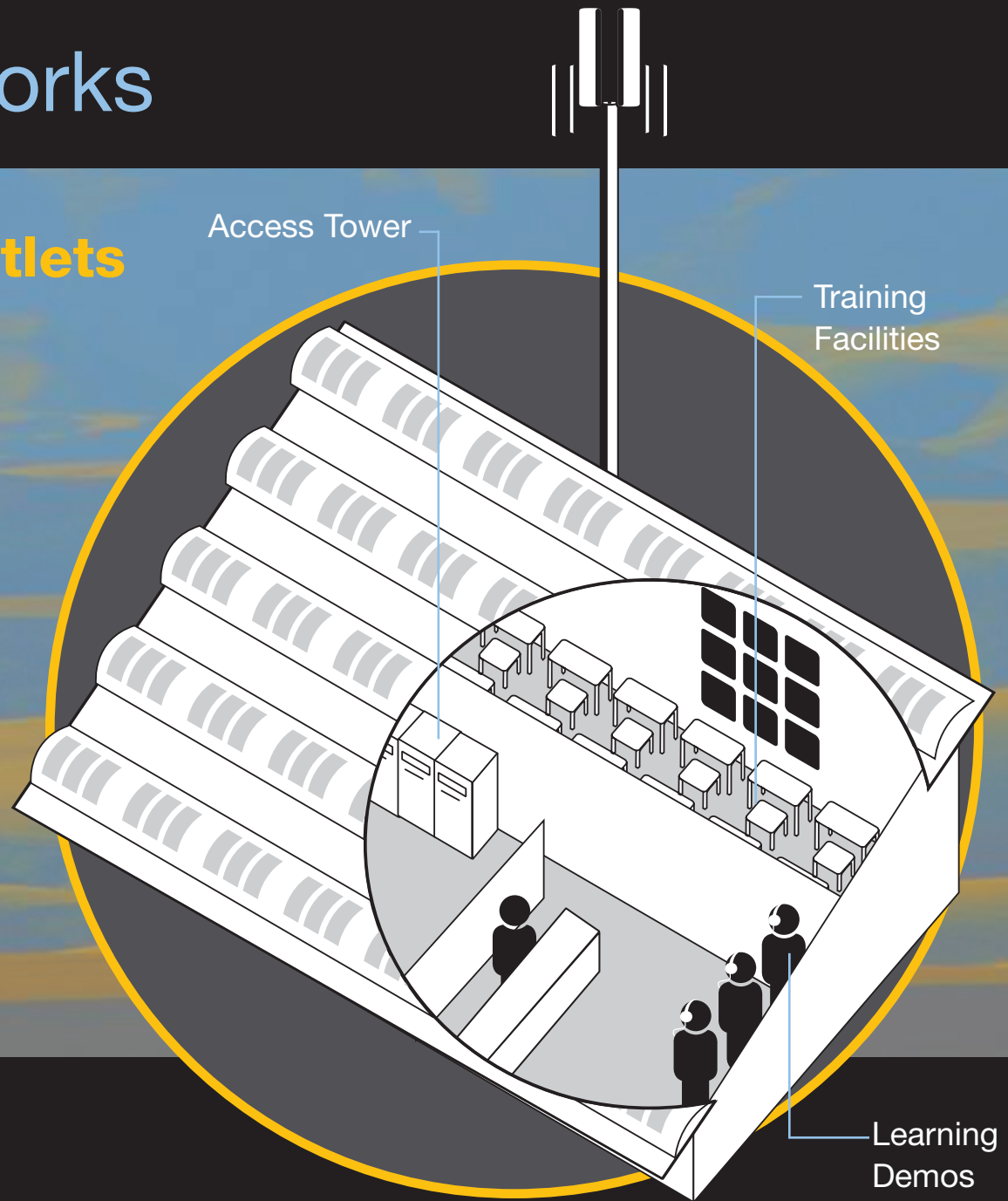
Clusters are distributed around a Hub, which is the central project facility. Locations are carefully considered to obtain maximum signal strength and optimum proximity to outlying communities. Location patterns are determined using the Building Patterns Palette software tool. Among factors it considers are the number of communities within the area, types of renewable energy sources, special environmental conditions and typical weather patterns.



Distributed Networks

Community Access Outlets

Community Access Outlets are the main hubs for distributing products and housing the network infrastructure hardware. They are designed to accommodate the entire application sales cycle, from new product selling and leasing, specifying and ordering through used product reselling. The environments contain classroom-type areas where users can attend technology training clinics on the equipment or watch demo displays of applications.



Lifecycle Supply Web

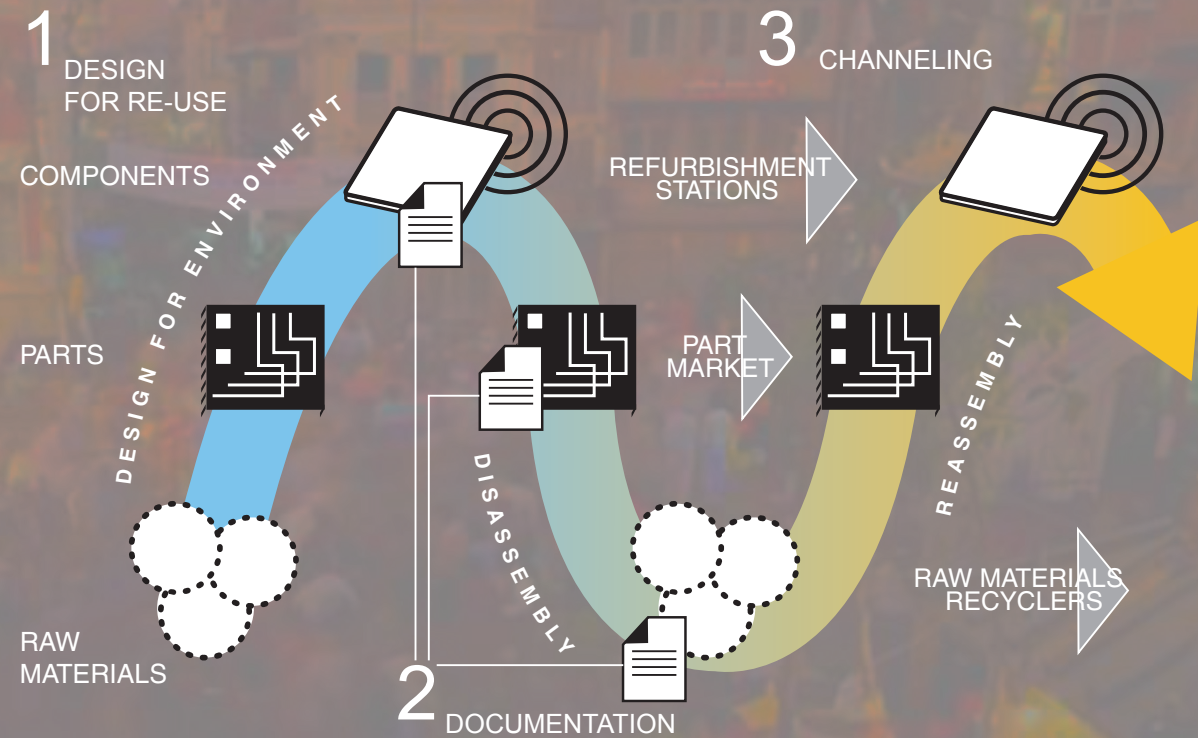


The product distribution system needs to be sustainable to ensure efficiency, affordability and longevity for it, its components and its participants.

Lifecycle Supply Web

Infracycle

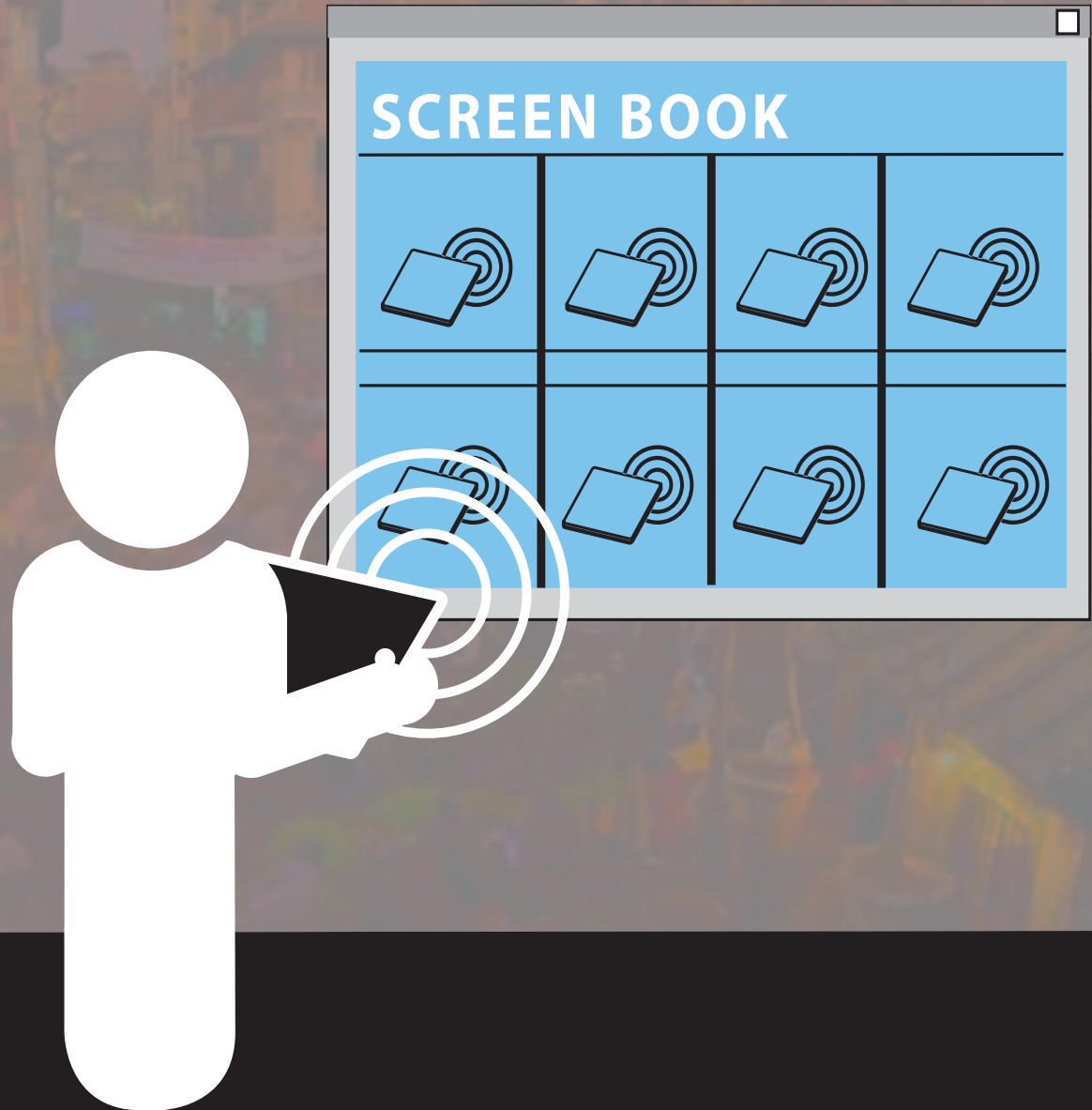
Infracycle is a three-step approach to defining and managing the life cycle stages of parts and components in Project Infusion. It establishes the design of components for life cycle reuse, provides documentation on the various life cycle stages, and establishes channels for them. Devices are composed of refurbished components, given new life at refurbishment stations with traded parts and remolded plastics.



