Hatha Systems – is enabling organizations to successfully Digitally Transform through Operational Transparency

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CEOCFO: *Ms. Moorthy, what is the concept behind Hatha Systems?*
Ms. Moorthy: We deliver comprehensive transparency and analytics using automation to all the software used by organizations to run business/mission operations. It is end-to-end transparency – both in-depth and in-breadth.
How we got started was really by focusing on understanding what is implemented in all of that software that runs business operations because we kept observing the continuous struggle organizations were facing while addressing digital transformation (DX) and managing operational risk. We found through observation and survey that organizations run as much as 80% to 95% of their operations in software. We quickly realized that without transparency of this software, organizations don't have the agility they need to quickly and accurately evolve to meet customer demands, market/competitive pressures, or compliance requirements. Most organizations not only struggle with this, but end up spending way too much money, and in the end compromise on the end result, instead of their required result. It is not only a common story but one that has been repeated for decades.

Digital Transformation (DX) and Operational Risk Management are the two major focused efforts for most organizations to ensure they stay competitive in this massively digitizing world. DX includes legacy modernization, application migration to cloud, portfolio rationalization, post M&A integration. Operational Risk includes Audit, Compliance and Resilience. These organizations not only overspend on budgets and but also struggle to complete these DX and Ops Risk projects because of the lack of transparency. After a few years of DX and Ops Risk efforts, they are just now realizing that without transparency of their current state or future state, they cannot get to an acceptable finish line. It will always be either a partial or compromised finish line.

Organizations struggle with trying to figure out, "How do I transform my legacy operation with the limited budget and achieve operational effectiveness/agility?", "I have no clue how my current operation runs in and across my software. It's not documented properly", "I have outsourced my software to a third party, and they take care of it… and now how do I manage the situation to regain control WITHOUT breaking my outsourcing model", "How do I move my

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applications/operations to the cloud without impacting my work flow, negatively?", "With compliance and audit requirements constantly changing, how do I keep pace with and update these changes implemented across software-run operations quickly and efficiently?", "How do I provide proof of operational resilience if I don't know what my software is actually doing; and when providing human-run workflow isn't enough proof anymore to my regulator"

CEOCFO: *What have you developed at Hatha Systems to eliminate or to handle the problem?*
Ms. Moorthy: We have developed two things.

First is the Integrated Knowledge Stack Framework. The white paper from the press release which defined the Stack describes the current state of knowledge extraction and what knowledge is needed for successful outcome for DX and Ops Risk. Although tool vendors are positioned into the framework, the Framework is NOT for them, but is in fact for organizations with software-run business operations. This framework defines the layers of knowledge that organizations can extract out to ensure comprehensive understanding of their operations. It shows that human- and software-run operations can be linked to deliver in-depth and in-breadth understanding – but in a logical and data driven way with traceability and transparency. It also defines how a broad set of stakeholders in the organization can benefit from the knowledge so they can to start viewing their human- and software-run operational knowledge irrelevant of whether executed by a human or software. The Stack helps organization realize that taking just one step back can dramatically shift their point of view to see very quickly how they can truly obtain this transparency and in the end agility. This is critical in this dynamic and ever-changing world where digitization is the norm, and software-run operations is not only here to stay but has taken over their operation --- soon to become a runaway train if not controlled through transparency.

> **"We provide operational transparency which is both critical and mandatory for both Digital Transformation and Operational Risk Management. Operational Transparency = Operational Agility!"**
> **Rama Moorthy**

Second is the development of our Knowledge Refinery® (KR) software suite which contains three products called the KR Application Analyzer, KR Integrator, and KR Rationalizer. Combined they deliver knowledge extraction and analysis within a single application and or across multiple applications for end-to-end operational views. We are the first to innovate the ability to provide a comprehensive view of business and technical layers of knowledge enabling a comprehensive view as well as the ability to telescope in-breadth and in-depth. As software continues to evolve, version management of the extracted knowledge must be addressed which KR can deliver with version management. It is the decades of experience in reverse engineering, measurement, enterprise software and much more that enabled our ability to deliver such innovation for the first time to industry. Imagine the ability to have a repository of your comprehensive software-run operations linked to your human-run operations; it accelerates and makes accurate planning, verification, traceability, proof, and so much more which are critical to DX and Operational Risk activities.

CEOCFO: *Are people ready? Are businesses ready for this? Are they actively looking, or is it more they will be very happy to realize it can be done?*
Ms. Moorthy: I think it is a combination of both because they are struggling right now. In most digital transformation efforts, there is a huge cost burden and there is a lot of risk because of a lack of knowledge and understanding (of the current state). Therefore, when we discuss what we offer organizations today, they say, "Yes, of course we need this, this makes complete sense, and this can be applied broadly and I have a number of places that can use it today."

