# New Approaches in Autonomic Intelligence Deep Autonomic Intelligence and Knowledge driven Enterprise (DAIKDE)

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### WATSON ++ :

Is the Autonomic EID Knowledge Manager based on IBM Watson and CDSDE with EID-COS written in EIDIL to manage the EID blocks.

## <u>Cognitive Dynamic Software Defined Enterprise CDSDE :</u>

Is a new approach of Enterprise computing based on Autonomy and Knowledge, In CDSDE Architecture there are different types of Tasks and Transaction Management, this approach was proposed by Abdullah A. Jassim and Saifuldeen A. Abdulameer in the 9<sup>th</sup> Annual 2017 ECC Conference at Marist College: <u>https://ecc.marist.edu/documents/745175/860856/JassimCognitive+Dynamic+Software+Defined+Enterprise</u> +CDSDE\_31May2017.pdf/14810e6f-3cb5-41c9-aa05-625d9a8c923d

## **CDSDE Knowledge:**

Cognitive Experience Bank (CEB) and Knowledge Base (KB) is based on Experiences, Information and Data. CDSDE Management :

is based on a new type of Operating Systems called EID- Cognitive Operating System (EID-COS).

## **EID-COS:**

is a Real Time Dynamic Hierarchical Real Time Multi Task Managers and Multi Transaction Managers.

## EIDIL:

is the EID Intermediate Language used by EID-COS to manage the EID Blocks, Tasks and Transactions.

#### DAIKDE Definitions: DAIKDE, AKE, AKF, KEID Entities

### Deep Autonomic Intelligence and Knowledge driven Enterprise (DAIKDE) :

is a project of building futuristic enterprises based on Autonomic Intelligence and Knowledge, this project has unique paradigms, models, frameworks and environment.

#### DAIKDE- Autonomic Knowledge Environment (DAIKDE- AKE):

Is the Futuristic Environment for Interactive and Integrated Autonomic Enterprise, including the Integration and Interaction between Centralized and Decentralized Enterprises Environment and Centralized – Personalized Enterprises Environment. More details in Figure – 1 –

#### DAIKDE Autonomic Knowledge Framework (AKF):

AKF is a new paradigm of frameworks of WATSON++ and DAIKDE-KEID Entities Tasks, Transactions and Operations for expanding multidisciplinary contents, self-learning ,, Self-Organizing, self-Managing, self-assembling and self-maintaining, therefore each KEID Entity will have at least one Task Manager (Hard or Soft Scheduler) and/or Transaction Manager, KEID Entities can establish networks in multi levels. More details in Figure - -

#### **DAIKDE - Knowledge Experience, Information and Data Entities (KEID Entities):**

KEID entities are Experience, Information and Data (EID) blocks with internal Processing Engine (Task Manager, Transaction Manager and/ or Operation Manager), KEID Entities has a unique Component Model as in Figure - -, KEID entities are organized hierarchically in assemblies and groups of Entities (KEID Objects, Containers, Spaces and Universe) as in Figure - -. KEID Entities can establish Parent /Children Network, participate in Peer to Peer network and participate in higher level networks for self-assembling and self-organizing and other tasks or transaction to achieve the Autonomous KEID Entities.

## Slide No. (4)

#### **Definitions : AIDK, AIDKN, AIDEC and DDAK**

#### DAIKDE- Autonomic Intelligence Driven Knowledge (AIDK) :

Is a new approach of depends on the power of **KEID Entities**, therefore AIDK will have new advanced capabilities of Strategic Knowledge and Operational Knowledge, each DAIDEK-Knowledge consists of Knowledge Base, Knowledge Generators and Knowledge Managers, **AIDK** can use and manage KEID Entities massively, e.g. hundreds or thousands of NLPs at the same time to make AIDK capable of self-Reading and self-meaning tasks.

#### DAIKDE- Autonomic Intelligence driven Knowledge Networks (DAIKDE – AIDKN) :

DAIKDE-AIDKN is not a block, it is the paradigm for flexible networking of DAIKDE including Networks of WATON ++/ CDSDE or KEID Entities including all Knowledge Networks, including the Multi-Directional Feeding Networks, Networks Resources, Layer-Layer Networks, Level-Level Networks, Emergency Networks, Autonomic Emergency Operations Networks (Impact Points and Swift Impact Lines), External Networks.