Lifecycle Supply Web

Salescast Tools / SitRep / ScreenBook

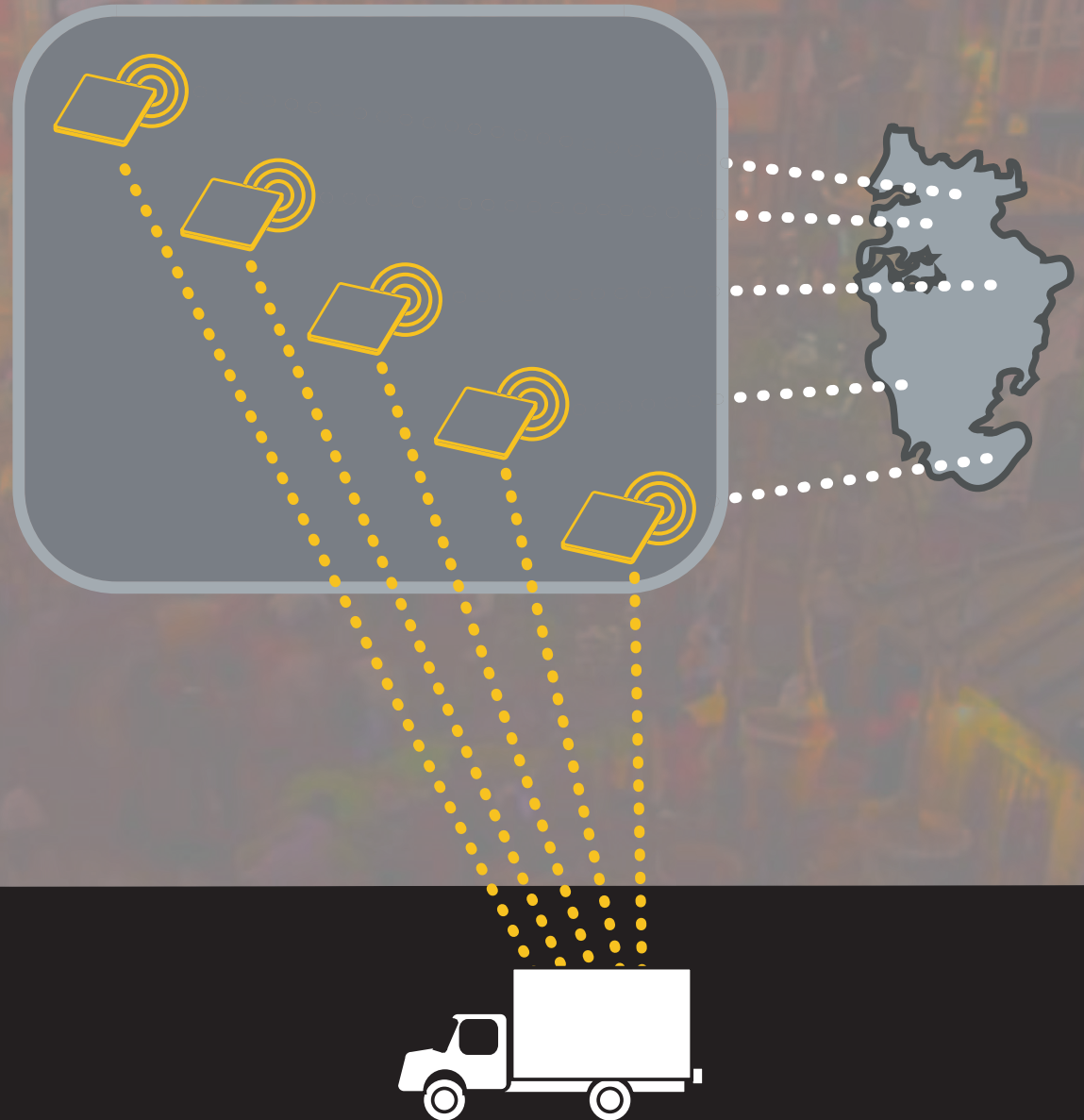
SalesCast Tools is comprised of a pair of applications, SitRep and Screen Book, that guide the user through the process of buying or leasing new or used tools. SitRep, or Situation Report, helps users determine what tools are right for them. Through a series of questions related to income, skills, and goals, SitRep can determine the appropriate products to match a users current needs. Screen Book is the online catalogue through which these products and applications are purchased.



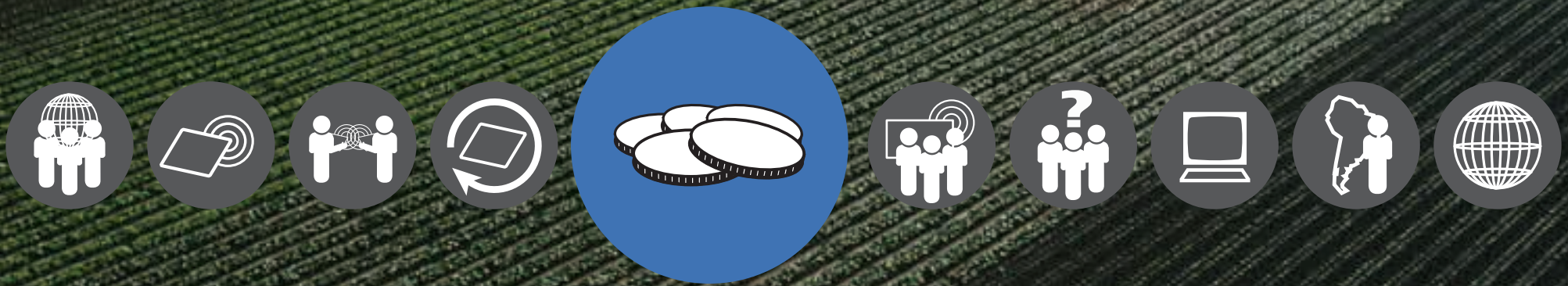
Lifecycle Supply Web

Distrifusion

Purchases made through ScreenBook are ordered, shipped and secured on the user's behalf through Distrifusion, the automated inventory system. Distrifusion coordinates the distribution of goods using object identification protocols, RFID tags and resources tracking, inventory management and shipment routing software. Through comprehensive and up-to-the-minute knowledge of all of the system's products, Distrifusion can streamline the supply-chain.



Shared Use



The system fosters the principles of shared use by creating ownership models that align with communities' inclinations towards aggregated buying.

Shared Use

Group Account

Purchasing a product like the Mobius NC might be too expensive for anyone person. But a group of individuals together could buy and use a Mobius NC by opening up their own Group Account. Because purchasers have their own Profiles, their personal usage can be tracked and personal expenses tallied, which then gets figured into the groups payment plan.



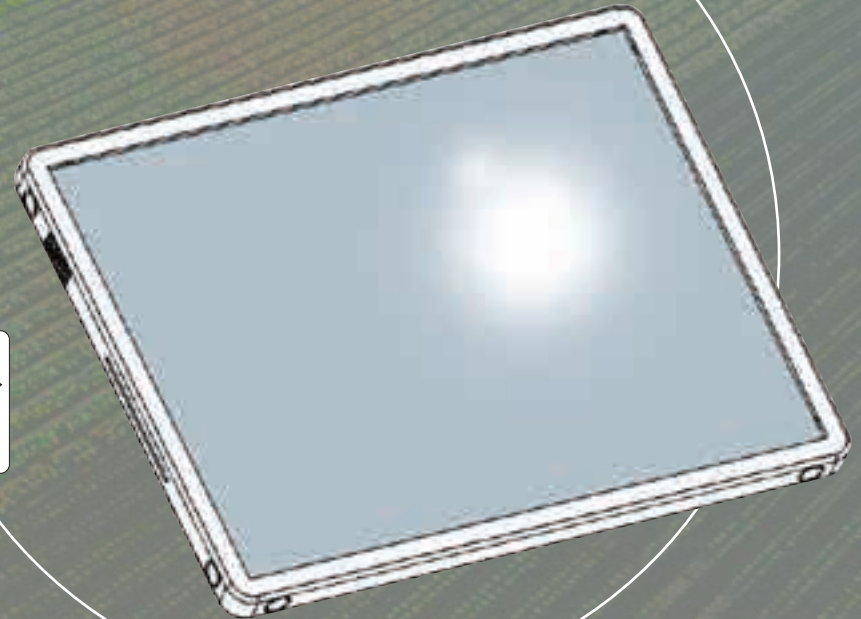
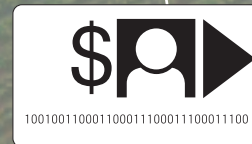
Shared Use

Smart Card

Smart Cards are the method by which users identify themselves to the system. After a user inserts her Smart Card into the device and she validates her identity she is given access Horizon. The Smart Card is not entirely smart. It holds the number code that is linked to the user's account, but that is all it holds – no currency is stored on its smart chip.