Although the pain is acute, I think it is still in the early stages of adoption because the rest of the vendor community doesn't think this way and they have controlled the market megaphone and push what they sell, NOT how to address the customers' issue. This is usually the case before a breakthrough solution enters the market. Customers know they have a runaway train if they don't address their issues with software-run operations and quickly. There are some organizations (thought leaders/industry firsts) that are more ready to do this than others. The results of the DX effort in the last five years are coming back and organization leadership has to answer to boards and shareholders on the results of all this investment, and why they are not further along. They need this transparency, and they need automation to deliver this transparency at scale for quick and accurate results.

There is an important factor and burden that requires an adjustment in attitude/behavioral change within organizations. It is the mindset that software-run operations because they reside in software, are a technical issue to be managed by technical stakeholders. This has contributed more significantly to the gap probably than any other factor. Technical teams are not well versed in operational work flow nor operational risk. Bringing these three stakeholders (technical team, Operational team, and Risk Management) together to look at the operational flow and the underlying software mechanisms together creates a community who can bring their perspectives and requirements together for more efficient planning, execution, verification, and proof/traceability. The community already exists and is working in these organizations… why not bring them together to focus on building this operational knowledge for all to benefit? It is not ADDITIONAL investment. It is a redistribution of a small group to document in-depth and in-breadth workflow. And with KR, it can be done fast and accurately with automation and to scale.

The plain and simple fact is… understanding the operational workflow that makes up a business/mission operation and the underlying software mechanisms is mandatory. When organizations start treating software-run operations the same way they treat human-run operations, the integration of the two workflows provides the completeness they need to ensure operational transparency and agility. The awareness is already there… it is putting the pieces together to make change happen to benefit from this attitude/behavioral change. Early adopters will benefit so significantly, it is a matter of time before others follow…

CEOCFO: *What did you recognize that other people have not? Was it a eureka moment one day or a series of slow steps?*
Ms. Moorthy: I joke…think of when Bonnie Raitt won best new artist Grammy, she said (paraphrasing) "I'm a newcomer with 30 years of music industry experience & career". The reality is that, as you may know, this sort of an enterprise solution and innovation requires a significant number of years of experience and understanding. Our team was able to recognize the problem by asking questions and learning from customers. Our team is also very senior, having actually done this kind of work or various aspects of it for many years. Our Eureka moment came from understanding that both the organizations and the vendors addressing DX and Ops Risk are struggling to achieve actual success and in fact time and again are getting to a compromised completion instead. Unfortunately, it is common place that organizations only achieve compromised completion. And this observation enabled us to ask a critical question… what the gap is that needs to be filled to ensure both sides are given the adequate knowledge needed for success? And when the gap was discovered (lack of comprehensive transparency and traceability), we dove into at how to solve the problem of drawing out and linking the various components of knowledge together. Once we defined the problem, our solution came together very quickly. The team has been noodling these issues for a decade. As is the case with any eureka moments, it is always a mix of experience, timing, the right people, and a bit of luck thrown in for good measure. The eureka momentum came 3.5 years ago and we dove in and developed the complete software suite.

CEOCFO: *What is available from Hatha Systems today?*
Ms. Moorthy: Hatha Systems has a solution called the Knowledge Refinery. As noted before, there are three key products… Application Analyzer, Integrator, and Rationalizer. Application Analyzer extracts up both business and technical layer knowledge out of a single application. Integrator links these individual applications together to map operations end to end. Rationalizer is used to compare applications to remove duplications in software-run operation. The combination of the three products enables organizations to obtain not only a perpetual "Google Mapping" of the operational knowledge extracted from their systems, the knowledge can be used to deliver operational effectiveness while they continue to evolve themselves to keep pace with customer demands and competitive/market changes.

The Knowledge Refinery is, if you take a look at the integrated knowledge stack paper described in our recent press release, actually sits on the static analysis side, not on the dynamic analysis side. In that paper which is on our website, we actually talk about the fact that most organizations require both static analysis and dynamic analysis, in order to get a comprehensive view of what is really going on. So think of what we do as "Google-mapping" and think of some of the vendors in the dynamic analysis side delivering aspects of traffic overlay. It is good to have both. Some folks have the traffic overlay part but none (other than our early adopters) have the "Google Mapping" … the ability to extract up a full map of their operations. So far, we are the only company in the market delivering this "Google Mapping" bringing operational and technical layers of knowledge. KR is data driven, traceable, and scalable through automation.