#### DAIKDE- Autonomic Intelligence Driven Enterprise Computing (AIDEC):

DAIKDE- AIDEC is a new paradigm to satisfy the requirements of the Disruptive Technologies including Reinforcement Deep Learning, Deep Thinking and Reasoning, Cognitive systems, Augmented/Virtual reality technologies, Software Defined Networks & 5G, Internet of Things and other next generations of Disruptive Technologies.

#### DAIKDE- Dynamic Deep Autonomic Knowledge (DDAK):

Is a new approach and necessary to satisfy all requirements of Strategies, Policies, Capabilities, Resources and managing all Deep Learning, Thinking and Reasoning systems and all Artificial Intelligence systems in the future.

### **DAIKDE Design Philosophy**

### <u>Please note: in this research, we propose Novel ideas, new approaches and new paradigms, and this research</u> is the 2<sup>nd</sup> research in a series of 8 researches.

Our new approach **Deep Autonomic Intelligence and Knowledge driven Enterprise (DAIKDE),** is suitable for the Futuristic Enterprises based on **DAIKDE-Productive Green Enterprise Model** as shown in figure -1-, **DAIKDE Architecture** is based on the "**Cognitive Dynamic Software Defined Enterprise (CDSDE)**" Enterprise Architecture with additional capabilities based on the new paradigms as follows :

**1- DAIKDE** has new paradigms as shown in figure -2- DAIKDE Autonomic Knowledge Framework (AKF) and figure -3-DAIKDE – Autonomic Intelligence and Knowledge Integration Model,

#### A- Autonomic Intelligence Driven Knowledge (AIDK)

#### B- Autonomic Knowledge Environment (AKE), as shown in figure -2.

- 2- The above paradigms are very necessary to achieve the **Dynamic Deep Autonomic Knowledge (DDAK)** to satisfy all requirements of Strategies, Policies, Capabilities, Resources and managing all Reinforcement Deep Learning, Thinking and Reasoning systems and all Artificial Intelligence systems in the future
- **3- DAIKDE** needs other new paradigm **"Autonomic Intelligence Driven Enterprise Computing (AIDEC)"** to satisfy the requirements of the Disruptive Technologies including Reinforcement Deep Learning, Deep Thinking and Reasoning, Cognitive systems, Augmented/Virtual reality technologies, Software Defined Networks & 5G, Internet of Things and other next generations of Disruptive Technologies, the detailed information in the figures ( 6, 7, 8).

### **DAIKDE Design Philosophy :** (Continued)

4- Deep Autonomic Intelligence: can be implemented as follows:

- A. By putting the processing inside all KEID Entities (KEID Objects, Containers, Spaces and Universe) to make it capable to do all tasks of self-learning and always expands its multidisciplinary contents, Self-Organizing, self-Managing, self-assembling and self-maintaining, therefore each KEID Entity will have at least one Task Manager (Hard or Soft Scheduler) and/or Transaction Manager, KEID Entities can establish networks in multi levels, Each KEID Entity can establish Parent /Children Network, participate in Peer to Peer network and participate in higher level networks, this will give the ability of self-assembling and self-organizing and other tasks or transaction to achieve the Autonomous KEID Entities .
- B. **KEID Entity** will be capable to do the tasks and transactions of Reinforcement Deep Learning of Natural Language Processing, Thinking and Reasoning of Modeling for Reading, analyzing, generating models of tasks and operations, assembling it in Experiences with its related Information queries and Data, KEID Entities will internally process all Experience Operations for Information and Data Management.
- 5-AIDK depends on the power of KEID Entities, therefore AIDK will have new advanced capabilities of Strategic Knowledge and Operational Knowledge, each DAIDEK-Knowledge consists of Knowledge Base, Knowledge Generators and Knowledge Managers, AIDK can use and manage KEID Entities massively, e.g. hundreds or thousands of NLPs at the same time to make AIDK capable of self-Reading and self-meaning tasks.
- 6-DAIKDE have Autonomic Knowledge Environment that enables deeply the Autonomic Intelligence in all Knowledge Experiences, Information and Data (KEID) Entities starting from the lowest levels (KEID Objects) passing through the intermediate levels (KEID Containers with KEID Spaces) and reaching to the highest levels (KEID Universe), similarly to the Natural Deep Autonomic Intelligence, which is starting from the lowest level (Bio Cell) passing through the Intermediate levels (Tissues and Organs) and finally reaching the highest levels (Human, Family and Society).