The Smart Card serves as an authentication device for adding Minutes to the user's account.

While a membership to Horizon is free, Minutes are the currency to pay for time on the system.



Peer Networks



Establishing connections between entrepreneurs creates synergies, allowing them to respond to greater business opportunities.

Peer Networks

Patrius NC / Exeus NC

The Patrius NC is the little brother of the basic Mobius NC. About the size and shape of conventional mobile phones, the Patrius offers pared down computing power for more conventional communications applications. The Exeus NC is the largest of the NCs. Combining a rugged, large scale display with open and ubiquitously networked software, the Exeus is an evolution of collaborative information processing and display technology. Exeus is designed for multi-user viewing purposes and collaborative group accounts.



Peer Networks

Mobius Mosaic

Mobius Mosaic is a configuration of Mobius NCs, tiled together as a large-format display. Mosaic software utility coordinates display from a toolbar which lets a user identify how many NCs are in the Mosaic. LockPoints provide a secure data and AC transfer medium, which allow the Mobius to snap together in a wide array of configurations. The Mosaic is the most promising of these arrangements —a modular grid of NCs connected to form one large, paneled OLED display.



Peer Networks

Ad Channel

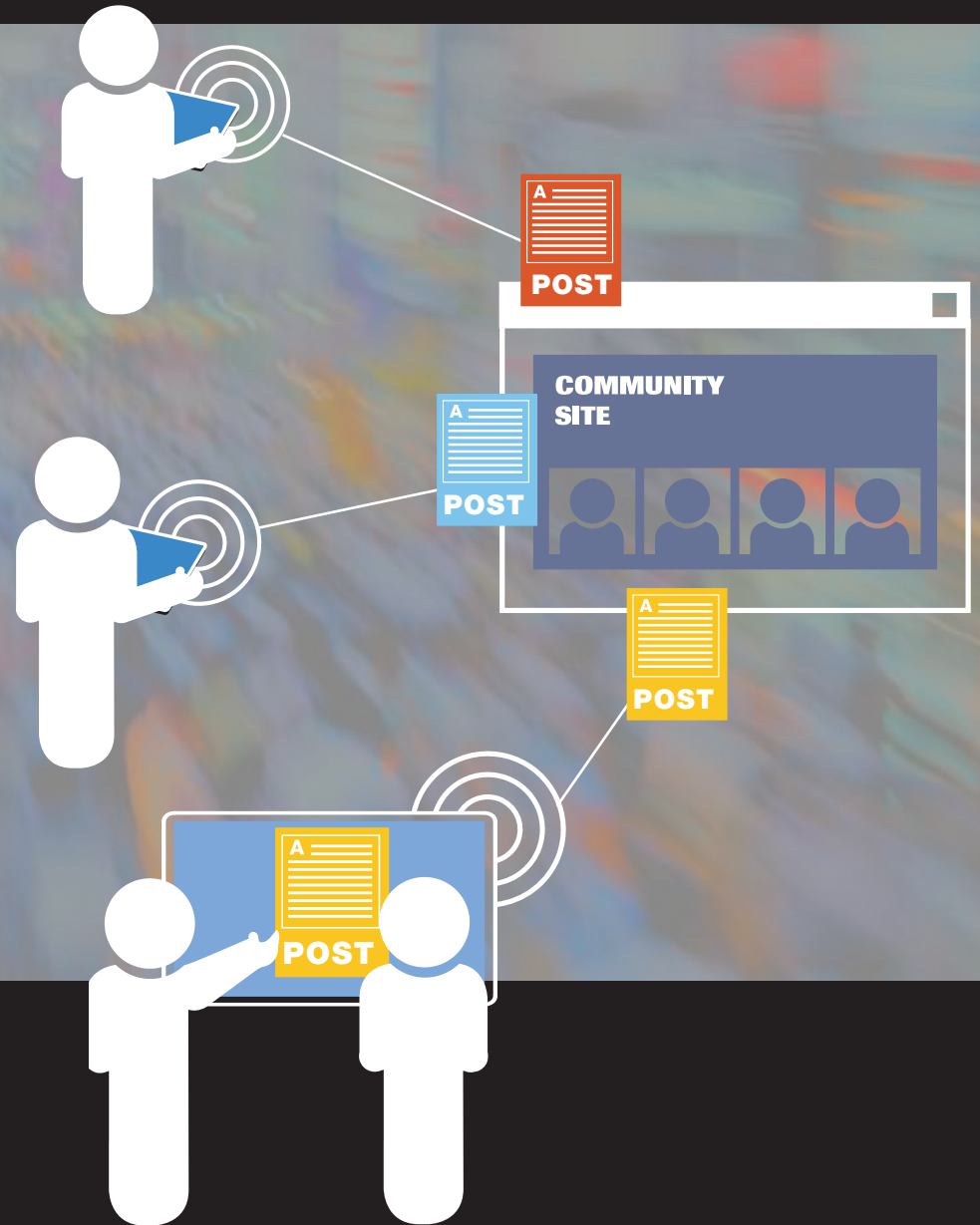
Ad Channel is a software tool for making and posting advertisements on Mobius Mosaic billboards. The primary function of Ad Channel is localized advertisement broadcasting. For novice users, Ad Channel displays a tutorial guide on its opening screen, teaching how to make personalized advertisements using the software. For the user's own ad, he can choose where, when, and how often his advertisement will be displayed.



Peer Networks

Community Site

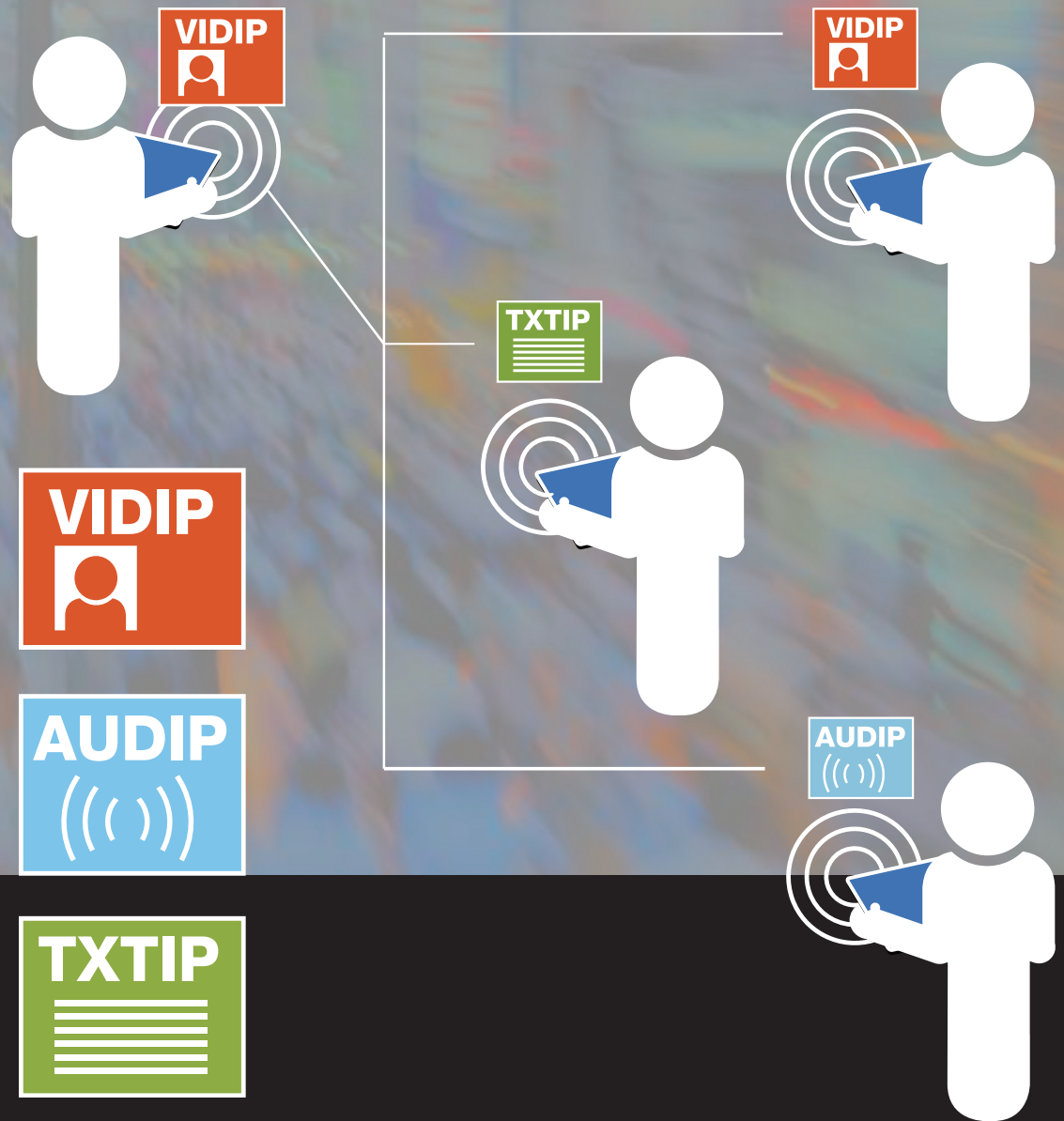
Community Site is a forum where citizens are given the means to post and share local news and events. Users visit Community Site in order to stay informed on issues of local and national government, and to exchange messages with others in their region. Users can meet a large range of people through Community Site and are able to leave postings for different groups and filter their messages into group-based categories.



Peer Networks

IP Telecommunity

All messages are managed through IP Telecommunity. Using an Internet Protocol standard, communications are digitized into easily transferable data packets which, when received by the end user, are then converted back into the communication format of their choice. For example, IP Telecommunity standardizes text messages so that literate members are able to view the text, while low-literacy members can choose to hear the voice note version. Both kinds of members are able to chat back and forth with each other because of this protocol.