CEOCFO: *How does an implementation work?*

Ms. Moorthy: Our implementation is straightforward. We establish a knowledge repository, extraction from code the layers of knowledge, and users can tie into the repository and start analyzing the knowledge of the applications/operations which has been extracted.

We work on heterogeneous language and data environments since every organization has an amalgamation of languages/applications, data bases, legacy mainframe, client server, microservices, on-prem/cloud, and more. We continue to expand our footprint of language platforms we support. Knowledge is not just for legacy operations or applications. It can be used permanently and perpetually across old and new. We can quickly set up the knowledge extraction and analysis environment. The technical layer is all automatically extracted. The business layer, although requires an analysist to drive, is fast, scalable and accurate with significant portions of effort using drag and drop approach making the work easy. When the foundation of knowledge is built, ground truth is immediately established. We have found in DX projects, which normally take around 5 years and average $50M+ (accordingly to an IDC/McKinsey & Co. study), we can save 60%+ in the first two years of the project just from our automated and comprehensive approach of creating a baseline. It makes for a data driven decision making environment and accelerates both achievement and verification of project milestones as projects move toward completion.

CEOCFO: *What happens as new things, new systems are added, new pieces of software? Someone might have 60 or 90 now, but tomorrow they are going to add a couple more. How does Hatha Systems help on an ongoing basis?*
Ms. Moorthy: Our goal is to essentially provide the platform that allows you to expand as you need. If a customer starts with 3-5 applications to start, and decides that you are interested in expanding to include 100 applications, of course it can be done. Customers come with all sorts of requests. Some want a large legacy monolithic application to be baselined to understand and plan for moving to the cloud or modernize. Some want to trace business process flows or business data flows across multiple applications. Others want to see their full end to end technical architectures and business operations across a multitude of applications to plan out a larger DX effort. We can be applied for a pre-ERP effort or across the many failed or partially successful ERP migration efforts… to clean up the situation left behind. There are a multitude of activities which can be addressed with KR. When you have the knowledge, it gives you the freedom to understand all your options… and to verify your results. What a concept? 😊

An example that many can understand…. We can provide a baseline to retail banking operations. Most retail banks have Cash Management, Loan processing, Credit Card processing as three main operations. A workflow for example for many banks is the ability to deliver international wire transfer for their customers. Recently, there has been a requirement to expand the data records for international wire transfers by SWIFT. This change requires a change in not only expanding the data records, but also understanding the way in which these records are processed, and which portions of the data are used for which processes as they traverse through the operation across multiple applications. Not an easy task considering front office, middle office and back office are all involved and impacted. Imagine if you had the ability to trace through this full end to end operation (international wire transfer) as it works today. With this baseline, one is able to trace the data records through the process flows to where and how the data is processed currently and what changes are required and where. Scoping out effort, with KR and its automation, enables understanding of budget and resource requirement with scale and speed. Post implementation of change/requirements for expanded data records, the adjusted workflow and its implementation can be traced for verification, and also permanently documented. This provides the ability to deliver resilience reporting if that is a requirement to regulators as well. KR can be used expanding to other operations across the organization. With the demands of regulatory compliance and resilience requirements looming in the retail banking horizon, why wouldn't one want such transparency? Again, this is only ONE example. There are so many more.

CEOCFO: *Who are you targeting? How are you reaching out and what types of companies, industries or sizes?*
Ms. Moorthy: We focus 100% of our efforts into highly regulated environments, who tend to have the highest amount of custom code, and many are large scale global entities. We are talking about global markets, like the financial (insurance/banking), payor side of healthcare, transportation, and logistics sector. We also focus a little bit on state, and local government at the moment. We are happy to support federal government if they are open – which is always a challenge.

We focus on custom code to ensure delivering traceability across all the layers. We have limitations into what we can do with Commercial Off the Shelf (COTS) software due to intellectual property rights and access to their code base. In the case of large providers of ERPs, Big Data Operations, Work Flow software, etc, we can engage in retrieving customer specific workflows implemented in the COTS platforms. However, the work flow packages which vendors sell are have IP protection and are not always open for analysis. We can work around this limitation by extracting interface data and creating black boxes around these vendor specific IP components. We are happy to work with COTS vendors willing to provide transparency of operations of course and have done so with some in the past who wanted to do right by the customer. It is depending on the relationship between the customer and the COTS provider.

With our customer base and focus, custom code is where we are the easiest and quickest to implement for immediate results. This is our focus for now. We are targeting mid-sized and large companies where custom code is prevalent, especially in the financial and transportation/logistics sectors and of course government.