DAIKDE World Level Knowledge and Autonomic Intelligence Resources : Quality Management Institutions, Universities & Research Centers, Multi National Corporations, Publishers, etc.						
DAIKDE Country Level Knowledge and Autonomic Intelligence Resources : May need Human Intervention for Organizing, Building, Operating and Maintaining the Centers of Excellence and Technical Incubators of Smart Education, Smart Healthcare, e-Government, Smart Cities, Cyber Security and etc.						
DAIKDE Enterprise Levels Knowledge Resources: Ministries, Universities, Multi nations Corporations or Global Investment						
DAIKDE Multi Disciplinary Knowledge DAIKDE-	e - Scientific, Engineering & Medicine MK-SEM	DAIKDE Multidisciplinary Kno	owledge - Administrative, Legal and Financial DAIKDE-MK-ALF			
DAIKDE-MK-SEM Resources, Experiences and Design	DAIKDE-MK-SEM Operations Management	DAIKDE-MK-ALF Multiparty Contracts	DAIKDE-MK-ALF Multiparty Executive Administration			
<b>DAIKDE New Generation of S</b> * May need Human Intervention for Or	DAIKDE-MK Solutions P mart Education, Smart Healthcare, Sma ganizing, Building, Operating and Maint	Projects and Operations rt Agriculture, Smart Manufactura aining the projects and Operation	uring, Smart Energy and Smart Water ions			
DAIKDE – Personalized Services Stations (DAIKDE-PSS) Education and Learning, Medicine and Healthcare, Manufacturing, Agricultural and Food, Water purification, Energy Power generation, Housing Clean Environment and Cyber Security.						
	Natural R	lesources				

Figure - 1 - DAIKDE Autonomic Knowledge Environment - AKE



### DAIKDE-Knowledge Experience, Information and Data Entities (DAIKDE-KEID Entities):

#### **1. DAIKDE- World Level Knowledge Entities :**

A. DAIKDE- WL-Multiverse KEID Entity is equivalent to World Level (WL) Multidisciplinary Knowledge.
B. DAIKDE- WL-Multi Spaces KEID Entity is equivalent to Country Level Multidisciplinary Knowledge.
C. DAIKDE- WL-Multi Container KEID Entity is equivalent to Organization Multidisciplinary Knowledge.

#### 2. DAIKDE-Deep Self-Supervised Cognitive Classifiers (DAIKDE-DSSCC):

Is responsible about all tasks and transactions of classifying the following KEID Entities:

- A. KEID Objects Entities.
- B. KEID Assemblies Entities.
- C. KEID Containers Entities.
- D. KEID Spaces Entities.
- E. KEID Universe and Multiverse Entities.

#### Note: more details in the following Figures :

Figure - 2 – DAIKDE KEID Entities Object Model -- Slide No. (11),

Figure -3- DAIKDE Hierarchical KEID Entities Model -- Slide No. (12)

Table -1- : DAIKDE Hierarchical Scaling, Sizing and Inclusion of the KEID Entities -- Slide No. (13)