Peer Networks

Co-Op

Co-Op is a software tool that allows users with similar vocations to track and manage their pooled financial resources - assets, wages, savings, etc. Users can form a group, pool and track their resources and apply for capital through their collective resources.



Community Learning



Cultivating an informed, involved and interconnected population creates a community that acts as a mentor, supporting one another in each others goals.

Community Learning

ViaWeb

ViaWeb is a web-based application tool for sharing vocation-related information and seeking expert advice from other users of Project Infusion. Users can use the tool to set up vocation-related websites, form groups and bulletin boards, and speak with experts. ViaWeb promotes the creation of peer networks, and helps users become more proficient in Project Infusion applications.



Community Learning

Virtual Enterprise

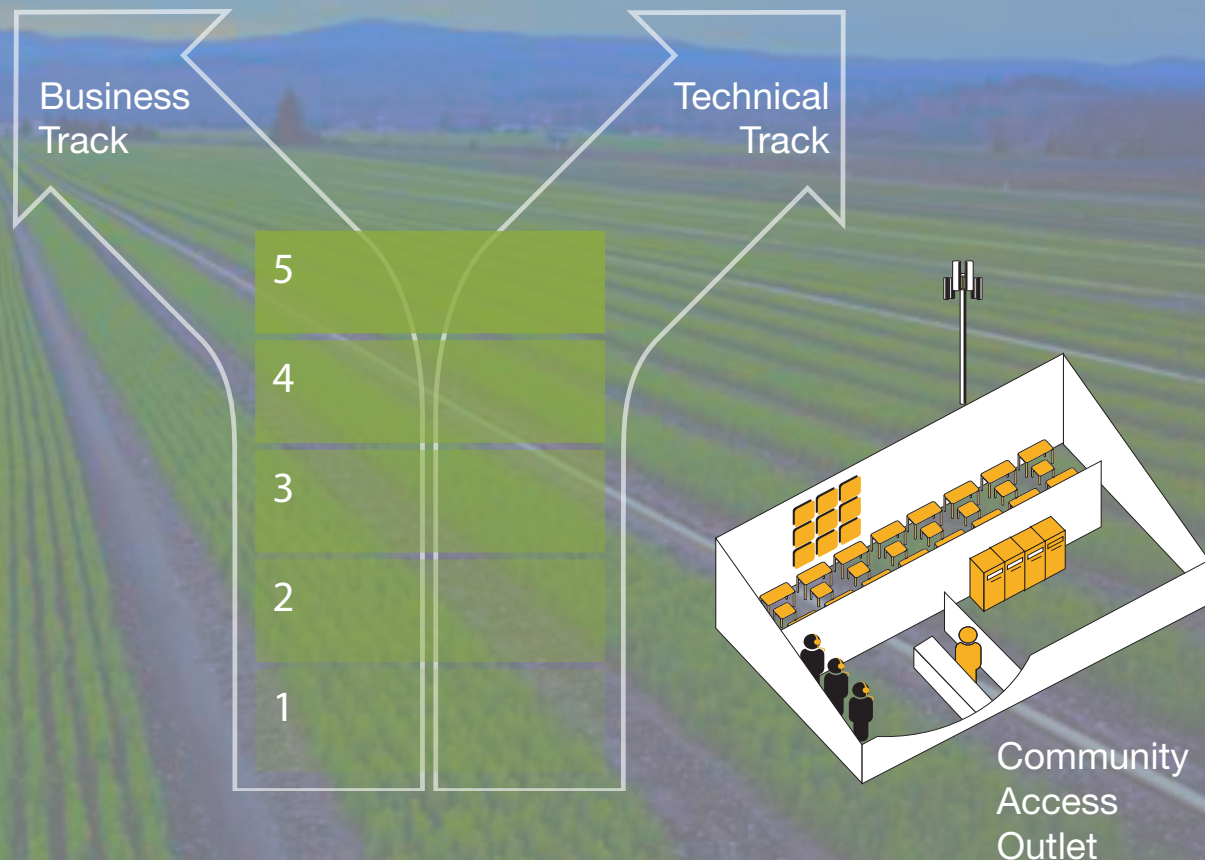
Virtual Enterprise is an optional service that helps users easily form their own business relationships. It is comprised of a suite of profile integration applications that connect users with one another based on pre-defined business opportunities and shared profile information. After an appropriate match has been made, users are contacted automatically if a potential mutually-beneficial relationship has been identified.



Community Learning

Skill Builder / Training Pro

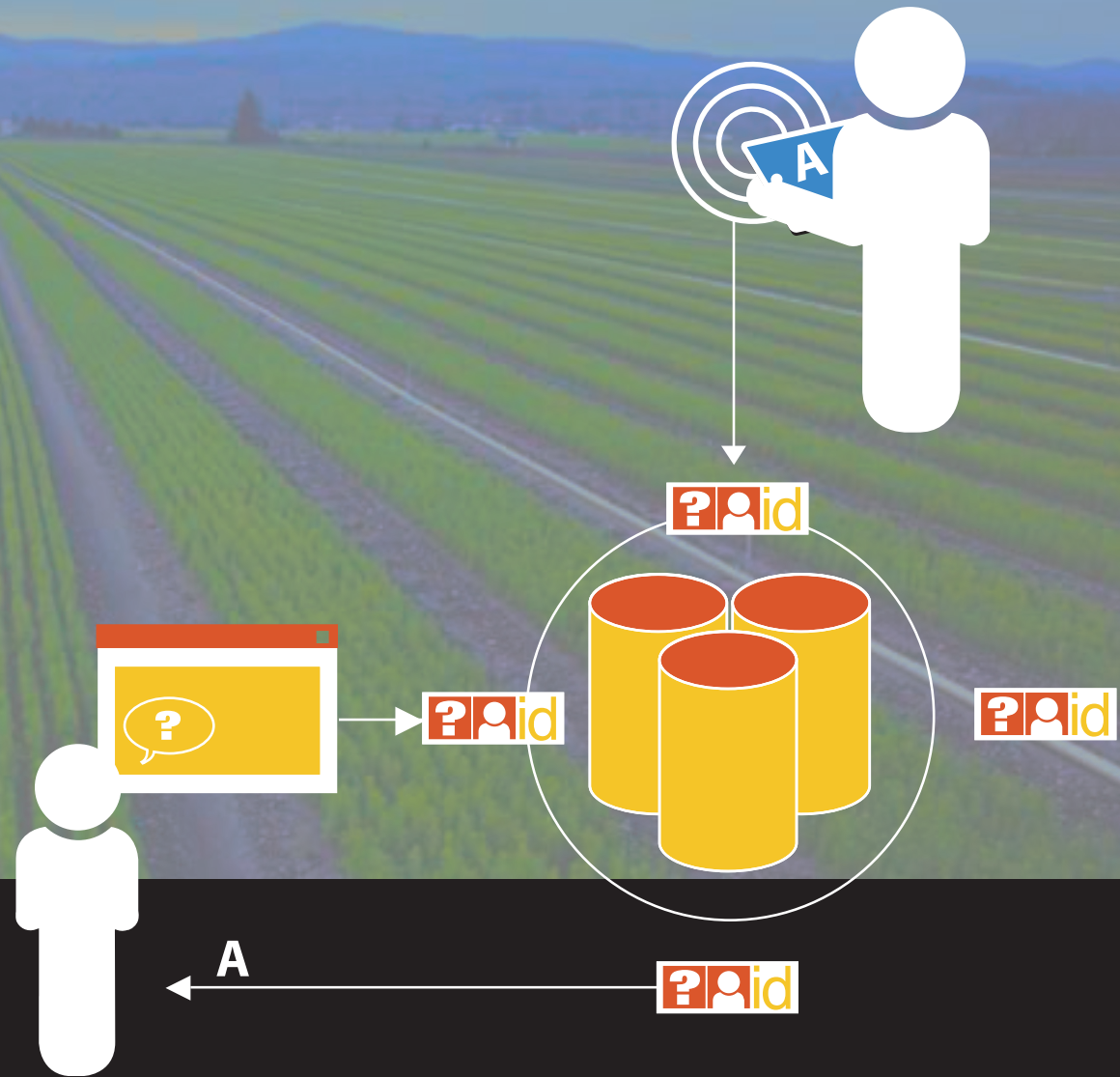
The Community Access Outlets house a classroom space that runs the Skill Builder program - a knowledge and training class that helps users/communities become more proficient / entrepreneurial in system use. The main tool used in the program is TrainingPro, an application that provides step-by-step lessons on topics of increasing complexity. There are brief certifying tests at the end of each unit, at which point users are encouraged to seek further training in the two development tracks of SkillBuilder, business and technical.