CEOCFO: *What effect has COVID had? Are people looking more to learn what is going on in their company? Are they so distracted with so many other things that they are not thinking of it as quickly as you hope they would?*
Ms. Moorthy: Oddly, COVID has brought both opportunities and challenges to our company. As with any new game changing technology, it takes time to push market momentum. We started pretty quickly to engage in transactional projects with our customers which enabled us to engage and implement solution with big organizations through forward-thinking-channel-partners who understood the value of the transparency and its differentiation to their customers. From the beginning, we addressed critical operations and high-risk situations where customers have lost control of their environment and had no clue what was in the software. I expect much of our efforts will continue this way as it did during COVID…. Critical operations require transparency and traceability. And in financial sector, proof of resilience is going to be a very big driver for this transparency and traceability.

What was interesting during COVID was… remote work requirements. Organizations quickly realized they did not have the flexibility to be productive in all aspects of their business operations. Some activities had web/cloud accessibility making it easier to move to remote work. But huge parts of operations were challenged with lack of remote access. This revealed a significant need for further digitization of operations to enable remote work as part of future requirements/change. There are a number of organizations discussing… "is it possible to create an agile operational environment to plan for change at the operational layer, not just an agile environment within dev ops …".

The organizations we are engaged with or talking to are realizing that transparency is a critical part of ensuring a clean smooth transition and sustainment of effective operations. We are now getting the attention required…

We know for a fact that COVID (sad to say) was an accelerator to creating awareness to organizations that without transparency, they will be left behind on the operational resilience and operational effectiveness front. The risks are significant to any organization who doesn't have operational transparency. Another pandemic, a war-fighting situation, or any other crisis can and will impact operations agility and resilience. One cannot ensure agility and resilience without transparency of operations --- how do you fix/change things if you don't know what you have? And how do you provide traceability and assurances (internally and externally) that you will not break, should a crisis happen?

CEOCFO: *As you have started to work with more and more clients, what have you learned?*
Ms. Moorthy: Honestly, I think that it is never good to underestimate the sheer intelligence and insight your customer can provide. Our customer is our teacher, they always have been. We wouldn't have innovated without this feedback and our own analysis of market success and roadblocks. You learn so much from them on an ongoing basis because nobody knows better what their pain points are and the pressures they face with their customers, their market/competition. Any vendor who doesn't have this mindset will become obsolete quickly. It is a continuous feedback loop for us.

An area of efforts for us is aligning channel partners to engage us. We found some are open and willing to work with us and others not so much… especially the large ones. They usually have their revenue generating workflow momentum which doesn't easily enable the plug-in of new solutions and approaches. In fact, it goes against their existing business model initially. But those who have the insight, see that there are a higher value with higher margin services on the other side, should they choose to partner. It is easy for a large service provider to dismiss a small innovator in their early market adoption phase. But this will have to change or they become a hinderance/out-of-date offering to their own

customer. Service providers who are agile and willing to move with market innovation will win in the end. Customers need this transparency… and KR is the only option of a comprehensive solution.

CEOCFO: *Are you seeking funding, partnership, investment as you continue to grow and expand?*
Ms. Moorthy: Absolutely. Yes to all of the above.

Raising money is a constant for game-changers like ourselves. To grow to be a large entity, juggling the balance of revenue generation and investment is a constant to ensure growth. And timing is everything. We are in the middle of another Raise right now and expect a successful outcome soon. We are thought leaders, patent-pending, immigrant/first generation founders, and minority woman-owned small business in enterprise software. We fit every profile defined for what constitutes American innovation. And we are always looking for smart money… meaning we don't just want money; we want an investor who understands and believes in our vision/mission and can open new doors for our market success. The investor has to be a true partner, not an adversary who negotiates to across the table for their ownership control and profit making alone. We are all in the business of growth/profitability, of course. But we also want investors who understand and want to help us change the world. This sort of innovation is once in a generation… and we are at the forefront of it, being first to market.

CEOCFO: *There are so many new ideas in every field, certainly in technology. How does Hatha Systems stand out?*
Ms. Moorthy: We provide operational transparency. That is key to understand since it is so critical to all Digital Transformation (Legacy Modernization, Application Cloud Migration, Post M&A integration, Portfolio rationalization) and Operational Risk activities (Audit, Compliance, and Resilience). We have, for the first time, provided a way for every organization who has and is in process of digitizing its operation, to do it with transparency, and traceability. Think of the control, agility, and accuracy they will achieve with such a solution.