Entities Layers	Entities Description					
Entity Group(EG) Layer				Entities G	iroup (EG)	-
EG Management	EG Manager including EG Transaction managemnt, EG re				esources	EG Interconnections and Networking with Peer
sub layer	Tas	k management of Asseml	blies resourc	es and Entities r	esources	EGs or Higher levels Entities
EG Actions		Local Er	ntity Group 1	Tasks		CSER Transactions between EG and and Higer
sub layer						Levels Entities
EG Resources				EG - Unifie	d resources	
sub layer		Resources of Asser	mblies relate	ed to the Group		
Entity Assembly (EA)Layer		Entities Assem	nbly (EA)			
EA Management	En	tities Assembly Task and	Transaction	Manager	EA #1	Group Applications
sub layer		(EA-TTN	Л)		EA #2	EID Resources
EA Actions		Local EA Tasks		CSER	EA #3	
sub layer				Transactions	:	
				between EA	:	
				and EG	:	
EA Resources		EA unified res	sources	-	EA # M	
sub layer		Resources of the Entitie	S			
		related to the EA				
Entity Layer		Entity	Entity #1		Abbreviations	<u>:</u>
Entity Management		Entity TTM	Entity #2	Assembly	1- EG is Entitie	s Group
sub layer	Entity	Management of CSER	Entity #3	Applications	2- EA is Entitie	s Assembly
	TM	Between Entity and EA	:	EID Resources	3- EID is Exper	ience, Information and Data.
Entity Actions sub layer	Local	CSER Transactions	:		4- CSER is Com	nmand, Status, Event and Response.
	Tasks		Entity #N		5- <b>TM</b> is Task N	Manager.
Entity Resource sub laver	Applications FID Resources				6- <b>TTM</b> is Task	s and Transaction Manager.
					7- RM is Resou	urce Manager.

Figure - 2 - DAIKDE- KEID Entities Components Model

Ur	nivers	e #1	Universe #2	
SEG	•••			
:	••		Spaces Entity Groups	Other Multiverse
SEG		SEG	Spaces EGs	

	Space Entities Group (SEG)												
Space Entities Assembly (SEA)			SEA			SEA			SEA				
S	Space		Space		Space	Space		Space	Space		Space		Space
E	Entity		Entity		Entity	Entity		Entity	Entity		Entity		Entities
CEG		CEG	CEG		CEGs	CEGs		CEGs	CEGs		CEGs		CEGs

	Container Entities Group (CEG)												
Container Entities Assembly (CEA)			CEA		CEA			•••••	CEA				
Container Entity	Cc	ontaine Entity	r		Container Entity	Container Entity		Container Entity	Container Entity		Container Entity		Container Entities
Obj EGs	Obj EG		Obj EG		Obj EGs	Obj EGs		Obj EGs	Obj EGs		Obj EGs		Obj EGs

	Object Entities Group (Obj EG)										
Object Entities Assembly (Obj EA)				Obj EA				0	bj EA	 Obj EA	
Object	Object	Object		Object	Object Object Object		Object	Object	 Object		
Entity	Entity	Entity		Entity	Entity	Entity		Entity	Entity	Entity	Entities
Experience, Information and Data (EID) Blocks				EID Blocks				EID	Blocks	EID Blocks	

Figure - 3 - DAIKDE - Hierarchical KEID Entities Model

# <mark>Slide No. (11)</mark>

KEID Entity Scaling, Sizing and Inclusion	Object Entity	Object Entity Assembly	Object Entity Group	Container Entity	Container Entity Assembly	Container Entity Group	Space Entity	Space Entity Assembly	Space Entity Group
Object Entity	1	-	-	-	-	-	-	-	-
Object Entity Assembly	< 1K	1	-	-	-	-	-	-	-
Object Entity Assembly Group	< 1M	< 1K	1	-	-	-	-	-	-
Container Entity	< 1 Giga	< 1M	< 1K	1	-	-	-	-	-
Container Entity Assembly	< 1 Tera	< 1 Giga	< 1M	< 1K	1	-	-	-	-
Containers Entity Group	< 1 Peta	< 1 Tera	< 1 Giga	< 1M	< 1K	1	-	-	-
Space Entity	< 1 Exa	< 1 Peta	< 1 Tera	< 1 Giga	< 1M	< 1K	1	-	-
Space Entity Assembly	< 1 Zetta	< 1 Exa	< 1 Peta	< 1 Tera	< 1 Giga	< 1M	< 1K	1	-
Space Entity Group	< 1 Yotta	< 1 Zetta	< 1 Exa	< 1 Peta	< 1 Tera	< 1 Giga	< 1M	< 1K	1
Universe	Unlimited	Unlimited	Unlimite d	Unlimited	Unlimited	Unlimited	< 1 Giga	< 1M	< 1K
Multiverse	Unlimited	Unlimited	Unlimite d	Unlimited	Unlimited	Unlimited	Unlimite d	Unlimited	Unlimited