Community Learning

Support Triage

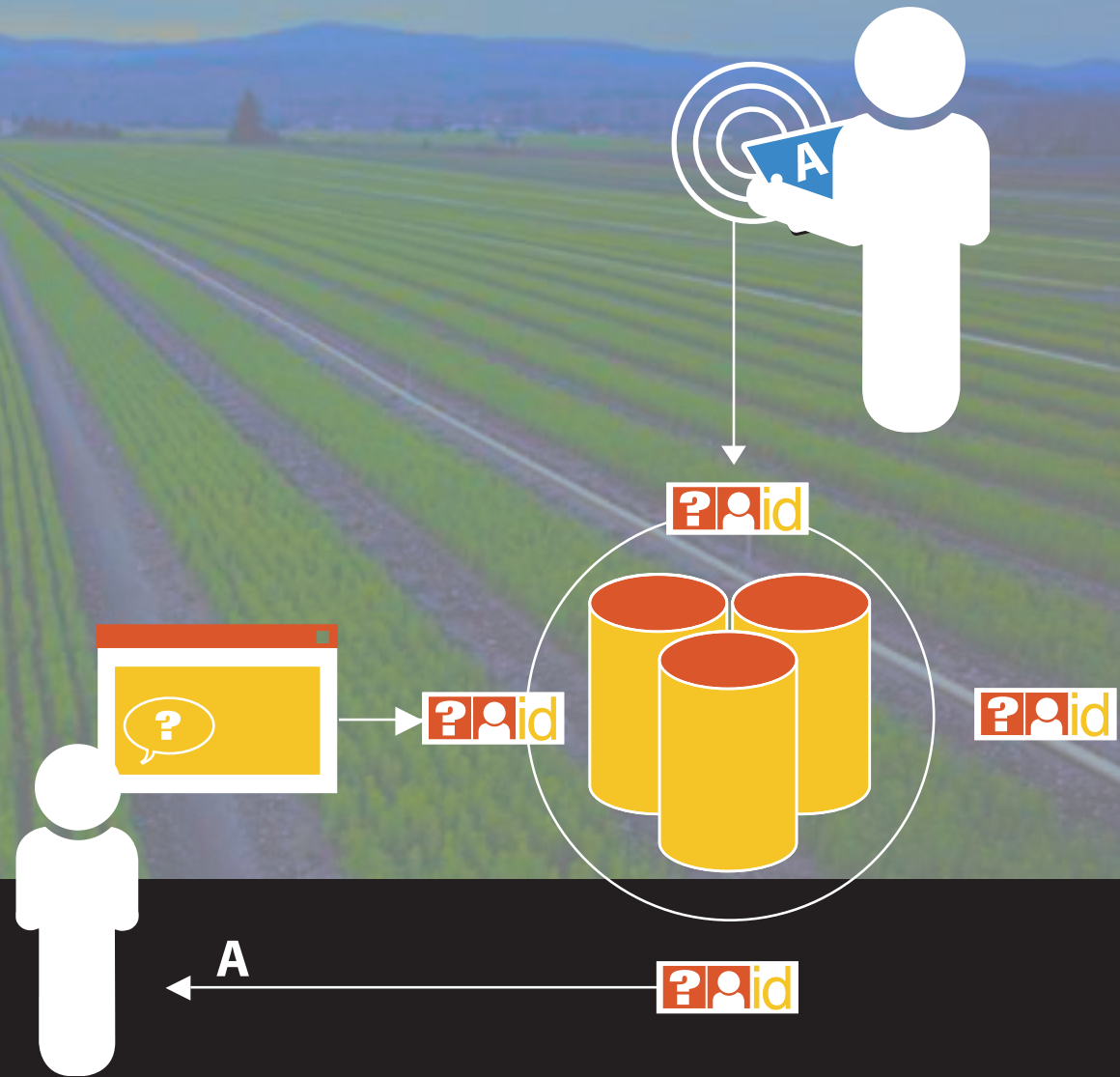
For users with problems or questions they can receive help from Support Triage, a system of customer support protocols to direct user help requests to the appropriate solution channels. Operating like hospital triage, users are funneled through a universal queue and directed to a variety of solutions, such as FAQ links, help documents and manuals, or live support personnel.



Community Learning

Developer Program

Developer Program is a set of tools, training and support for independent developers of Project Infusion software. These contributors are given free access to user requests for new software, in order for them to best create software solutions that fit the needs of the community of entrepreneurs. They earn money based on the popularity of their programs.



Intelligent Systems

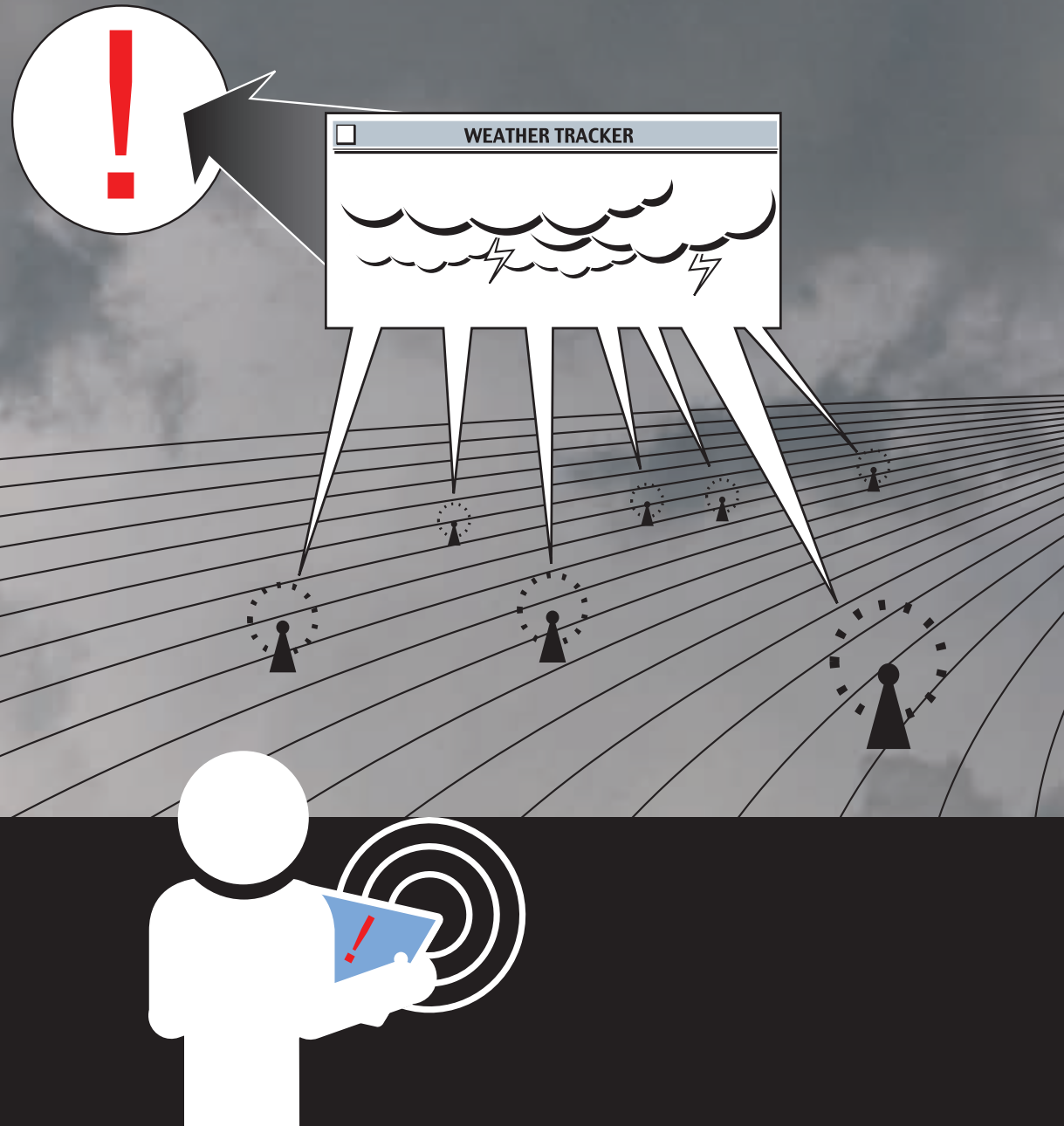


An intelligent, robust and responsive infrastructure can adeptly support users by gaining knowledge about them and the environment in which they operate.

Intelligent Systems

SenseNet

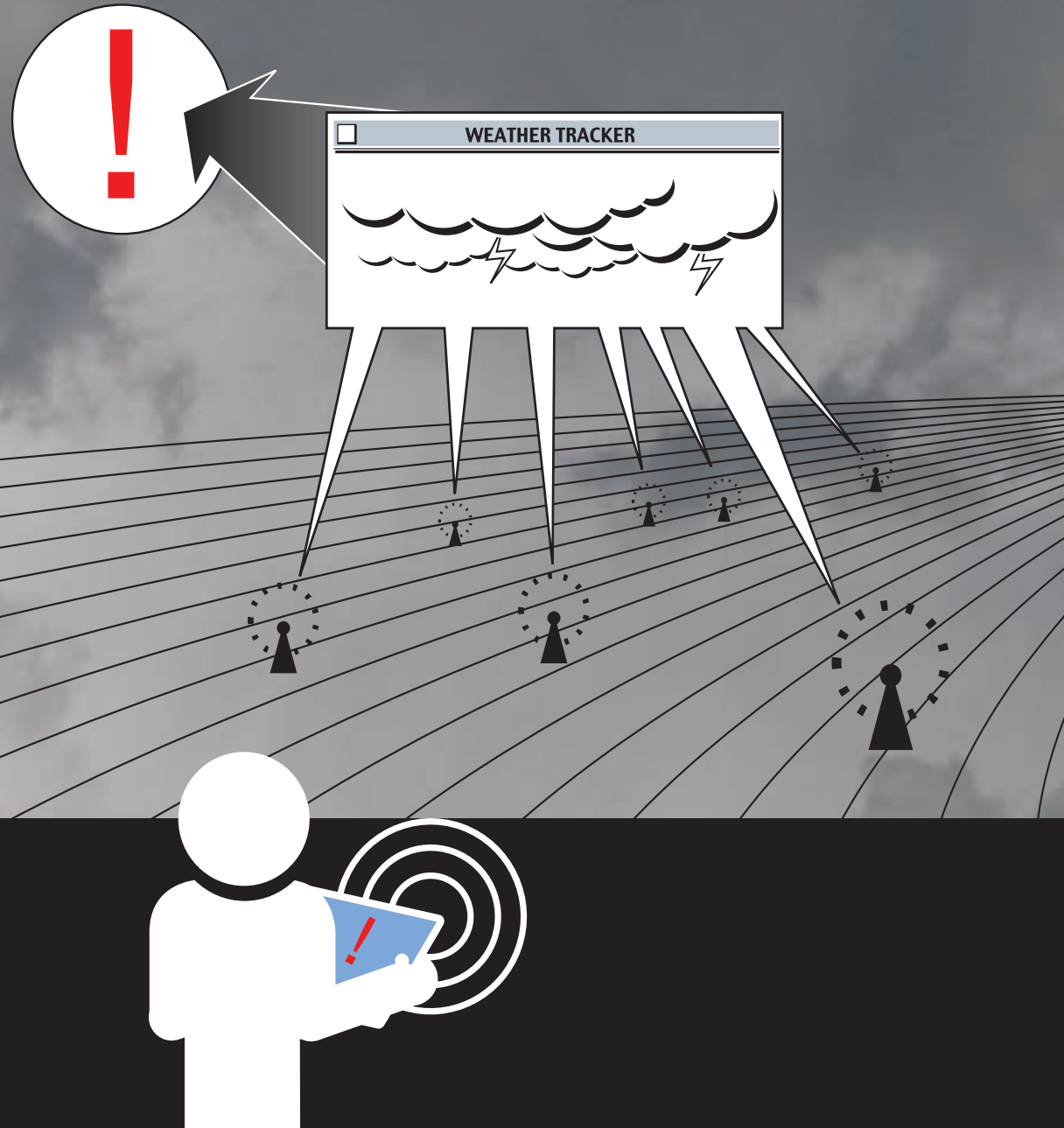
SenseNet is a system of small and inexpensive sensor devices networked over radio frequency. These sensors can be programmed to monitor and report on almost any environment using a range of sensor types, including optical, chemical, motion, pressure, temperature and sonar. SenseNet allows users to scale their network of sensors quickly and inexpensively. When networked to a SenseNet Hub, any configuration of sensors can be programmed to monitor and report on almost any environment.