Table -1- : DAIKDE Hierarchical Scaling, Sizing and Inclusion of the KEID Entities

DAIKDE- Autonomic Knowledge Fra	amework					
AKF- Self Supervised Strategic Multidisciplinary Knowledge         AKF- Self Supervised Operational Multidisciplinary Knowledge         DDAK -Autonomic Knowledge Development, DDAK-Self Supervised Deep Learning for Autonomic         Intelligence KEID Entities. AKF- Self Supervised Deep Thinking and Reasoning, Self Supervised Deep         Behavior , Self Supervised Deep Advices, Self supervised Strategic Knowledge for Strategies, Policies,         Capabilities, Resources. managing all Deep Learning, Thinking & Reasoning systems & other AI systems         is the Brain of All DAIKDE Multidisciplinary Autonomic Intelligence and Knowledge of Scientific,         Medicine, Engineering, Administrative, Financial and Legal KEID Entities, Operations and Transactions         AKF - KEID Entities Operations, Transaction and Tasks         Self-Creating, Self-Building, Self-Deleting, Self-Updating , Self-Organizing, Self-Configuration, Self-         Assembling and Self-Maintaining the Knowledge Experience, Information and Data (KEID) Blocks from	AKF- Self-Management (AIDK- SM ): Private Self Improvement, Private Self Assessment, Private Self Experience Development, Private Self Defense, Private Self Security, Private Self Problems Detection and Solving, Private Self Emergency Operation. AIK is the Cerebellum ( regulator and coordinator) of all internal Autonomic Intelligence and Knowledge Operations in the internal DAIKDE Parts itself. AIK have senses and self thinking about itself as follows: AIK -NLP-KEID Entities, AIK-Visual KEID Entities, AIK-Contracts and Ledgers KEID Entities, AIK Self-Classifiers ( KEID Visual Entities and Non-Visual KEID Entities) AIK -Doon Business					
Containers Entities from KEID Object Entities, after that Building KEID Spaces from KEID Containers Entities and KEID Object Entities, Building the KEID Universe ( or Multiverse) From KEID Entities (Objects, Containers and Spaces), KEID Contracts and Ledger Entities (Operations, Transactions Data)	Intelligence. NLP = Natural Language Processing					
Deep Autonomic Intelligence and Deep Knowledge						

Figure - 4 - DAIKDE- Autonomic Knowledge Framework (DAIKDE- AKF)

World Level Multidisciplinary DAIKDE Management Country Level-Multidisciplinary DAIKDE Management Enterprise Levels-Multidisciplinary DAIKDE Management					
	DAIKDE Autonomic Intelligence Mana	gement and Knowledge Managem	ent		
DAIKDE KEID Entities Management Objects Entities, Containers Entities, Spaces Entities, Universe Entity and Multiverse Entities DAIKDE - Knowledge Experience Information and Data – KEID Entities Experience, Information and Data (EID)					
<ul> <li>Native DAIKDE Integrated Auton</li> <li>Cognitive Middleware Manage</li> <li>Deep Autonomic Intelligence</li> <li>Knowledge Management</li> <li>Contracts and Ledger Manage</li> <li>Multilevel KEID Entities - Ledg</li> <li>Self Supervision of Deep Lear</li> <li>Self Classifying of Objects including Visual objects, Natural Langu</li> <li>Objects , Medical Objects 8</li> </ul>	omic Cognitive Management: ement Management ment er Management ning systems uding: Jage objects, Science Objects, Math.	<ul> <li>WATSON++ management :</li> <li>High level Multidisciplinary Contracts</li> <li>High level Multidisciplinary Operations</li> <li>Multidisciplinary Transactions and Tasks</li> <li>Self Supervision of Deep Learning systems</li> <li>Self Classifying of Objects including: Visual objects, Natural Language objects, Science Objects, Math. Objects , Medical Objects and Engineering Objects</li> </ul>			
DAIKDE Autonomic &Cognitive Network Operation Center	5G Autonomic &Cognitive Network Operation Center	CDSDE-EID Cognitive Network Operation Center (EID-CNOC)	WATSON CNOC Cognitive Network Operation Center		
DAIKDE Autonomic & Cognitive Physical Layer	5G Autonomic & Cognitive physical layer	CDSDE-Communications - Physical Layers	Traditional Physical Layers		
DAIKDE Autonomic, Cognitive a	nd Deep Learning Systems	Traditional Cognitive, and Deep learning Systems			
	Resources				

Figure - 5 - DAIKDE- Autonomic Intelligence Driven Knowledge (AIDK)

DAIKDE –KEI	D Entities and Hierarchical Internal Networking (Local KEID Entities):
	KEID Multiverse Entities and Internal Network Level
	KEID Universe Entity and Internal Network Level
	KEID Space Entity and Internal Network Level
	KEID Container Entity and Internal Network Level.
EID Objects Entities is the Basic Unit	

\* KEID Entities is self managed Autonomic and Knowledge Tasks and Transaction Management of its child EID Blocks and other child KEID entities.

\* KEID is Knowledge EID, EID is Experiences, Information and Data

DAIKDE Local KEID Entities and WA Information and Data) Blocks and N	TSON++ EID (Experiences, etwork connections	DAIKDE Local and Remote KEID Entities and the connections by External DAIKDE-Native External Net.
WATSON++ Netwo	orking Integration	
CDSDE-EIDOS Cognitive Networking Management	Watson Cognitive Networking Management	DAIKDE- Native KEID External Net Cognitive Management
CDSDE Networking Services	Watson Networking Services	DAIKDE- Native KEID External Net Services
Exne	rience Information and Data from	Devices and Infrastructure

Text, Visual Data, Geo Spatial Data, Social Data, IoT Devices Data, Status and Commands, Financial Data, Documents Data, Administrative Data, Legal Data, Scientific Data, Engineering Data, Medical Data, Bar Codes, QR codes, Vuforia codes, Voice data, Video data, Brainwave data, Communication Networking and physical layers Data.

Figure – 6 – DAIKDE Autonomic Intelligence Driven Enterprise Computing -AIDEC

## DAIKDE- Dynamic Deep Autonomic Knowledge (DDAK)

- 1. Transaction Ledger (**Dynamic Transactions Active Ledger**) : has the following core services
  - The Transaction Ledger KEID Entities is **Dynamic Transactions** Active Ledger which includes and manages the follows:
    - A. Container Level Transaction Ledger:
      - 1) Parent-Children: Transactions between the KEID Container Entity with its all KEID Object Entities.
      - 2) Peer- Peer: Transactions between the KEID Container Entity with the other KEID Container Entities.
      - 3) Parent-Grand Parent: Transaction between the Container Entity to the Space Entity.
    - B. Space Transaction Ledger for the transactions related to the Space as follows:
      - 1) Parent-Children: Transactions between the KEID Space Entity with its all KEID Containers Entities.
      - 2) Peer- Peer: Transactions between the KEID Space Entity with the other KEID Space Entities.
      - 3) Parent-Grand Parent: Transaction between the Space Entity to the Universe Entity.
    - C. Universe Transaction Ledger for the transactions related to the Universe as follows:
      - 1) Parent-Children: Transactions between the KEID Universe Entity with its all KEID Space Entities.
      - 2) Peer- Peer: Transactions between the KEID Container Entity with the other KEID Multiverse Entities.
    - D. DAIKDE-Inter-Ledgers and Managers (DAIKDE-ILM):
      - Is responsible of Managing KEID Entities in different Multi-Levels & Multi-Layers operations including the KEID Entities Extraction, Exchanging, Building and Updating

### DAIKDE- Dynamic Deep Autonomic Knowledge (DDAK) - Continued

- 2. DAIKDE- Cognitive Middleware Operations Ledger and Manager : has the following core services:
  - A. DAIKDE- High Level Autonomic Operations : including and managing the following:
    - 1) Self-Organizing
    - 2) Self Testing
    - 3) Self-Maintenance
    - 4) Self-Configuration
    - 5) Self-Follow UP
    - 6) Self-Prediction
    - 7) Self-Timing
  - B. DAIKDE Cognitive Active Ledgers System , Consists of the following:
    - 1) Dynamic Transactions Manager :
      - is responsible for Creating, Reading, Writing, Deleting, Activating, Suspending, Resuming, Blocking, Following Up, Error detecting, Event Signaling, Relationship Management, detecting, Time signaling and Time following Up.
    - 2) Dynamic Transactions Active Ledger :
      - the transaction between parties are managed depending on the Cognitive Dynamic Relationships, the parties are dynamically participated at run time, these advanced transactions need new type of Ledger,