Intelligent Systems

WeatherTracker

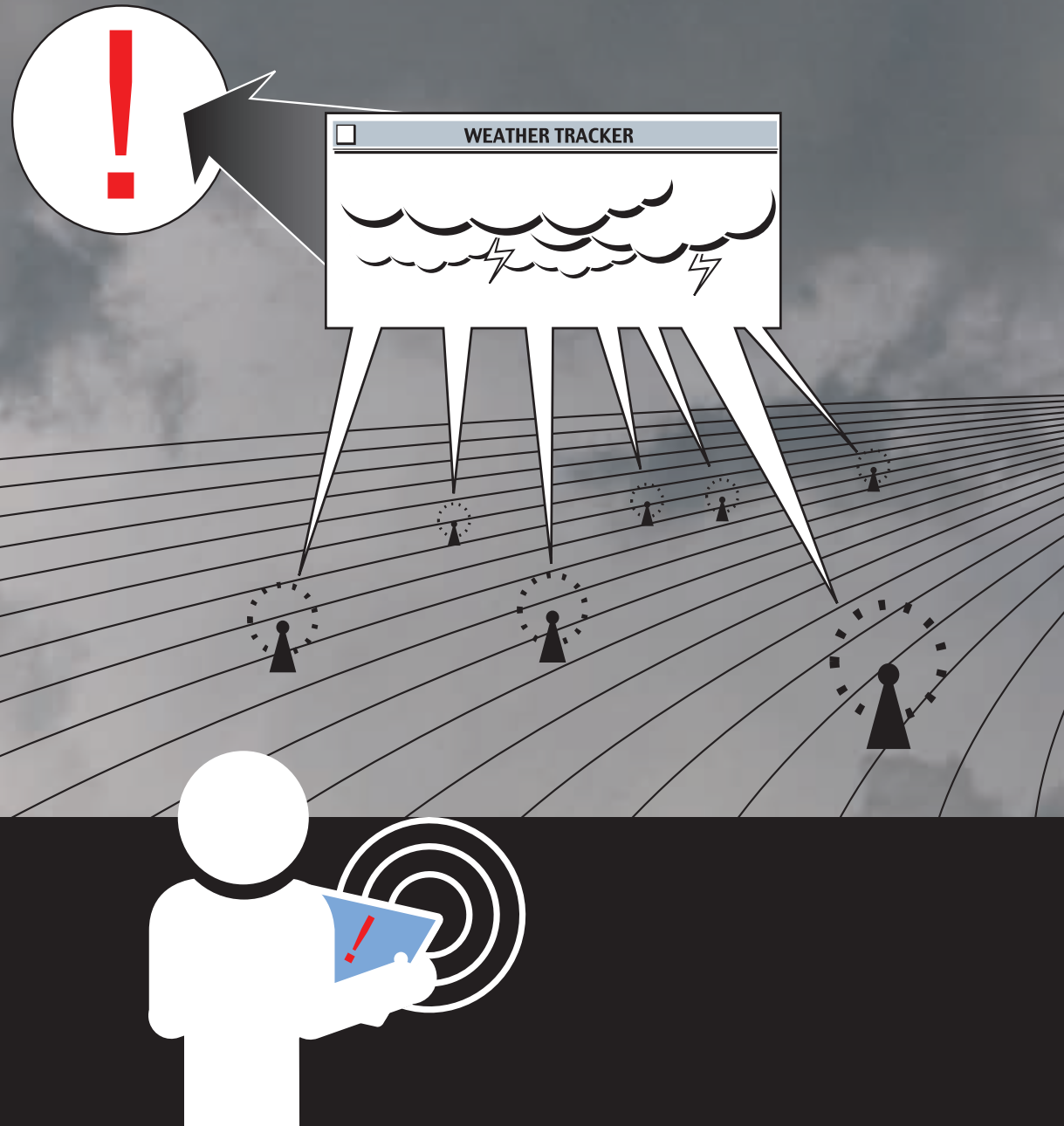
WeatherTracker is an application that displays customized weather reports and forecasts that are important for its users. Based on the user's current position and secondary points of interest. This information is transmitted to users in real-time via Weather Sky.



Intelligent Systems

Premeasures

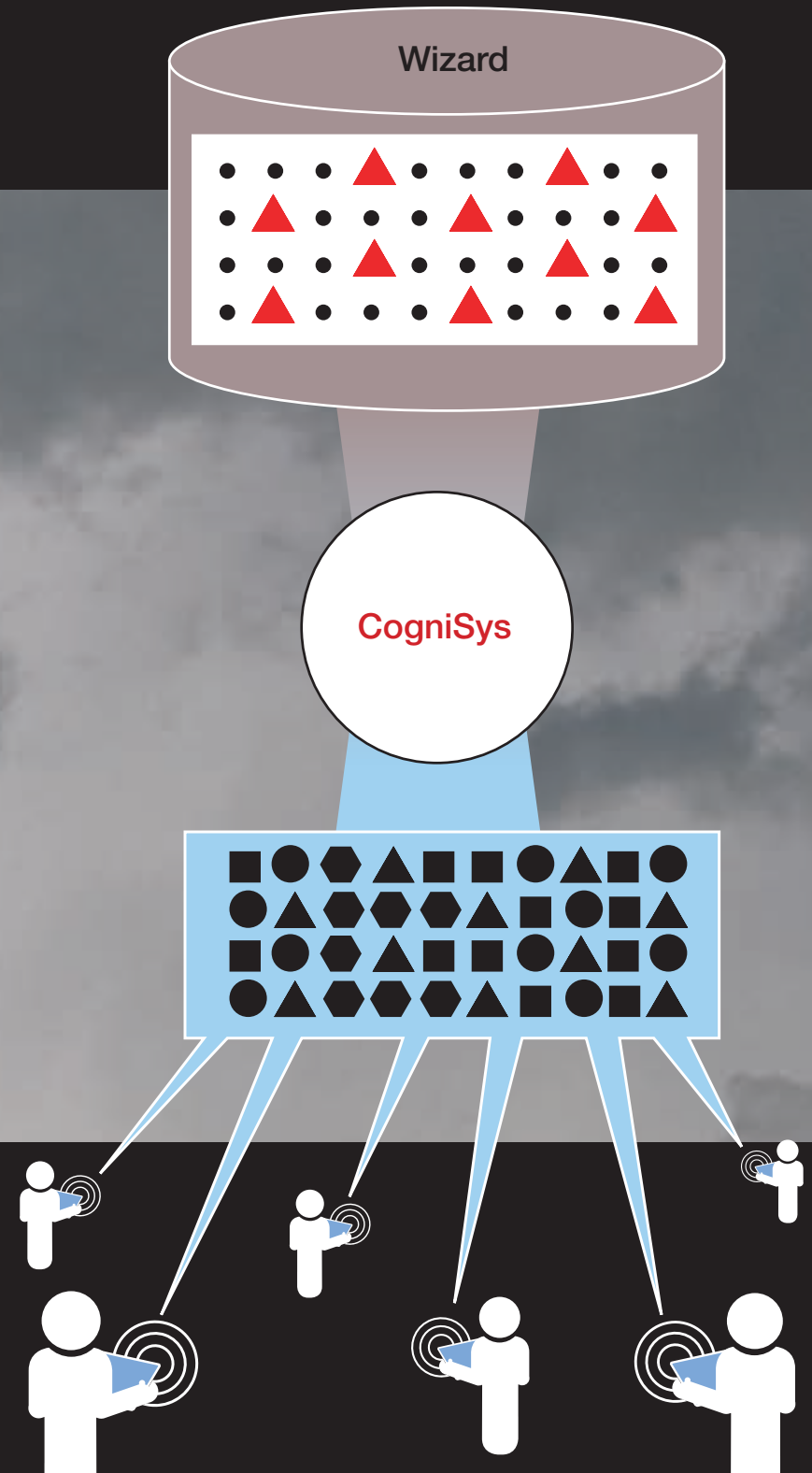
When weather conditions do reach alarming levels, Premeasures, the system's emergency response program, takes the steps to communicate this information to relevant parties and takes action to minimize damage to the system. For example, if preliminary reports indicate that a tsunami is approaching, Premeasures coordinates with other network components to assure that data is properly backed-up and tells its system-users that a storm is approaching and the appropriate emergency actions to take.



Intelligent Systems

CogniSys

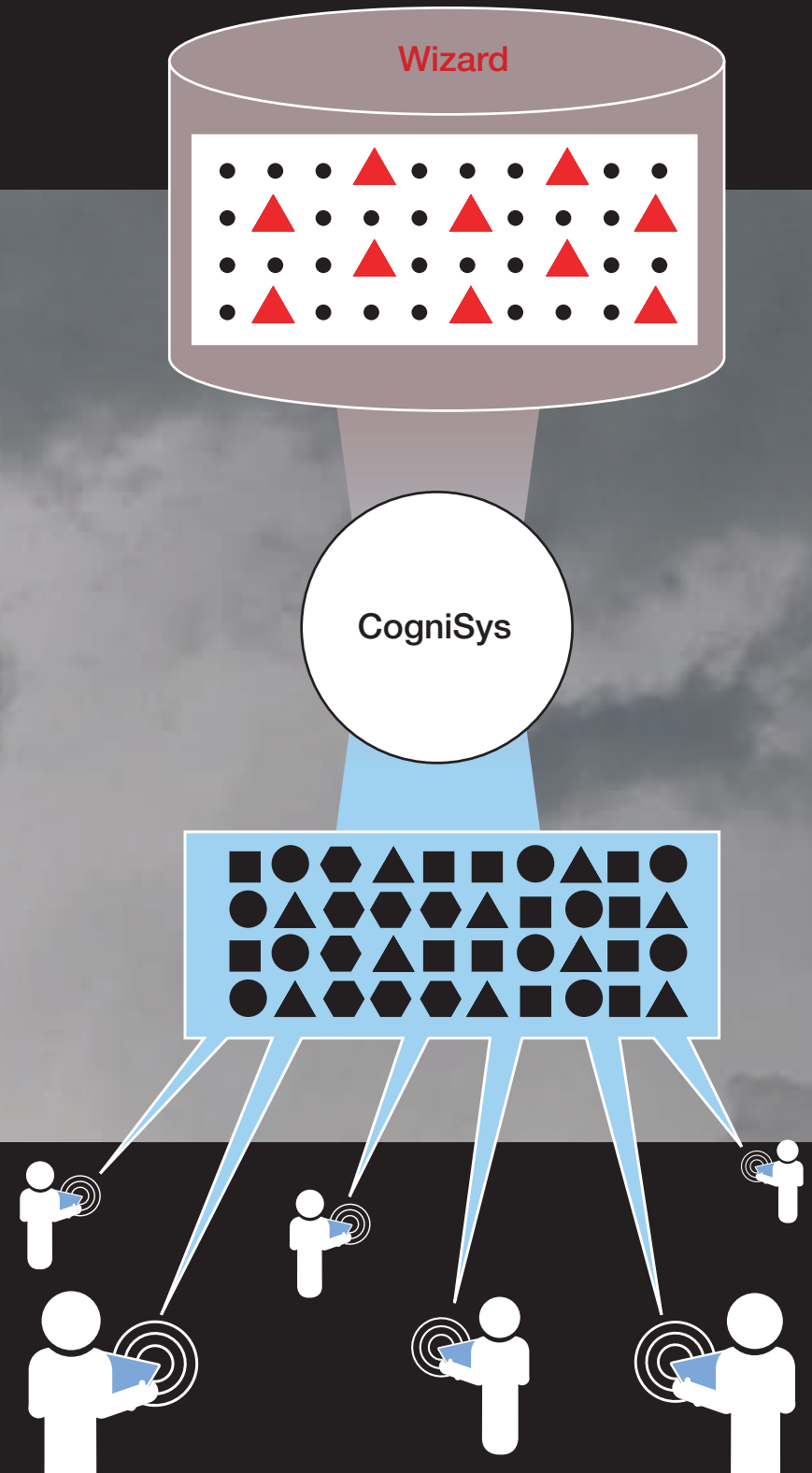
CogniSys is a monitoring system that captures all user actions and system events to search for patterns. This information can be extrapolated to assist in optimizing system capabilities and services. CogniSys gathers data from user activity, to build it's own "profile" which is compared to the user's specified profile to identify discrepancies, suggesting areas where system support might be lacking.



Intelligent Systems

Wizard

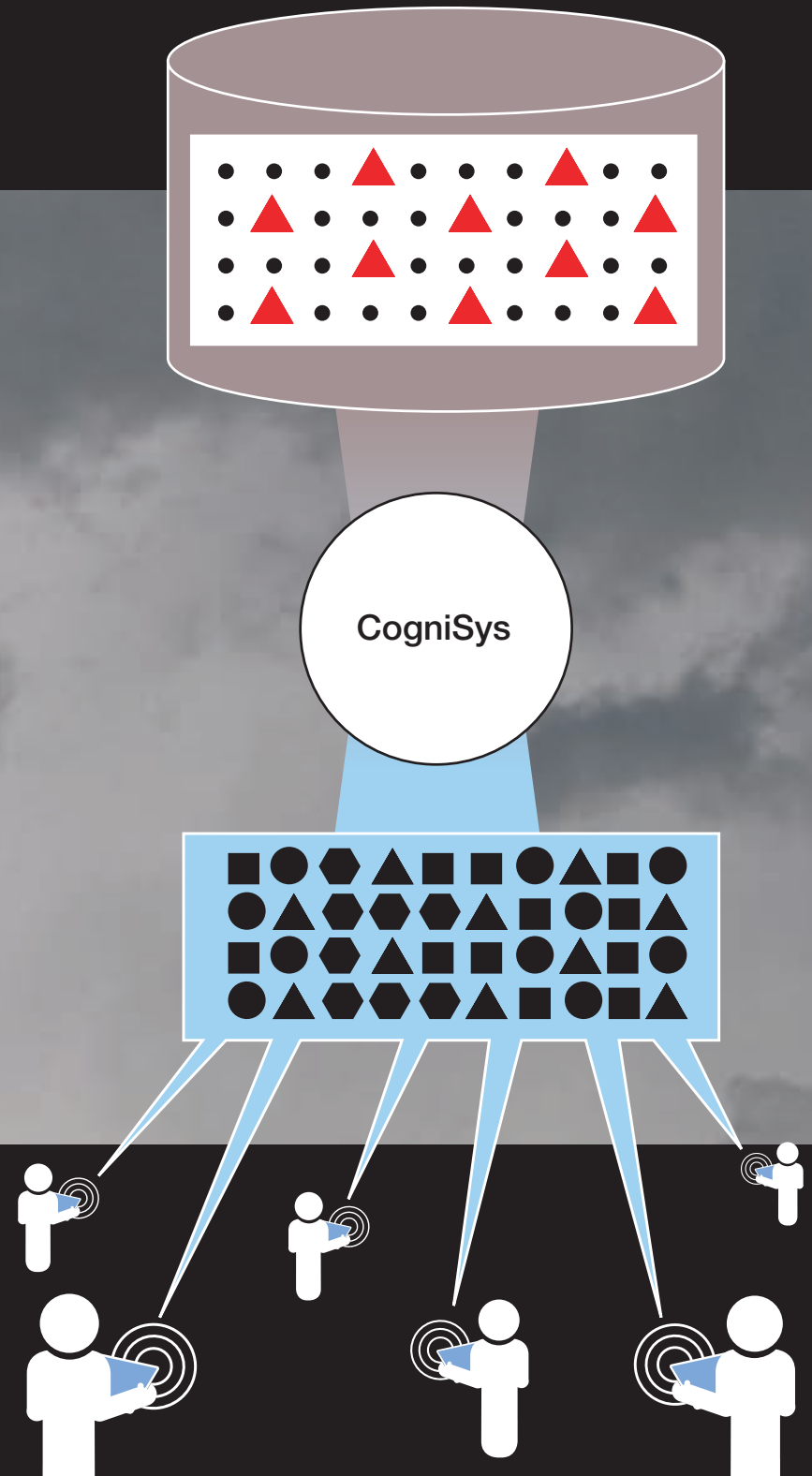
Wizard is a search tool that mines CogniSys, for real-time information about users and the world they live in. Anyone signed on to Horizon can search Wizard and instantly view analyzed information about a vast array of topics, ranging from market activity (local or global) to relevant trends in fashion or home décor, to weather patterns over the past decade, to products available for export in different geographic areas.



Intelligent Systems

Feedback Track / iThink

iThink is a database that archives feedback from users, for the purpose of customer relationship management. iThink stores feedback gathered from Feedback Track related to software, products and services. Feedback about products and people is also useful when it is shared between users. Users can make this information available to anyone if they choose to allow it. In this way, iThink also promotes user activities through MarketPlace and ViaWeb.



Cultural Relevance

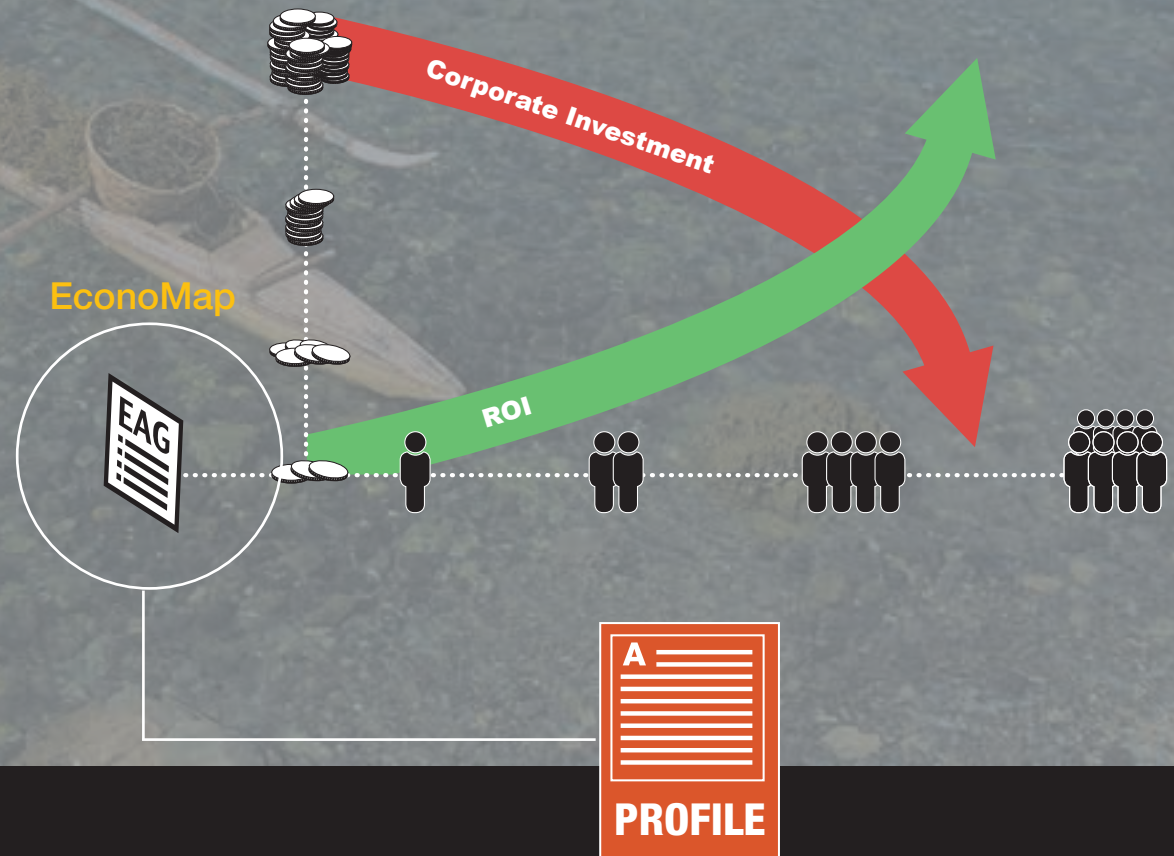


Knowledge is gathered about economic and social activities in order to tailor the system's services to meet the needs of a specific community.