Note: more details in Slide No. ( 20) : Figure -8- DAIKDE -DDAK

## DAIKDE- Dynamic Deep Autonomic Knowledge (DDAK) - Continued

#### **3- DAIKDE- Cognitive Contracts and Transaction Management: The core services are:**

A. DAIKDE-CCM- Knowledge Building :

This the Strategic & Operational Knowledge Building and Management, it is a special type project for getting the Knowledge from the International and Local Universities, Organizations and Companies including the following :

- 1) Engineering Sciences
- 2) Medical Sciences
- 3) Applied Sciences
- 4) Artificial Intelligence, Information and Communication.
- 5) Administration, Economy and Financial Sciences
- 6) Social Sciences
- 7) Law
- B. DAIKDE High Level Cognitive Inter-Operations Ledger:
  - 1) HLC-Decision Making (HLC-DM).
  - 2) HLC-Operational Knowledge (HLC-OK).
  - 3) HLC Strategic Knowledge (HLC-SK).
  - 2) HLC Relationships Operations
  - 3) HLC Quality Management(HLC-QM)
    - A) Key Performance Indicator (HLC-KPI)
    - B) Performance Appraisal(HLC-PA).
    - C) Quality Assurance (HLC-QA).

DAIKDE- World Level Contracts for Multidisciplinary Knowledge and Autonomic Intelligence (DAIKDE-WLC-MKAI): Quality Management Institutions, Universities & Research Centers, Multi National Corporations, Publishers, etc. DAIKDE-WLC-MKAI- Cognitive Ledgers of Transactions and Operations (DAIKDE-WLC-MKAI-CLTO)				
Scientific, Engineering & Medical Cognitive Ledgers of Transactions and Operations (DAIKDE-WLC-MKAI –-SEM- CLTO)		Administrative, Legal and Financial Cognitive Ledgers Of KEID Transactions and Operations (DAIKDE-WLC-MKAI—ALF-CLTO)		
DAIKDE-MKAI-SEM-CLTO-PDOT Project Design Operations and Transactions	DAIKDE-MKAI-SEM- CLTO-RTOT Run Time Operations and Transaction	DAIKDE-MKAI-ALF-CLTO-MC Multiparty Contracts DAIKDE-MKAI-ALF-CLTO-MEA Multiparty Executive Administratic		DAIKDE-MKAI-ALF-CLTO-MEA Multiparty Executive Administration
DAIKDE Enterprise Level Cognitive Contracts and Ledgers (DAIKDE- ELCCL)				
DAIKDE-MIK Solutions Projects and Operations DAIKDE New Generation of Smart Education, Smart Healthcare, Smart Agriculture, Smart Manufacturing, Smart Energy, Smart Water and Cyber Security * May need Human Intervention for Organizing, Building, Operating and Maintaining the projects and Operations				
DAIKDE-ELCCL-MK-SEM Multidisciplinary Knowledge - Scientific, Engineering & Medicine		DAIKDE-ELCCL-MK-ALF Multidisciplinary Knowledge - Administrative, Legal and Financial		
DAIKDE-ELCCL- MK-SEM-PDOT Project Design Operations and Transactions	DAIKDE-ELCCL-MK-SEM-RTOT Run Time Operations and Transactions	DAIKDE-ELCCL-MK-ALF-MC Multiparty Contracts	DAIKDE-ELCCL-MK-ALF -MEA Multiparty Executive Administration	
DAIKDE-PSS-CCL-OT DAIKDE – Personalized Services Stations -Cognitive Contracts and Ledger for Operations and Transactions Education, Healthcare, Manufacturing, Agricultural and Food, Water purification, Energy Power generation, Housing and Environment and Cyber security				

Figure - 7 - DAIKDE – Dynamic Deep Autonomic Knowledge (DDAK)

<mark>Slide No. (19)</mark>

**Thank You** 