Cultural Relevance

EconoMap

EconoMap is a market and economic research process implemented in the beginning of Project Infusion. It uses a forecasting guide to help the corporation price its applications and reach economies of scale. The final deliverable of the EconoMap is an economic snapshot of the area, called the economic activity guide (EAG), outlining the major industries, the associated living costs, and any other forces impacting how people build wealth.

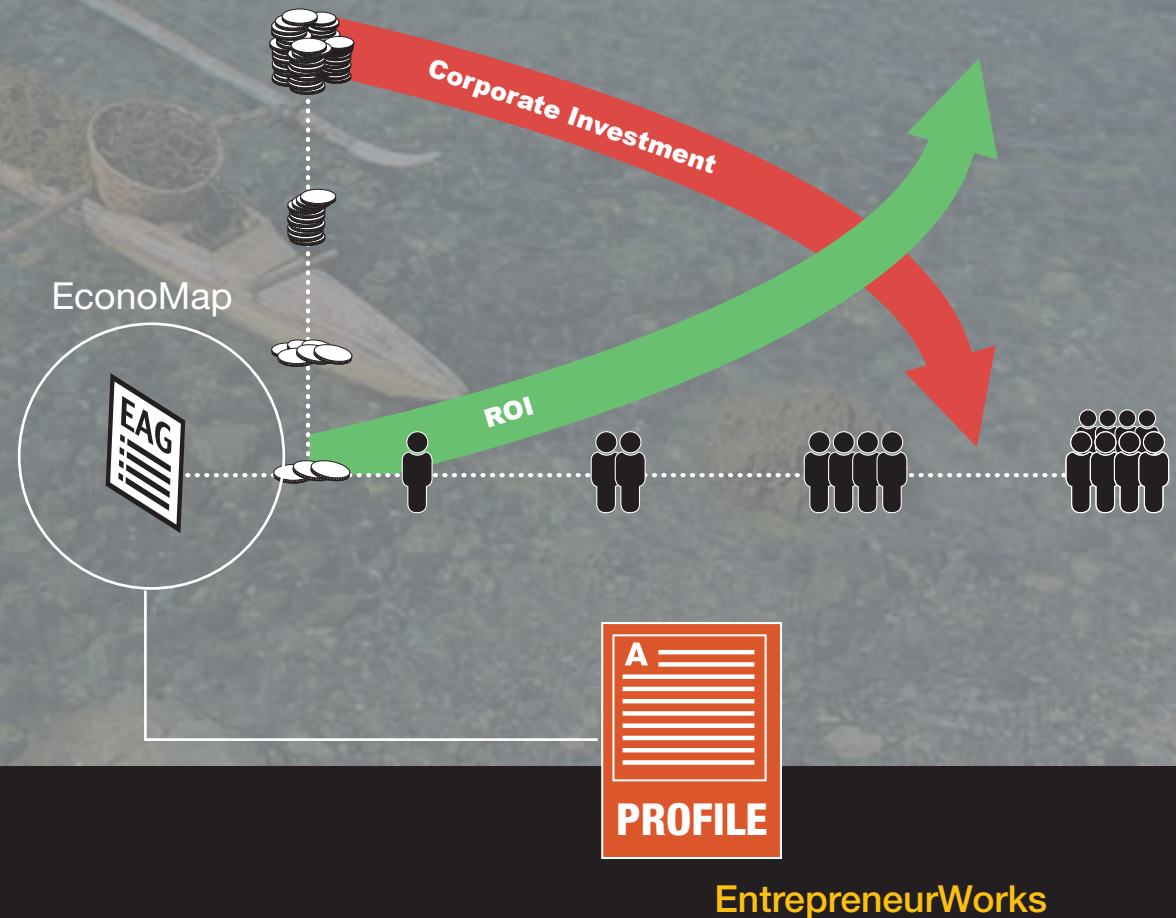


EntrepreneurWorks

Cultural Relevance

EntrepreneurWorks

The findings from EconoMap feed EntrepreneurWorks, a business framework tool used for determining a person's growth potential based upon his occupation and skill levels, and matching them to the cost of infrastructure to determine an affordable price point. EntrepreneurWorks develops a roadmap for each customer, outlining the skills and tools he must possess to develop into a competent entrepreneur.



Cultural Relevance

Context Design

Context Design develops a deep understanding of the needs of communities, so that its tools and services are valuable to them. This is accomplished by placing the user at the center of the design process. The first phase employs several ethnographic methods to conduct contextual research. In the second phase, researchers synthesize findings directly with members of the community. The third phase embeds working prototypes within their ultimate environment.



User-Centered
Research



Participatory
Design



Environmental
Testing

Global Impact

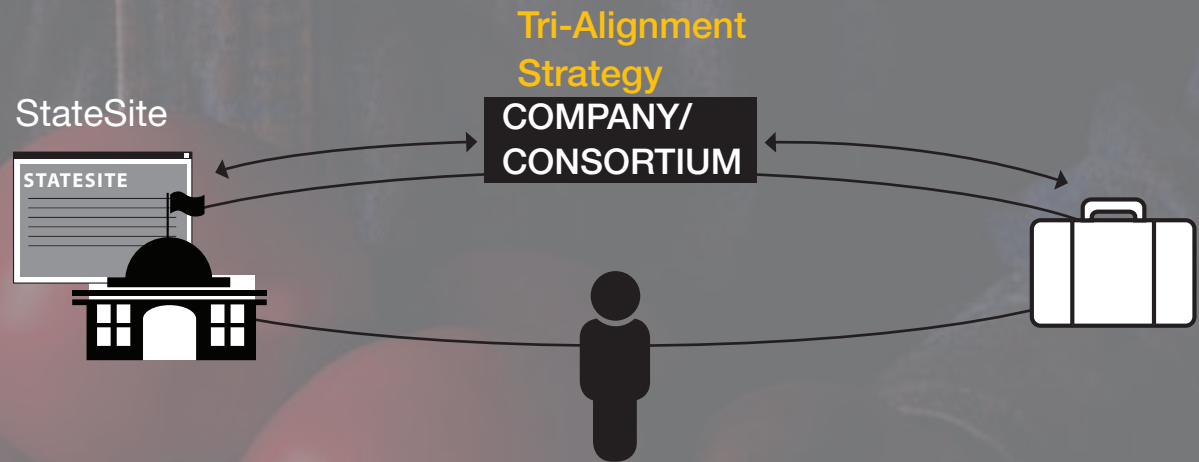


Bringing the system to market means gathering needed support and capital. The interests of governments, businesses and communities must be aligned.

Global Impact

Tri-Alignment Strategy

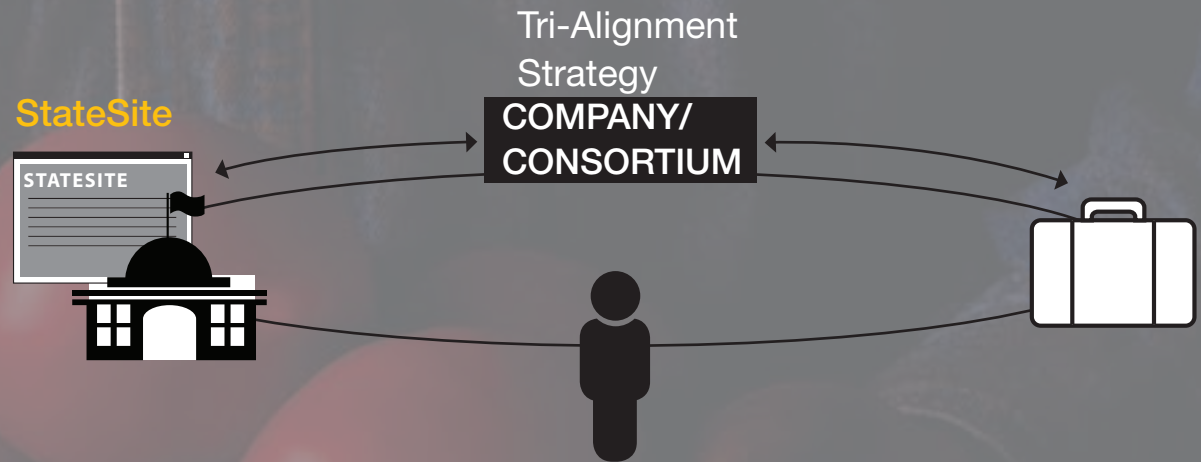
Tri-Alignment is an initiative that exists primarily to align the pursuits of the investing body (a single multi-national corporation or consortium of corporations), the host country's government, partners, and communities. The investing body seeks governmental alignment by demonstrating the long-term benefits of such an investment. It seeks funding by building an ecosystem of partners, including local businesses, multi-nationals, and NGOs. Finally, it visits local communities to establish presence through community trust-building forums.



Global Impact

State Site

StateSite is one of many specialized governmental applications that help build a mutually beneficial arrangement under the Tri-Alignment Strategy. StateSite is a content management tool that can be used to run an e-governance website. This is useful for staging elections and receiving feedback from citizens.



Conclusion

Extending the System

Understanding how co-creation fits into this system is the next step for this project. Even with many components of the system already well-defined, the reality is that many of its behaviors will be derived directly from the end-users themselves.

To that end, the system can be understood as a template to begin from, rather than a turn-key solution waiting to be implemented.